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GMAT RC 117 Passages一、GMAT New 63 Passages

## Passage 1 (1/63)

(This passage was written in 1978.)

Recent years have brought minority-owned businesses in the United States unprecedented opportunities—as well as new and significant risks. Civil rights activists have long argued that one of the principal reasons why Blacks, Hispanics, and other minority groups have difficulty establishing themselves in business is that they lack access to the sizable orders and subcontracts that are generated by large companies. Now Congress, in apparent agreement, has required by law that businesses awarded federal contracts of more than \$500,000 do their best to find minority subcontractors and record their efforts to do so on forms filed with the government. Indeed, some federal and local agencies have gone so far as to set specific percentage goals for apportioning parts of public works contracts to minority enterprises.

Corporate response appears to have been substantial. According to figures collected in 1977, the total of corporate contracts with minority businesses rose from \$77 million in 1972 to \$1.1 billion in 1977. The projected total of corporate contracts with minority businesses for the early 1980's is estimated to be over 53 billion per year with no letup anticipated in the next decade. Promising as it is for minority businesses, this increased patronage poses dangers for them, too. First, minority firms risk expanding too fast and overextending themselves financially, since most are small concerns and, unlike large businesses, they often need to make substantial investments in new plants, staff, equipment, and the like in order to perform work subcontracted to them. If, thereafter, their subcontracts are for some reason reduced, such firms can face potentially crippling fixed expenses. The world of corporate purchasing can be frustrating for small entrepreneurs who get requests for elaborate formal estimates and bids. Both consume valuable time and resources, and a small company's efforts must soon result in orders, or both the morale and the financial health of the business will suffer.

A second risk is that White-owned companies may seek to cash in on the increasing apportionments through formation of joint ventures with minority-owned concerns. Of course, in many instances there are legitimate reasons for joint ventures; clearly, White and minority enterprises can **team up** to acquire business that neither could acquire alone. But civil rights groups and minority business owners have complained to Congress about minorities being set up as "**fronts**" with White backing, rather than being accepted as full partners in legitimate joint ventures.

Third, a minority enterprise that secures the business of one large corporate customer often runs the danger of becoming—and remaining—dependent. Even in the best of circumstances, fierce competition from larger, more established companies makes it difficult for small concerns to broaden their customer bases: when such firms have nearly guaranteed orders from a single corporate benefactor, they may truly have to struggle against complacency arising from their current success.

1. The primary purpose of the passage is to

- (A) present a commonplace idea and its inaccuracies
  - (B) describe a situation and its potential drawbacks
  - (C) propose a temporary solution to a problem
  - (D) analyze a frequent source of disagreement
  - (E) explore the implications of a finding
2. The passage supplies information that would answer which of the following questions?
- (A) What federal agencies have set percentage goals for the use of minority-owned businesses in public works contracts?
  - (B) To which government agencies must businesses awarded federal contracts report their efforts to find minority subcontractors?
  - (C) How widespread is the use of minority-owned concerns as “fronts” by White backers seeking to obtain subcontracts?
  - (D) How many more minority-owned businesses were there in 1977 than in 1972?
  - (E) What is one set of conditions under which a small business might find itself financially overextended?
3. According to the passage, civil rights activists maintain that one disadvantage under which minority-owned businesses have traditionally had to labor is that they have
- (A) been especially vulnerable to governmental mismanagement of the economy
  - (B) been denied bank loans at rates comparable to those afforded larger competitors
  - (C) not had sufficient opportunity to secure business created by large corporations
  - (D) not been able to advertise in those media that reach large numbers of potential customers
  - (E) not had adequate representation in the centers of government power
4. The passage suggests that the failure of a large business to have its bids for subcontracts result quickly in orders might cause it to
- (A) experience frustration but not serious financial harm
  - (B) face potentially crippling fixed expenses
  - (C) have to record its efforts on forms filed with the government
  - (D) increase its spending with minority subcontractors
  - (E) revise its procedure for making bids for federal contracts and subcontracts
5. The author implies that a minority-owned concern that does the greater part of its business with one large corporate customer should
- (A) avoid competition with larger, more established concerns by not expanding
  - (B) concentrate on securing even more business from that corporation

- (C) try to expand its customer base to avoid becoming dependent on the corporation
  - (D) pass on some of the work to be done for the corporation to other minority-owned concerns
  - (E) use its influence with the corporation to promote subcontracting with other minority concerns
6. It can be inferred from the passage that, compared with the requirements of law, the percentage goals set by “some federal and local agencies” (lines 14-15) are
- (A) more popular with large corporations
  - (B) more specific
  - (C) less controversial
  - (D) less expensive to enforce
  - (E) easier to comply with
7. Which of the following, if true, would most weaken the author’s assertion that, in the 1970’s, corporate response to federal requirements [\(lines 18-19\)](#) was substantial
- (A) Corporate contracts with minority-owned businesses totaled \$2 billion in 1979.
  - (B) Between 1970 and 1972, corporate contracts with minority-owned businesses declined by 25 percent.
  - (C) The figures collected in 1977 underrepresented the extent of corporate contracts with minority-owned businesses.
  - (D) The estimate of corporate spending with minority-owned businesses in 1980 is approximately \$10 million too high.
  - (E) The \$1.1 billion represented the same percentage of total corporate spending in 1977 as did \$77 million in 1972.
8. The author would most likely agree with which of the following statements about corporate response to working with minority subcontractors?
- (A) Annoyed by the proliferation of “front” organizations, corporations are likely to reduce their efforts to work with minority-owned subcontractors in the near future.
  - (B) Although corporations showed considerable interest in working with minority businesses in the 1970’s, their aversion to government paperwork made them reluctant to pursue many government contracts.
  - (C) The significant response of corporations in the 1970’s is likely to be sustained and conceivably be increased throughout the 1980’s.
  - (D) Although corporations are eager to cooperate with minority-owned businesses, a shortage of capital in the 1970’s made substantial response impossible.
  - (E) The enormous corporate response has all but eliminated the dangers of

over-expansion that used to plague small minority-owned businesses.

### Passage 2 (2/63)

Woodrow Wilson was referring to the liberal idea of the economic market when he said that the free enterprise system is the most efficient economic system. Maximum freedom means maximum productiveness; our “openness” is to be the measure of our stability. Fascination with this ideal has made Americans defy the “Old World” categories of settled possessiveness *versus* unsettling deprivation, the cupidity of retention *versus* the cupidity of seizure, a “status quo” defended *or* attacked. The United States, it was believed, had no *status quo ante*. Our only “station” was the turning of a stationary wheel, spinning faster and faster. We did not base our system on property but opportunity—which meant we based it not on stability but on mobility. The more things changed, that is, the more rapidly the wheel turned, the steadier we would be. The conventional picture of class politics is composed of the Haves, who want a stability to keep what they have, and the Have-Nots, who want a **touch of** instability and change in which to **scramble for** the things they have not. But Americans imagined a condition in which speculators, self-makers, runners are always using the new opportunities given by our land. These economic leaders (front-runners) would thus be mainly agents of change. The nonstarters were considered the ones who wanted stability, a strong referee to give them some position in the race, a regulative hand to calm manic speculation; an authority that can call things to a halt, begin things again from compensatorily staggered “starting lines.”

“Reform” in America has been sterile because it can imagine no change except through the extension of this metaphor of a race, wider inclusion of competitors, “a piece of the action,” as it were, for the disenfranchised. There is no attempt to call off the race. Since our only stability is change, America seems not to honor the quiet work that achieves social interdependence and stability. There is, in our legends, no heroism of the **office clerk**, no stable industrial work force of the people who actually make the system work. There is no pride in being an employee (Wilson asked for a return to the time when everyone was an employer). There has been no boasting about our social workers—they are merely signs of the system’s failure, of opportunity denied or not taken, of things to be eliminated. We have no pride in our growing interdependence, in the fact that our system can serve others, that we are able to help those in need; empty boasts from the past make us ashamed of our present achievements, make us try to forget or deny them, move away from them. There is no honor but in the **Wonderland** race we must all run, all trying to win, none winning in the end (for there is no end).

1. The primary purpose of the passage is to
  - (A) criticize the inflexibility of American economic mythology
  - (B) contrast “Old World” and “New World” economic ideologies
  - (C) challenge the integrity of traditional political leaders
  - (D) champion those Americans whom the author deems to be neglected
  - (E) suggest a substitute for the traditional metaphor of a race
2. According to the passage, “Old World” values were based on
  - (A) ability



- (B) property
  - (C) family connections
  - (D) guild hierarchies
  - (E) education
3. In the context of the author's discussion of regulating change, which of the following could be most probably regarded as a "strong referee" ([line 30](#)) in the United States?
- (A) A school principal
  - (B) A political theorist
  - (C) A federal court judge
  - (D) A social worker
  - (E) A government inspector
4. The author **sets off** the word "Reform" ([line 35](#)) with quotation marks in order to
- (A) emphasize its departure from the concept of settled possessiveness
  - (B) show his support for a systematic program of change
  - (C) underscore the flexibility and even amorphousness of United States society
  - (D) indicate that the term was one of Wilson's favorites
  - (E) assert that reform in the United States has not been fundamental
5. It can be inferred from the passage that the author most probably thinks that giving the disenfranchised "a piece of the action" ([line 38](#)) is
- (A) a compassionate, if misdirected, legislative measure
  - (B) an example of Americans' resistance to profound social change
  - (C) an innovative program for genuine social reform
  - (D) a monument to the efforts of industrial reformers
  - (E) a surprisingly "Old World" remedy for social ills
6. Which of the following metaphors could the author most appropriately use to summarize his own assessment of the American economic system ([lines 35-60](#))?
- (A) A windmill
  - (B) A waterfall
  - (C) A treadmill
  - (D) A gyroscope
  - (E) A bellows
7. It can be inferred from the passage that Woodrow Wilson's ideas about the economic market
- (A) encouraged those who "make the system work" ([lines 45-46](#))
  - (B) perpetuated traditional legends about America
  - (C) revealed the prejudices of a man born wealthy

- (D) foreshadowed the stock market crash of 1929
- (E) began a tradition of presidential proclamations on economics
8. The passage contains information that would answer which of the following questions?
- I. What techniques have industrialists used to manipulate a free market?
  - II. In what ways are “New World” and “Old World” economic policies similar?
  - III. Has economic policy in the United States tended to reward independent action?
- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) II and III only
9. Which of the following best expresses the author’s main point?
- (A) Americans’ pride in their jobs continues to give them stamina today.
- (B) The absence of a *status quo ante* has undermined United States economic structure.
- (C) The free enterprise system has been only a useless concept in the United States.
- (D) The myth of the American free enterprise system is seriously flawed.
- (E) Fascination with the ideal of “openness” has made Americans a progressive people.

### Passage 3 (3/63)

No very satisfactory account of the mechanism that caused the formation of the ocean basins has yet been given. The traditional view supposes that the upper mantle of the earth behaves as a liquid when it is subjected to small forces for long periods and that differences in temperature under oceans and continents are sufficient to produce convection in the mantle of the earth with rising convection currents under the mid-ocean ridges and sinking currents under the continents. Theoretically, this convection would carry the continental plates along as though they were on a **conveyor belt** and would provide the forces needed to produce the split that occurs along the ridge. This view may be correct: it has the advantage that the currents are driven by temperature differences that themselves depend on the position of the continents. Such a back-coupling, in which the position of the moving plate has an impact on the forces that move it, could produce complicated and varying motions.

On the other hand, the theory is implausible because convection does not normally occur along lines, and it certainly does not occur along lines broken by frequent **offsets** or changes in direction, as the ridge is. Also it is difficult to see how the theory applies to the plate between the Mid-Atlantic Ridge and the ridge in the Indian Ocean. This plate is growing on both sides, and since there is no intermediate trench, the two ridges must be moving apart. It would be

odd if the rising convection currents kept exact pace with them. An alternative theory is that the sinking part of the plate, which is denser than the hotter surrounding mantle, pulls the rest of the plate after it. Again it is difficult to see how this applies to the ridge in the South Atlantic, where neither the African nor the American plate has a sinking part.

Another possibility is that the sinking plate cools the neighboring mantle and produces convection currents that move the plates. This last theory is attractive because it gives some hope of explaining the enclosed seas, such as the Sea of Japan. These seas have a typical oceanic floor, except that the floor is overlaid by several kilometers of sediment. Their floors have probably been sinking for long periods. It seems possible that a sinking current of cooled mantle material on the upper side of the plate might be the cause of such deep basins. The enclosed seas are an important feature of the earth's surface, and seriously require explanation because, in addition to the enclosed seas that are developing at present behind island arcs, there are a number of older ones of possibly similar origin, such as the Gulf of Mexico, the Black Sea, and perhaps the North Sea.

1. According to the traditional view of the origin of the ocean basins, which of the following is sufficient to move the continental plates?
  - (A) Increases in sedimentation on ocean floors
  - (B) Spreading of ocean trenches
  - (C) Movement of mid-ocean ridges
  - (D) Sinking of ocean basins
  - (E) Differences in temperature under oceans and continents
2. It can be inferred from the passage that, of the following, the deepest sediments would be found in the
  - (A) Indian Ocean
  - (B) Black Sea
  - (C) Mid-Atlantic
  - (D) South Atlantic
  - (E) Pacific
3. The author refers to a "conveyor belt" in [line 13](#) in order to
  - (A) illustrate the effects of convection in the mantle
  - (B) show how temperature differences depend on the positions of the continents
  - (C) demonstrate the linear nature of the Mid-Atlantic Ridge
  - (D) describe the complicated motions made possible by back-coupling
  - (E) account for the rising currents under certain mid-ocean ridges
3. The author regards the traditional view of the origin of the oceans with
  - (A) slight apprehension
  - (B) absolute indifference
  - (C) indignant anger

- (D) complete disbelief  
(E) guarded skepticism
4. According to the passage, which of the following are separated by a plate that is growing on both sides?  
(A) The Pacific Ocean and the Sea of Japan  
(B) The South Atlantic Ridge and the North Sea Ridge  
(C) The Gulf of Mexico and the South Atlantic Ridge  
(D) The Mid-Atlantic Ridge and the Indian Ocean Ridge  
(E) The Black Sea and the Sea of Japan
5. Which of the following, if it could be demonstrated, would most support the traditional view of ocean formation?  
(A) Convection usually occurs along lines.  
(B) The upper mantle behaves as a dense solid.  
(C) Sedimentation occurs at a constant rate.  
(D) Sinking plates cool the mantle.  
(E) Island arcs surround enclosed seas.
6. According to the passage, the floor of the Black Sea can best be compared to a  
(A) rapidly moving conveyor belt  
(B) slowly settling foundation  
(C) rapidly expanding balloon  
(D) violently erupting volcano  
(E) slowly eroding mountain
7. Which of the following titles would best describe the content of the passage?  
(A) A Description of the Oceans of the World  
(B) Several Theories of Ocean Basin Formation  
(C) The Traditional View of the Oceans  
(D) Convection and Ocean Currents  
(E) Temperature Differences among the Oceans of the World

### Passage 4 (4/63)

The fossil remains of the first flying vertebrates, the pterosaurs, have intrigued paleontologists for more than two centuries. How such large creatures, which weighed in some cases as much as a piloted hang-glider and had wingspans from 8 to 12 meters, solved the problems of powered flight, and exactly what these creatures were—reptiles or birds—are among the questions scientists have puzzled over.

Perhaps the least controversial assertion about the pterosaurs is that they were reptiles. Their skulls, pelvises, and hind feet are reptilian. The anatomy of their wings suggests that they

did not evolve into the class of birds. In pterosaurs a greatly elongated fourth finger of each forelimb supported a wing-like membrane. The other fingers were short and reptilian, with sharp claws. In birds the second finger is the principal strut of the wing, which consists primarily of feathers. If the pterosaurs walked on all fours, the three short fingers may have been employed for grasping. When a pterosaur walked or remained stationary, the fourth finger, and with it the wing, could only turn upward in an extended inverted V-shape along each side of the animal's body.

The pterosaurs resembled both birds and bats in their overall structure and proportions. This is not surprising because the design of any flying vertebrate is subject to aerodynamic constraints. Both the pterosaurs and the birds have hollow bones, a feature that represents a savings in weight. In the birds, however, these bones are reinforced more massively by internal struts.

Although scales typically cover reptiles, the pterosaurs probably had hairy coats. T. H. Huxley reasoned that flying vertebrates must have been warm-blooded because flying implies a high rate of metabolism, which in turn implies a high internal temperature. Huxley speculated that a coat of hair would insulate against loss of body heat and might streamline the body to reduce drag in flight. The recent discovery of a pterosaur specimen covered in long, dense, and relatively thick hairlike fossil material was the first clear evidence that his reasoning was correct.

Efforts to explain how the pterosaurs became airborne have led to suggestions that they launched themselves by jumping from cliffs, by dropping from trees, or even by rising into light winds from the crests of waves. Each hypothesis has its difficulties. The first wrongly assumes that the pterosaurs' hind feet resembled a bat's and could serve as hooks by which the animal could hang in preparation for flight. The second hypothesis seems unlikely because large pterosaurs could not have landed in trees without damaging their wings. The third calls for high waves to channel updrafts. The wind that made such waves however, might have been too strong for the pterosaurs to control their flight once airborne.

1. It can be inferred from the passage that scientists now generally agree that the
  - (A) enormous wingspan of the pterosaurs enabled them to fly great distances
  - (B) structure of the skeleton of the pterosaurs suggests a close evolutionary relationship to bats
  - (C) fossil remains of the pterosaurs reveal how they solved the problem of powered flight
  - (D) pterosaurs were reptiles
  - (E) pterosaurs walked on all fours
2. The author views the idea that the pterosaurs became airborne by rising into light winds created by waves as
  - (A) revolutionary
  - (B) unlikely
  - (C) unassailable
  - (D) probable

- (E) outdated
3. According to the passage, the skeleton of a pterosaur can be distinguished from that of a bird by the
- (A) size of its wingspan
  - (B) presence of hollow spaces in its bones
  - (C) anatomic origin of its wing strut
  - (D) presence of hooklike projections on its hind feet
  - (E) location of the shoulder joint joining the wing to its body
4. The ideas attributed to T. H. Huxley in the passage suggest that he would most likely agree with which of the following statements?
- (A) An animal's brain size has little bearing on its ability to master complex behaviors.
  - (B) An animal's appearance is often influenced by environmental requirements and physical capabilities.
  - (C) Animals within a given family group are unlikely to change their appearance dramatically over a period of time.
  - (D) The origin of flight in vertebrates was an accidental development rather than the outcome of specialization or adaptation.
  - (E) The pterosaurs should be classified as birds, not reptiles.
5. It can be inferred from the passage that which of the following is characteristic of the pterosaurs?
- (A) They were unable to fold their wings when not in use.
  - (B) They hung upside down from branches as bats do before flight.
  - (C) They flew in order to capture prey.
  - (D) They were an early stage in the evolution of the birds.
  - (E) They lived primarily in a forest-like habitat.
6. Which of the following best describes the organization of the last paragraph of the passage?
- (A) New evidence is introduced to support a traditional point of view.
  - (B) Three explanations for a phenomenon are presented, and each is disputed by means of specific information.
  - (C) Three hypotheses are outlined, and evidence supporting each is given.
  - (D) Recent discoveries are described, and their implications for future study are projected.
  - (E) A summary of the material in the preceding paragraphs is presented, and conclusions are drawn.
7. It can be inferred from the passage that some scientists believe that pterosaurs
- (A) lived near large bodies of water



- (B) had sharp teeth for tearing food
- (C) were attacked and eaten by larger reptiles
- (D) had longer tails than many birds
- (E) consumed twice their weight daily to maintain their body temperature

### Passage 5 (5/63)

How many really suffer as a result of labor market problems? This is one of the most critical yet contentious social policy questions. In many ways, our social statistics exaggerate the degree of hardship. Unemployment does not have the same dire consequences today as it did in the 1930's when most of the unemployed were primary breadwinners, when income and earnings were usually much closer to the margin of subsistence, and when there were no countervailing social programs for those failing in the labor market. Increasing affluence, the rise of families with more than one wage earner, the growing predominance of secondary earners among the unemployed, and improved social welfare protection have unquestionably mitigated the consequences of joblessness. Earnings and income data also overstate the dimensions of hardship. Among the millions with hourly earnings at or below the minimum wage level, the overwhelming majority are from multiple-earner, relatively affluent families. Most of those counted by the poverty statistics are elderly or handicapped or have family responsibilities which keep them out of the labor force, so the poverty statistics are by no means an accurate indicator of labor market pathologies.

Yet there are also many ways our social statistics underestimate the degree of labor-market-related hardship. The unemployment counts exclude the millions of fully employed workers whose wages are so low that their families remain in poverty. Low wages and repeated or prolonged unemployment frequently interact to undermine the capacity for self-support. Since the number experiencing joblessness at some time during the year is several times the number unemployed in any month, those who suffer as a result of forced idleness can equal or exceed average annual unemployment, even though only a minority of the jobless in any month really suffer. For every person counted in the monthly unemployment tallies, there is another working part-time because of the inability to find full-time work, or else outside the labor force but wanting a job. Finally, income transfers in our country have always focused on the elderly, disabled, and dependent, neglecting the needs of the working poor, so that the dramatic expansion of cash and in-kind transfers does not necessarily mean that those failing in the labor market are adequately protected.

As a result of such contradictory evidence, it is uncertain whether those suffering seriously as a result of labor market problems number in the hundreds of thousands or the tens of millions, and, hence, whether high levels of joblessness can be tolerated or must be countered by job creation and economic stimulus. There is only one area of agreement in this debate—that the existing poverty, employment, and earnings statistics are inadequate for one their primary applications, measuring the consequences of labor market problems.

1. Which of the following is the principal topic of the passage?
  - (A) What causes labor market pathologies that result in suffering
  - (B) Why income measures are imprecise in measuring degrees of poverty

- (C) Which of the currently used statistical procedures are the best for estimating the incidence of hardship that is due to unemployment
  - (D) Where the areas of agreement are among poverty, employment, and earnings figures
  - (E) How social statistics give an unclear picture of the degree of hardship caused by low wages and insufficient employment opportunities
2. The author uses “labor market problems” in [lines 1-2](#) to refer to which of the following?
- (A) The overall causes of poverty
  - (B) Deficiencies in the training of the work force
  - (C) Trade relationships among producers of goods
  - (D) Shortages of jobs providing adequate income
  - (E) Strikes and inadequate supplies of labor
3. The author contrasts the 1930’s with the present in order to show that
- (A) more people were unemployed in the 1930’s
  - (B) unemployment now has less severe effects
  - (C) social programs are more needed now
  - (D) there now is a greater proportion of elderly and handicapped people among those in poverty
  - (E) poverty has increased since the 1930’s
4. Which of the following proposals best responds to the issues raised by the author?
- (A) Innovative programs using multiple approaches should be set up to reduce the level of unemployment.
  - (B) A compromise should be found between the positions of those who view joblessness as an evil greater than economic control and those who hold the opposite view.
  - (C) New statistical indices should be developed to measure the degree to which unemployment and inadequately paid employment cause suffering.
  - (D) Consideration should be given to the ways in which statistics can act as partial causes of the phenomena that they purport to measure.
  - (E) The labor force should be restructured so that it corresponds to the range of job vacancies.
5. The author’s purpose in citing those who are repeatedly unemployed during a twelve-month period is most probably to show that
- (A) there are several factors that cause the payment of low wages to some members of the labor force
  - (B) unemployment statistics can underestimate the hardship resulting from joblessness



- (C) recurrent inadequacies in the labor market can exist and can cause hardships for individual workers
  - (D) a majority of those who are jobless at any one time do not suffer severe hardship
  - (E) there are fewer individuals who are without jobs at some time during a year than would be expected on the basis of monthly unemployment figures
6. The author states that the mitigating effect of social programs involving income transfers on the income level of low-income people is often not felt by
- (A) the employed poor
  - (B) dependent children in single-earner families
  - (C) workers who become disabled
  - (D) retired workers
  - (E) full-time workers who become unemployed
7. According to the passage, one factor that causes unemployment and earnings figures to overpredict the amount of economic hardship is the
- (A) recurrence of periods of unemployment for a group of low-wage workers
  - (B) possibility that earnings may be received from more than one job per worker
  - (C) fact that unemployment counts do not include those who work for low wages and remain poor
  - (D) establishment of a system of record-keeping that makes it possible to compile poverty statistics
  - (E) prevalence, among low-wage workers and the unemployed, of members of families in which others are employed
8. The conclusion stated in lines 33-39 about the number of people who suffer as a result of forced idleness depends primarily on the point that
- (A) in times of high unemployment, there are some people who do not remain unemployed for long
  - (B) the capacity for self-support depends on receiving moderate-to-high wages
  - (C) those in forced idleness include, besides the unemployed, both underemployed part-time workers and those not actively seeking work
  - (D) at different times during the year, different people are unemployed
  - (E) many of those who are affected by unemployment are dependents of unemployed workers
9. Which of the following, if true, is the best criticism of the author's argument concerning why poverty statistics cannot properly be used to show the effects of problems in the labor market?
- (A) A short-term increase in the number of those in poverty can indicate a shortage of jobs because the basic number of those unable to accept employment remains approximately constant.

- (B) For those who are in poverty as a result of joblessness, there are social programs available that provide a minimum standard of living.
- (C) Poverty statistics do not consistently agree with earnings statistics, when each is taken as a measure of hardship resulting from unemployment.
- (D) The elderly and handicapped categories include many who previously were employed in the labor market.
- (E) Since the labor market is global in nature, poor workers in one country are competing with poor workers in another with respect to the level of wages and the existence of jobs.

### Passage 6 (6/63)

In the eighteenth century, Japan's feudal overlords, from the shogun to the humblest samurai, found themselves under financial stress. In part, this stress can be attributed to the overlords' failure to adjust to a rapidly expanding economy, but the stress was also due to factors beyond the overlords' control. Concentration of the samurai in castle-towns had acted as a stimulus to trade. Commercial efficiency, in turn, had put temptations in the way of buyers. Since most samurai had been reduced to idleness by years of peace, encouraged to engage in scholarship and martial exercises or to perform administrative tasks that took little time, it is not surprising that their tastes and habits grew expensive. Overlords' income, despite the increase in rice production among their tenant farmers, failed to keep pace with their expenses. Although shortfalls in overlords' income resulted almost as much from laxity among their tax collectors (the nearly inevitable outcome of hereditary office-holding) as from their higher standards of living, a misfortune like a fire or flood, bringing an increase in expenses or a drop in revenue, could put a domain in debt to the city rice-brokers who handled its finances. Once in debt, neither the individual samurai nor the shogun himself found it easy to recover.

It was difficult for individual samurai overlords to increase their income because the amount of rice that farmers could be made to pay in taxes was not unlimited, and since the income of Japan's central government consisted in part of taxes collected by the shogun from his huge domain, the government too was constrained. Therefore, the Tokugawa shoguns began to look to other sources for revenue. Cash profits from government-owned mines were already on the decline because the most easily worked deposits of silver and gold had been exhausted, although debasement of the coinage had compensated for the loss. Opening up new farmland was a possibility, but most of what was suitable had already been exploited and further reclamation was technically unfeasible. Direct taxation of the samurai themselves would be politically dangerous. This left the shoguns only commerce as a potential source of government income.

Most of the country's wealth, or so it seemed, was finding its way into the hands of city merchants. It appeared reasonable that they should contribute part of that revenue to ease the shogun's burden of financing the state. A means of obtaining such revenue was soon found by levying forced loans, known as *goyo-kin*; although these were not taxes in the strict sense, since they were irregular in timing and arbitrary in amount, they were high in yield. Unfortunately, they pushed up prices. Thus, regrettably, the Tokugawa shoguns' search for solvency for the government made it increasingly difficult for individual Japanese who lived on

fixed stipends to make ends meet.

1. The passage is most probably an excerpt from
  - (A) an economic history of Japan
  - (B) the memoirs of a samurai warrior
  - (C) a modern novel about eighteenth-century Japan
  - (D) an essay contrasting Japanese feudalism with its Western counterpart
  - (E) an introduction to a collection of Japanese folktales
2. Which of the following financial situations is most analogous to the financial situation in which Japan's Tokugawa shoguns found themselves in the eighteenth century?
  - (A) A small business borrows heavily to invest in new equipment, but is able to pay off its debt early when it is awarded a lucrative government contract.
  - (B) Fire destroys a small business, but insurance covers the cost of rebuilding.
  - (C) A small business is turned down for a loan at a local bank because the owners have no credit history.
  - (D) A small business has to struggle to meet operating expenses when its profits decrease.
  - (E) A small business is able to cut back sharply on spending through greater commercial efficiency and thereby compensate for a loss of revenue.
3. Which of the following best describes the attitude of the author toward the samurai discussed in [lines 11-16](#)?
  - (A) Warmly approving
  - (B) Mildly sympathetic
  - (C) Bitterly disappointed
  - (D) Harshly disdainful
  - (E) Profoundly shocked
4. According to the passage, the major reason for the financial problems experienced by Japan's feudal overlords in the eighteenth century was that
  - (A) spending had outdistanced income
  - (B) trade had fallen off
  - (C) profits from mining had declined
  - (D) the coinage had been sharply debased
  - (E) the samurai had concentrated in castle-towns
5. The passage implies that individual samurai did not find it easy to recover from debt for which of the following reasons?
  - (A) Agricultural production had increased.
  - (B) Taxes were irregular in timing and arbitrary in amount.

- (C) The Japanese government had failed to adjust to the needs of a changing economy.
- (D) The domains of samurai overlords were becoming smaller and poorer as government revenues increased.
- (E) There was a limit to the amount in taxes that farmers could be made to pay.
6. The passage suggests that, in eighteenth-century Japan, the office of tax collector
- (A) was a source of personal profit to the officeholder
- (B) was regarded with derision by many Japanese
- (C) remained within families
- (D) existed only in castle-towns
- (E) took up most of the officeholder's time
7. Which of the following could best be substituted for the word "This" in [line 47](#) without changing the meaning of the passage?
- (A) The search of Japan's Tokugawa shoguns for solvency
- (B) The importance of commerce in feudal Japan
- (C) The unfairness of the tax structure in eighteenth century Japan
- (D) The difficulty of increasing government income by other means
- (E) The difficulty experienced by both individual samurai and the shogun himself in extricating themselves from debt
8. The passage implies that which of the following was the primary reason why the Tokugawa shoguns turned to city merchants for help in financing the state?
- (A) A series of costly wars had depleted the national treasury.
- (B) Most of the country's wealth appeared to be in city merchants' hands.
- (C) Japan had suffered a series of economic reversals due to natural disasters such as floods.
- (D) The merchants were already heavily indebted to the shoguns.
- (E) Further reclamation of land would not have been economically advantageous.
9. According to the passage, the actions of the Tokugawa shoguns in their search for solvency for the government were regrettable because those actions
- (A) raised the cost of living by pushing up prices
- (B) resulted in the exhaustion of the most easily worked deposits of silver and gold
- (C) were far lower in yield than had originally been anticipated
- (D) did not succeed in reducing government spending
- (E) acted as a deterrent to trade

Between the eighth and eleventh centuries A. D., the Byzantine Empire **staged** an almost unparalleled economic and cultural revival, a recovery that is **all the more** striking because it followed a long period of severe internal decline. By the early eighth century, the empire had lost roughly two-thirds of the territory it had possessed in the year 600, and its remaining area was being raided by Arabs and Bulgarians, who **at times** threatened to take Constantinople and extinguish the empire altogether. The wealth of the state and its subjects was greatly diminished, and artistic and literary production had virtually ceased. By the early eleventh century, however, the empire had regained almost half of its lost possessions, its new frontiers were secure, and its influence extended far beyond its borders. The economy had recovered, the treasury was full, and art and scholarship had advanced.

To consider the Byzantine military, cultural, and economic advances as differentiated aspects of a single phenomenon is reasonable. After all, these three forms of progress have gone together in a number of states and civilizations. Rome under Augustus and fifth-century Athens provide the most obvious examples in antiquity. Moreover, an examination of the apparent sequential connections among military, economic, and cultural forms of progress might help explain the dynamics of historical change.

The common explanation of these apparent connections in the case of Byzantium would run like this: when the empire had turned back enemy raids on its own territory and had begun to raid and conquer enemy territory, Byzantine resources naturally expanded and more money became available to patronize art and literature. Therefore, Byzantine military achievements led to economic advances, which in turn led to cultural revival.

No doubt this hypothetical pattern did apply at times during the course of the recovery. Yet it is not clear that military advances invariably came first, economic advances second, and intellectual advances third. In the 860's the Byzantine Empire began to recover from Arab incursions so that by 872 the military balance with the Abbasid Caliphate had been permanently altered in the empire's favor. The beginning of the empire's economic revival, however, can be placed between 810 and 830. Finally, the Byzantine revival of learning appears to have begun even earlier. A number of notable scholars and writers appeared by 788 and, by the last decade of the eighth century, a cultural revival was **in full bloom**, a revival that lasted until the fall of Constantinople in 1453. Thus the commonly expected order of military revival followed by economic and then by cultural recovery was reversed in Byzantium. In fact, the revival of Byzantine learning may itself have influenced the subsequent economic and military expansion.

1. Which of the following best states the central idea of the passage?
  - (A) The Byzantine Empire was a unique case in which the usual order of military and economic revival preceding cultural revival was reversed.
  - (B) The economic, cultural, and military revival in the Byzantine Empire between the eighth and eleventh centuries was similar in its order to the sequence of revivals in Augustan Rome and fifth century Athens.
  - (C) After 810 Byzantine economic recovery spurred a military and, later, cultural expansion that lasted until 1453.
  - (D) The eighth-century revival of Byzantine learning is an inexplicable phenomenon, and its economic and military precursors have yet to be

discovered.

- (E) The revival of the Byzantine Empire between the eighth and eleventh centuries shows cultural rebirth preceding economic and military revival, the reverse of the commonly accepted order of progress.
2. The primary purpose of the second paragraph is which of the following?
- (A) To establish the uniqueness of the Byzantine revival
- (B) To show that Augustan Rome and fifth-century Athens are examples of cultural, economic, and military expansion against which all subsequent cases must be measured
- (C) To suggest that cultural, economic, and military advances have tended to be closely interrelated in different societies
- (D) To argue that, while the revivals of Augustan Rome and fifth-century Athens were similar, they are unrelated to other historical examples
- (E) To indicate that, wherever possible, historians should seek to make comparisons with the earliest chronological examples of revival
3. It can be inferred from the passage that by the eleventh century the Byzantine military forces
- (A) had reached their peak and begun to decline
- (B) had eliminated the Bulgarian army
- (C) were comparable in size to the army of Rome under Augustus
- (D) were strong enough to withstand the Abbasid Caliphate's military forces
- (E) had achieved control of Byzantine governmental structures
4. It can be inferred from the passage that the Byzantine Empire sustained significant territorial losses
- (A) in 600
- (B) during the seventh century
- (C) a century after the cultural achievements of the Byzantine Empire had been lost
- (D) soon after the revival of Byzantine learning
- (E) in the century after 873
5. In the third paragraph, the author most probably provides an explanation of the apparent connections among economic, military, and cultural development in order to
- (A) suggest that the process of revival in Byzantium accords with this model
- (B) set up an order of events that is then shown to be not generally applicable to the case of Byzantium
- (C) cast aspersions on traditional historical scholarship about Byzantium
- (D) suggest that Byzantium represents a case for which no historical precedent



- exists
- (E) argue that military conquest is the paramount element in the growth of empires
6. Which of the following does the author mention as crucial evidence concerning the manner in which the Byzantine revival began?
- (A) The Byzantine military revival of the 860's led to economic and cultural advances.
- (B) The Byzantine cultural revival lasted until 1453.
- (C) The Byzantine economic recovery began in the 900's.
- (D) The revival of Byzantine learning began toward the end of the eighth century.
- (E) By the early eleventh century the Byzantine Empire had regained much of its lost territory.
7. According to the author, "The common explanation" ([line 28](#)) of connections between economic, military, and cultural development is
- (A) revolutionary and too new to have been applied to the history of the Byzantine Empire
- (B) reasonable, but an antiquated theory of the nature of progress
- (C) not applicable to the Byzantine revival as a whole, but does perhaps accurately describe limited periods during the revival
- (D) equally applicable to the Byzantine case as a whole and to the history of military, economic, and cultural advances in ancient Greece and Rome
- (E) essentially not helpful, because military, economic, and cultural advances are part of a single phenomenon

### Passage 8 (8/63)

Virtually everything astronomers known about objects outside the solar system is based on the detection of photons—quanta of electromagnetic radiation. Yet there is another form of radiation that permeates the universe: neutrinos. With (as its name implies) no electric charge, and negligible mass, the neutrino interacts with other particles so rarely that a neutrino can cross the entire universe, even traversing substantial aggregations of matter, without being absorbed or even deflected. Neutrinos can thus escape from regions of space where light and other kinds of electromagnetic radiation are blocked by matter. Furthermore, neutrinos carry with them information about the site and circumstances of their production: therefore, the detection of cosmic neutrinos could provide new information about a wide variety of cosmic phenomena and about the history of the universe.

But how can scientists detect a particle that interacts so infrequently with other matter? Twenty-five years passed between Pauli's hypothesis that the neutrino existed and its actual detection: since then virtually all research with neutrinos has been with neutrinos created artificially in large particle accelerators and studied under neutrino microscopes. But a neutrino telescope, capable of detecting cosmic neutrinos, is difficult to construct. No apparatus can

detect neutrinos unless it is extremely massive, because great mass is synonymous with huge numbers of nucleons (neutrons and protons), and the more massive the detector, the greater the probability of one of its nucleon's reacting with a neutrino. In addition, the apparatus must be sufficiently shielded from the interfering effects of other particles.

Fortunately, a group of astrophysicists has proposed a means of detecting cosmic neutrinos by harnessing the mass of the ocean. Named DUMAND, for Deep Underwater Muon and Neutrino Detector, the project calls for placing an array of light sensors at a depth of five kilometers under the ocean surface. The detecting medium is the seawater itself: when a neutrino interacts with a particle in an atom of seawater, the result is a cascade of electrically charged particles and a flash of light that can be detected by the sensors. The five kilometers of seawater above the sensors will shield them from the interfering effects of other high-energy particles raining down through the atmosphere.

The strongest motivation for the DUMAND project is that it will exploit an important source of information about the universe. The extension of astronomy from visible light to radio waves to x-rays and gamma rays never failed to lead to the discovery of unusual objects such as radio galaxies, quasars, and pulsars. Each of these discoveries came as a surprise. Neutrino astronomy will doubtless bring its own share of surprises.

1. Which of the following titles best summarizes the passage as a whole?
  - (A) At the Threshold of Neutrino Astronomy
  - (B) Neutrinos and the History of the Universe
  - (C) The Creation and Study of Neutrinos
  - (D) The DUMAND System and How It Works
  - (E) The Properties of the Neutrino
2. With which of the following statements regarding neutrino astronomy would the author be most likely to agree?
  - (A) Neutrino astronomy will supersede all present forms of astronomy.
  - (B) Neutrino astronomy will be abandoned if the DUMAND project fails.
  - (C) Neutrino astronomy can be expected to lead to major breakthroughs in astronomy.
  - (D) Neutrino astronomy will disclose phenomena that will be more surprising than past discoveries.
  - (E) Neutrino astronomy will always be characterized by a large time lag between hypothesis and experimental confirmation.
3. In the last paragraph, the author describes the development of astronomy in order to
  - (A) suggest that the potential findings of neutrino astronomy can be seen as part of a series of astronomical successes
  - (B) illustrate the role of surprise in scientific discovery
  - (C) demonstrate the effectiveness of the DUMAND apparatus in detecting neutrinos



- (D) name some cosmic phenomena that neutrino astronomy will illuminate
- (E) contrast the motivation of earlier astronomers with that of the astrophysicists working on the DUMAND project
4. According to the passage, one advantage that neutrinos have for studies in astronomy is that they
- (A) have been detected for the last twenty-five years
- (B) possess a variable electric charge
- (C) are usually extremely massive
- (D) carry information about their history with them
- (E) are very similar to other electromagnetic particles
5. According to the passage, the primary use of the apparatus mentioned in lines 24-32 would be to
- (A) increase the mass of a neutrino
- (B) interpret the information neutrinos carry with them
- (C) study the internal structure of a neutrino
- (D) see neutrinos in distant regions of space
- (E) detect the presence of cosmic neutrinos
6. The passage states that interactions between neutrinos and other matter are
- (A) rare
- (B) artificial
- (C) undetectable
- (D) unpredictable
- (E) hazardous
7. The passage mentions which of the following as a reason that neutrinos are hard to detect?
- (A) Their pervasiveness in the universe
- (B) Their ability to escape from different regions of space
- (C) Their inability to penetrate dense matter
- (D) The similarity of their structure to that of nucleons
- (E) The infrequency of their interaction with other matter
8. According to the passage, the interaction of a neutrino with other matter can produce
- (A) particles that are neutral and massive
- (B) a form of radiation that permeates the universe
- (C) inaccurate information about the site and circumstances of the neutrino's production
- (D) charged particles and light

- (E) a situation in which light and other forms of electromagnetic radiation are blocked
9. According to the passage, one of the methods used to establish the properties of neutrinos was
- (A) detection of photons
  - (B) observation of the interaction of neutrinos with gamma rays
  - (C) observation of neutrinos that were artificially created
  - (D) measurement of neutrinos that interacted with particles of seawater
  - (E) experiments with electromagnetic radiation

### Passage 9 (9/63)

Most economists in the United States seem captivated by the spell of the free market. Consequently, nothing seems good or normal that does not accord with the requirements of the free market. A price that is determined by the seller or, for that matter, established by anyone other than the aggregate of consumers seems pernicious. Accordingly, it requires a major act of will to think of price-fixing (the determination of prices by the seller) as both "normal" and having a valuable economic function. In fact, price-fixing is normal in all industrialized societies because the industrial system itself provides, as an effortless consequence of its own development, the price-fixing that it requires. Modern industrial planning requires and rewards great size. Hence, a comparatively small number of large firms will be competing for the same group of consumers. That each large firm will act with consideration of its own needs and thus avoid selling its products for more than its competitors charge is commonly recognized by advocates of free-market economic theories. But each large firm will also act with full consideration of the needs that it has in common with the other large firms competing for the same customers. Each large firm will thus avoid significant price-cutting, because price-cutting would be prejudicial to the common interest in a stable demand for products. Most economists do not see price-fixing when it occurs because they expect it to be brought about by a number of explicit agreements among large firms; it is not.

Moreover, those economists who argue that allowing the free market to operate without interference is the most efficient method of establishing prices have not considered the economies of non-socialist countries other than the United States. These economies employ intentional price-fixing, usually in an overt fashion. Formal price-fixing by cartel and informal price-fixing by agreements covering the members of an industry are commonplace. Were there something peculiarly efficient about the free market and inefficient about price-fixing, the countries that have avoided the first and used the second would have suffered drastically in their economic development. There is no indication that they have.

Socialist industry also works within a framework of controlled prices. In the early 1970's, the Soviet Union began to give firms and industries some of the flexibility in adjusting prices that a more informal evolution has accorded the capitalist system. Economists in the United States have hailed the change as a return to the free market. But Soviet firms are no more subject to prices established by a free market over which they exercise little influence than are capitalist firms; rather, Soviet firms have been given the power to fix prices.

1. The primary purpose of the passage is to
  - (A) refute the theory that the free market plays a useful role in the development of industrialized societies
  - (B) suggest methods by which economists and members of the government of the United States can recognize and combat price-fixing by large firms
  - (C) show that in industrialized societies price-fixing and the operation of the free market are not only compatible but also mutually beneficial
  - (D) explain the various ways in which industrialized societies can fix prices in order to stabilize the free market
  - (E) argue that price-fixing, in one form or another, is an inevitable part of and benefit to the economy of any industrialized society
2. The passage provides information that would answer which of the following questions about price-fixing?
  - I. What are some of the ways in which prices can be fixed?
  - II. For what products is price-fixing likely to be more profitable than the operation of the free market?
  - III. Is price-fixing more common in socialist industrialized societies or in non-socialist industrialized societies?
  - (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
3. The author's attitude toward "Most economists in the United States" ([line 1](#)) can best be described as
  - (A) spiteful and envious
  - (B) scornful and denunciatory
  - (C) critical and condescending
  - (D) ambivalent but deferential
  - (E) uncertain but interested
4. It can be inferred from the author's argument that a price fixed by the seller "seems pernicious" ([line 7](#)) because
  - (A) people do not have confidence in large firms
  - (B) people do not expect the government to regulate prices
  - (C) most economists believe that consumers as a group should determine prices
  - (D) most economists associate fixed prices with communist and socialist economies
  - (E) most economists believe that no one group should determine prices

5. The suggestion in the passage that price-fixing in industrialized societies is normal arises from the author's statement that price-fixing is
  - (A) a profitable result of economic development
  - (B) an inevitable result of the industrial system
  - (C) the result of a number of carefully organized decisions
  - (D) a phenomenon common to industrialized and non-industrialized societies
  - (E) a phenomenon best achieved cooperatively by government and industry
6. According to the author, price-fixing in non-socialist countries is often
  - (A) accidental but productive
  - (B) illegal but useful
  - (C) legal and innovative
  - (D) traditional and rigid
  - (E) intentional and widespread
7. According to the author, what is the result of the Soviet Union's change in economic policy in the 1970's?
  - (A) Soviet firms show greater profit.
  - (B) Soviet firms have less control over the free market.
  - (C) Soviet firms are able to adjust to technological advances.
  - (D) Soviet firms have some authority to fix prices.
  - (E) Soviet firms are more responsive to the free market.
8. With which of the following statements regarding the behavior of large firms in industrialized societies would the author be most likely to agree?
  - (A) The directors of large firms will continue to anticipate the demand for products.
  - (B) The directors of large firms are less interested in achieving a predictable level of profit than in achieving a large profit.
  - (C) The directors of large firms will strive to reduce the costs of their products.
  - (D) Many directors of large firms believe that the government should establish the prices that will be charged for products.
  - (E) Many directors of large firms believe that the price charged for products is likely to increase annually.
9. In the passage, the author is primarily concerned with
  - (A) predicting the consequences of a practice
  - (B) criticizing a point of view
  - (C) calling attention to recent discoveries
  - (D) proposing a topic for research
  - (E) summarizing conflicting opinions

### Passage 10 (10/63)

Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Snyder, Daly and Bruns have recently proposed that caffeine affect behavior by countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next. Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A<sub>1</sub> and A<sub>2</sub>. Snyder *et al* propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.

For many years, caffeine's effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioral stimulation. But Snyder *et al* point out that the caffeine concentrations needed to inhibit the production of phosphodiesterase in the brain are much higher than those that produce stimulation. Moreover, other compounds that block phosphodiesterase's activity are not stimulants.

To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder *et al* compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. "In general," they reported, "the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion." Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards.

There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder *et al* suggests that this is not a major *stumbling block* to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

1. The primary purpose of the passage is to
  - (A) discuss a plan for investigation of a phenomenon that is not yet fully understood
  - (B) present two explanations of a phenomenon and reconcile the differences between them

- (C) summarize two theories and suggest a third theory that overcomes the problems encountered in the first two
  - (D) describe an alternative hypothesis and provide evidence and arguments that support it
  - (E) challenge the validity of a theory by exposing the inconsistencies and contradictions in it
2. Which of the following, if true, would most weaken the theory proposed by Snyder et al?
- (A) At very low concentrations in the human brain, both caffeine and theophylline tend to have depressive rather than stimulatory effects on human behavior.
  - (B) The ability of caffeine derivatives at very low concentrations to dislodge adenosine from its receptors in mouse brains correlates well with their ability to stimulate mouse locomotion at these low concentrations.
  - (C) The concentration of cyclic AMP in target neurons in the human brain that leads to increased neuron firing can be produced by several different phosphodiesterase inhibitors in addition to caffeine.
  - (D) The concentration of caffeine required to dislodge adenosine from its receptors in the human brain is much greater than the concentration that produces behavioral stimulation in humans.
  - (E) The concentration of IBMX required to dislodge adenosine from its receptors in mouse brains is much smaller than the concentration that stimulates locomotion in the mouse.
3. According to Snyder et al, caffeine differs from adenosine in that caffeine
- (A) stimulates behavior in the mouse and in humans, whereas adenosine stimulates behavior in humans only
  - (B) has mixed effects in the brain, whereas adenosine has only a stimulatory effect
  - (C) increases cyclic AMP concentrations in target neurons, whereas adenosine decreases such concentrations
  - (D) permits release of neurotransmitters when it is bound to adenosine receptors, whereas adenosine inhibits such release
  - (E) inhibits both neuron firing and the production of phosphodiesterase when there is a sufficient concentration in the brain, whereas adenosine inhibits only neuron firing
4. In response to experimental results concerning IBMX, Snyder et al contended that it is not uncommon for psychoactive drugs to have
- (A) mixed effects in the brain
  - (B) inhibitory effects on enzymes in the brain
  - (C) close structural relationships with caffeine



- (D) depressive effects on mouse locomotion
- (E) the ability to dislodge caffeine from receptors in the brain
5. The passage suggests that Snyder et al believe that if the older theory concerning caffeine's effects were correct, which of the following would have to be the case?
- I. All neurotransmitters would increase the short-term concentration of cyclic AMP in target neurons.
- II. Substances other than caffeine that inhibit the production of phosphodiesterase would be stimulants.
- III. All concentration levels of caffeine that are high enough to produce stimulation would also inhibit the production of phosphodiesterase.
- (A) I only
- (B) I and II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III
6. According to Snyder et al, all of the following compounds can bind to specific receptors in the brain EXCEPT
- (A) IBMX
- (B) caffeine
- (C) adenosine
- (D) theophylline
- (E) phosphodiesterase
7. Snyder et al suggest that caffeine's ability to bind to A<sub>1</sub> and A<sub>2</sub> receptors can be at least partially attributed to which of the following?
- (A) The chemical relationship between caffeine and phosphodiesterase
- (B) The structural relationship between caffeine and adenosine
- (C) The structural similarity between caffeine and neurotransmitters
- (D) The ability of caffeine to stimulate behavior
- (E) The natural occurrence of caffeine and adenosine in the brain
8. The author quotes Snyder et al in lines 38-43 most probably in order to
- (A) reveal some of the assumptions underlying their theory
- (B) summarize a major finding of their experiments
- (C) point out that their experiments were limited to the mouse
- (D) indicate that their experiments resulted only in general correlations
- (E) refute the objections made by supporters of the older theory
9. The last paragraph of the passage performs which of the following functions?
- (A) Describes a disconfirming experimental result and reports the explanation

- given by Snyder et al in an attempt to reconcile this result with their theory.
- (B) Specifies the basis for the correlation observed by Snyder et al and presents an explanation in an attempt to make the correlation consistent with the operation of psychoactive drugs other than caffeine.
  - (C) Elaborates the description of the correlation observed by Snyder et al and suggests an additional explanation in an attempt to make the correlation consistent with the older theory.
  - (D) Reports inconsistent experimental data and describes the method Snyder et al will use to reanalyze this data.
  - (E) Provides an example of the hypothesis proposed by Snyder et al and relates this example to caffeine's properties.

### Passage 11 (11/63)

Archaeology as a profession faces two major problems. First, it is the poorest of the poor. Only paltry sums are available for excavating and even less is available for publishing the results and preserving the sites once excavated. Yet archaeologists deal with priceless objects every day. Second, there is the problem of illegal excavation, resulting in museum-quality pieces being sold to the highest bidder.

I would like to make an outrageous suggestion that would at one stroke provide funds for archaeology and reduce the amount of illegal digging. I would propose that scientific archeological expeditions and governmental authorities sell excavated artifacts on the open market. Such sales would provide substantial funds for the excavation and preservation of archaeological sites and the publication of results. At the same time, they would break the illegal excavator's grip on the market, thereby decreasing the inducement to engage in illegal activities.

You might object that professionals excavate to acquire knowledge, not money. Moreover, ancient artifacts are part of our global cultural heritage, which should be available for all to appreciate, not sold to the highest bidder. I agree. Sell nothing that has unique artistic merit or scientific value. But, you might reply everything that comes out of the ground has scientific value. Here we part company. Theoretically, you may be correct in claiming that every artifact has potential scientific value. Practically, you are wrong.

I refer to the thousands of pottery vessels and ancient lamps that are essentially duplicates of one another. In one small excavation in Cyprus, archaeologists recently uncovered 2,000 virtually indistinguishable small jugs in a single courtyard. Even precious royal seal impressions known as */melekh* handles have been found in abundance—more than 4,000 examples so far.

The basements of museums are simply not large enough to store the artifacts that are likely to be discovered in the future. There is not enough money even to catalogue the finds; as a result, they cannot be found again and become as inaccessible as if they had never been discovered. Indeed, with the help of a computer, sold artifacts could be more accessible than are the pieces stored in bulging museum basements. Prior to sale, each could be photographed and the list of the purchasers could be maintained on the computer. A purchaser could even be required to agree to return the piece if it should become needed for scientific purposes.



It would be unrealistic to suggest that illegal digging would stop if artifacts were sold on the open market. But the demand for the clandestine product would be substantially reduced. Who would want an unmarked pot when another was available whose provenance was known, and that was dated **stratigraphically** by the professional archaeologist who excavated it?

1. The primary purpose of the passage is to propose
  - (A) an alternative to museum display of artifacts
  - (B) a way to curb illegal digging while benefiting the archaeological profession
  - (C) a way to distinguish artifacts with scientific value from those that have no such value
  - (D) the governmental regulation of archaeological sites
  - (E) a new system for cataloguing duplicate artifacts
2. The author implies that all of the following statements about duplicate artifacts are true EXCEPT:
  - (A) A market for such artifacts already exists.
  - (B) Such artifacts seldom have scientific value.
  - (C) There is likely to be a continuing supply of such artifacts.
  - (D) Museums are well supplied with examples of such artifacts.
  - (E) Such artifacts frequently exceed in quality those already catalogued in museum collections.
3. Which of the following is mentioned in the passage as a disadvantage of storing artifacts in museum basements?
  - (A) Museum officials rarely allow scholars access to such artifacts.
  - (B) Space that could be better used for display is taken up for storage.
  - (C) Artifacts discovered in one excavation often become separated from each other.
  - (D) Such artifacts are often damaged by variations in temperature and humidity.
  - (E) Such artifacts' often remain uncatalogued and thus cannot be located once they are put in storage.
4. The author mentions the excavation in Cyprus ([lines 31-34](#)) to emphasize which of the following points?
  - (A) Ancient lamps and pottery vessels are less valuable, although more rare, than royal seal impressions.
  - (B) Artifacts that are very similar to each other present cataloguing difficulties to archaeologists.
  - (C) Artifacts that are not uniquely valuable, and therefore could be sold, are available in large quantities.
  - (D) Cyprus is the most important location for unearthing large quantities of salable artifacts.

- (E) Illegal sales of duplicate artifacts are wide-spread, particularly on the island of Cyprus.
5. The author's argument concerning the effect of the official sale of duplicate artifacts on illegal excavation is based on which of the following assumptions?
- (A) Prospective purchasers would prefer to buy authenticated artifacts.  
(B) The price of illegally excavated artifacts would rise.  
(C) Computers could be used to trace sold artifacts.  
(D) Illegal excavators would be forced to sell only duplicate artifacts.  
(E) Money gained from selling authenticated artifacts could be used to investigate and prosecute illegal excavators.
6. The author anticipates which of the following initial objections to the adoption of his proposal?
- (A) Museum officials will become unwilling to store artifacts.  
(B) An oversupply of salable artifacts will result and the demand for them will fall.  
(C) Artifacts that would have been displayed in public places will be sold to private collectors.  
(D) Illegal excavators will have an even larger supply of artifacts for resale.  
(E) Counterfeiting of artifacts will become more commonplace.
7. The author implies that which of the following would occur if duplicate artifacts were sold on the open market?
- I. Illegal excavation would eventually cease completely.  
II. Cyprus would become the primary source of marketable duplicate artifacts.  
III. Archaeologists would be able to publish the results of their excavations more frequently than they currently do.
- (A) I only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III

### Passage 12 (12/63)

(This passage is excerpted from material published in 1980.)

Federal efforts to aid minority businesses began in the 1960's when the Small Business Administration (SBA) began making federally guaranteed loans and government-sponsored management and technical assistance available to minority business enterprises. While this program enabled many minority entrepreneurs to form new businesses, the results were disappointing, since managerial inexperience, unfavorable locations, and capital shortages led

to high failure rates. Even years after the program was implemented, minority business receipts were not quite two percent of the national economy's total receipts.

Recently federal policymakers have adopted an approach intended to accelerate development of the minority business sector by moving away from directly aiding small minority enterprises and toward supporting larger, growth-oriented minority firms through intermediary companies. In this approach, large corporations participate in the development of successful and stable minority businesses by making use of government-sponsored venture capital. The capital is used by a participating company to establish a Minority Enterprise Small Business Investment Company or MESBIC. The MESBIC then provides capital and guidance to minority businesses that have potential to become future suppliers or customers of the sponsoring company.

MESBIC's are the result of the belief that providing established firms with easier access to relevant management techniques and more job-specific experience, as well as substantial amounts of capital, gives those firms a greater opportunity to develop sound business foundations than does simply making general management experience and small amounts of capital available. Further, since potential markets for the minority businesses already exist through the sponsoring companies, the minority businesses face considerably less risk in terms of location and market fluctuation. Following early financial and operating problems, sponsoring corporations began to capitalize MESBIC's far above the legal minimum of \$500,000 in order to generate sufficient income and to sustain the quality of management needed. MESBIC's are now emerging as increasingly important financing sources for minority enterprises.

Ironically, MESBIC staffs, which usually consist of Hispanic and Black professionals, tend to approach investments in minority firms more pragmatically than do many MESBIC directors, who are usually senior managers from sponsoring corporations. The latter often still think mainly in terms of the "social responsibility approach" and thus seem to prefer deals that are riskier and less attractive than normal investment criteria would warrant. Such differences in viewpoint have produced uneasiness among many minority staff members, who feel that minority entrepreneurs and businesses should be judged by established business considerations. These staff members believe their point of view is closer to the original philosophy of MESBIC's and they are concerned that, unless a more prudent course is followed, MESBIC directors may **revert to** policies likely to re-create the disappointing results of the original SBA approach.

1. Which of the following best states the central idea of the passage?
  - (A) The use of MESBIC's for aiding minority entrepreneurs seems to have greater potential for success than does the original SBA approach.
  - (B) There is a crucial difference in point of view between the staff and directors of some MESBIC's.
  - (C) After initial problems with management and marketing, minority businesses have begun to expand at a steady rate.
  - (D) Minority entrepreneurs wishing to form new businesses now have several equally successful federal programs on which to rely.

- (E) For the first time since 1960, large corporations are making significant contributions to the development of minority businesses.
2. According to the passage, the MESBIC approach differs from the SBA approach in that MESBIC's
- (A) seek federal contracts to provide markets for minority businesses
  - (B) encourage minority businesses to provide markets for other minority businesses
  - (C) attempt to maintain a specified rate of growth in the minority business sector
  - (D) rely on the participation of large corporations to finance minority businesses
  - (E) select minority businesses on the basis of their location
3. Which of the following does the author cite to support the conclusion that the results of the SBA program were disappointing?
- (A) The small number of new minority enterprises formed as a result of the program
  - (B) The small number of minority enterprises that took advantage of the management and technical assistance offered under the program
  - (C) The small percentage of the nation's business receipts earned by minority enterprises following the programs, implementation
  - (D) The small percentage of recipient minority enterprises that were able to repay federally guaranteed loans made under the program
  - (E) The small number of minority enterprises that chose to participate in the program
4. Which of the following statements about the SBA program can be inferred from the passage?
- (A) The maximum term for loans made to recipient businesses was 15 years.
  - (B) Business loans were considered to be more useful to recipient businesses than was management and technical assistance.
  - (C) The anticipated failure rate for recipient businesses was significantly lower than the rate that actually resulted.
  - (D) Recipient businesses were encouraged to relocate to areas more favorable for business development.
  - (E) The capitalization needs of recipient businesses were assessed and then provided for adequately.
5. Based on information in the passage, which of the following would be indicative of the pragmatism of MESBIC staff members?
- I. A reluctance to invest in minority businesses that show marginal expectations of return on the investments
  - II. A desire to invest in minority businesses that produce goods and services likely to be of use to the sponsoring company

- III. A belief that the minority business sector is best served by investing primarily in newly established businesses
- (A) I only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I, II and III
6. The author refers to the “financial and operating problems” ([line 38](#)) encountered by MESBIC’s primarily in order to
- (A) broaden the scope of the discussion to include the legal considerations of funding MESBIC’S through sponsoring companies  
(B) call attention to the fact that MESBIC’s must receive adequate funding in order to function effectively  
(C) show that sponsoring companies were willing to invest only \$500,000 of government-sponsored venture capital in the original MESBIC’s  
(D) compare SBA and MESBIC limits on minimum funding  
(E) refute suggestions that MESBIC’s have been only marginally successful
7. The author’s primary objective in the passage is to
- (A) disprove the view that federal efforts to aid minority businesses have been ineffective  
(B) explain how federal efforts to aid minority businesses have changed since the 1960’s  
(C) establish a direct link between the federal efforts to aid minority businesses made before the 1960’s and those made in the 1980’s  
(D) analyze the basis for the belief that job-specific experience is more useful to minority businesses than is general management experience  
(E) argue that the “social responsibility approach” to aiding minority businesses is superior to any other approach
8. It can be inferred from the passage that the attitude of some MESBIC staff members toward the investments preferred by some MESBIC directors can best be described as
- (A) defensive  
(B) resigned  
(C) indifferent  
(D) shocked  
(E) disapproving
9. The passage provides information that would answer which of the following questions?

- (A) What was the average annual amount, in dollars, of minority business receipts before the SBA strategy was implemented?
- (B) What locations are considered to be unfavorable for minority businesses?
- (C) What is the current success rate for minority businesses that are capitalized by MESBIC's?
- (D) How has the use of federal funding for minority businesses changed since the 1960's?
- (E) How do minority businesses apply to participate in a MESBIC program?

### Passage 13 (13/63)

The majority of successful senior managers do not closely follow the classical rational model of first clarifying goals, assessing the problem, formulating options, estimating likelihoods of success, making a decision, and only then taking action to implement the decision. Rather, in their **day-by-day** tactical maneuvers, these senior executives rely on what is vaguely termed "intuition" to manage a network of interrelated problems that require them to deal with ambiguity, inconsistency, novelty, and surprise; and to integrate action into the process of thinking.

Generations of writers on management have recognized that some practicing managers rely heavily on intuition. In general, however, such writers display a poor grasp of what intuition is. Some see it as the opposite of rationality; others view it as an excuse for capriciousness.

Isenberg's recent research on the cognitive processes of senior managers reveals that managers' intuition is neither of these. Rather, senior managers use intuition in at least five distinct ways. First, they intuitively sense when a problem exists. Second, managers rely on intuition to perform well-learned behavior patterns rapidly. This intuition is not arbitrary or irrational, but is based on years of painstaking practice and hands-on experience that build skills. A third function of intuition is to synthesize isolated bits of data and practice into an integrated picture, often in an "Aha!" experience. Fourth, some managers use intuition as a check on the results of more rational analysis. Most senior executives are familiar with the formal decision analysis models and tools, and those who use such systematic methods for reaching decisions are occasionally **leery of** solutions suggested by these methods which **run counter** to their sense of the correct course of action. Finally, managers can use intuition to bypass in-depth analysis and move rapidly to engender a plausible solution. Used in this way, intuition is an almost instantaneous cognitive process in which a manager recognizes familiar patterns. One of the implications of the intuitive style of executive management is that "thinking" is inseparable from acting. Since managers often "know" what is right before they can analyze and explain it, they frequently act first and explain later. Analysis is inextricably tied to action in thinking/acting cycles, in which managers develop thoughts about their companies and organizations not by analyzing a problematic situation and then acting, but by acting and analyzing in close concert.

Given the great uncertainty of many of the management issues that they face, senior managers often instigate a course of action simply to learn more about an issue. They then use the results of the action to develop a more complete understanding of the issue. One



implication of thinking/acting cycles is that action is often part of defining the problem, not just of implementing the solution.

1. According to the passage, senior managers use intuition in all of the following ways EXCEPT to
  - (A) speed up of the creation of a solution to a problem
  - (B) identify a problem
  - (C) bring together disparate facts
  - (D) stipulate clear goals
  - (E) evaluate possible solutions to a problem
2. The passage suggests which of the following about the “writers on management” mentioned in [line 12](#)?
  - (A) They have criticized managers for not following the classical rational model of decision analysis.
  - (B) They have not based their analyses on a sufficiently large sample of actual managers.
  - (C) They have relied in drawing their conclusions on what managers say rather than on what managers do.
  - (D) They have misunderstood how managers use intuition in making business decisions.
  - (E) They have not acknowledged the role of intuition in managerial practice.
3. Which of the following best exemplifies “an ‘Aha!’ experience” ([line 28](#)) as it is presented in the passage?
  - (A) A manager risks taking an action whose outcome is unpredictable to discover whether the action changes the problem at hand.
  - (B) A manager performs well-learned and familiar behavior patterns in creative and uncharacteristic ways to solve a problem.
  - (C) A manager suddenly connects seemingly unrelated facts and experiences to create a pattern relevant to the problem at hand.
  - (D) A manager rapidly identifies the methodology used to compile data yielded by systematic analysis.
  - (E) A manager swiftly decides which of several sets of tactics to implement in order to deal with the contingencies suggested by a problem.
4. According to the passage, the classical model of decision analysis includes all of the following EXCEPT
  - (A) evaluation of a problem
  - (B) creation of possible solutions to a problem
  - (C) establishment of clear goals to be reached by the decision
  - (D) action undertaken in order to discover more information about a problem

- (E) comparison of the probable effects of different solutions to a problem
5. It can be inferred from the passage that which of the following would most probably be one major difference in behavior between Manager X, who uses intuition to reach decisions, and Manager Y, who uses only formal decision analysis?
- (A) Manager X analyzes first and then acts; Manager Y does not.
- (B) Manager X checks possible solutions to a problem by systematic analysis; Manager Y does not.
- (C) Manager X takes action in order to arrive at the solution to a problem; Manager Y does not.
- (D) Manager Y draws on years of hands-on experience in creating a solution to a problem; Manager X does not.
- (E) Manager Y depends on day-to-day tactical maneuvering; manager X does not.
6. It can be inferred from the passage that “thinking/acting cycles” ([line 45](#)) in managerial practice would be likely to result in which of the following?
- I. A manager analyzes a network of problems and then acts on the basis of that analysis.
- II. A manager gathers data by acting and observing the effects of action.
- III. A manager takes action without being able to articulate reasons for that particular action.
- (A) I only
- (B) II only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III
7. The passage provides support for which of the following statements?
- (A) Managers who rely on intuition are more successful than those who rely on formal decision analysis.
- (B) Managers cannot justify their intuitive decisions.
- (C) Managers’ intuition works contrary to their rational and analytical skills.
- (D) Logical analysis of a problem increases the number of possible solutions.
- (E) Intuition enables managers to employ their practical experience more efficiently.
8. Which of the following best describes the organization of the [first paragraph](#) of the passage?
- (A) An assertion is made and a specific supporting example is given.
- (B) A conventional model is dismissed and an alternative introduced.
- (C) The results of recent research are introduced and summarized.



- (D) Two opposing points of view are presented and evaluated.
- (E) A widely accepted definition is presented and qualified.

### Passage 14 (14/63)

Nearly a century ago, biologists found that if they separated an invertebrate animal embryo into two parts at an early stage of its life, it would survive and develop as two normal embryos. This led them to believe that the cells in the early embryo are undetermined in the sense that each cell has the potential to develop in a variety of different ways. Later biologists found that the situation was not so simple. It matters in which plane the embryo is cut. If it is cut in a plane different from the one used by the early investigators, it will not form two whole embryos.

A debate arose over what exactly was happening. Which embryo cells are determined, just when do they become irreversibly committed to their fates, and what are the “morphogenetic determinants” that tell a cell what to become? But the debate could not be resolved because no one was able to ask the crucial questions in a form in which they could be pursued productively. Recent discoveries in molecular biology, however, have opened up prospects for a resolution of the debate. Now investigators think they know at least some of the molecules that act as morphogenetic determinants in early development. They have been able to show that, in a sense, cell determination begins even before an egg is fertilized.

Studying sea urchins, biologist Paul Gross found that an unfertilized egg contains substances that function as morphogenetic determinants. They are located in the cytoplasm of the egg cell; i.e., in that part of the cell’s protoplasm that lies outside of the nucleus. In the unfertilized egg, the substances are inactive and are not distributed homogeneously. When the egg is fertilized, the substances become active and, presumably, govern the behavior of the genes they interact with. Since the substances are unevenly distributed in the egg, when the fertilized egg divides, the resulting cells are different from the start and so can be qualitatively different in their own gene activity.

The substances that Gross studied are maternal messenger RNA’s—products of certain of the maternal genes. He and other biologists studying a wide variety of organisms have found that these particular RNA’s direct, in large part, the synthesis of histones, a class of proteins that bind to DNA. Once synthesized, the histones move into the cell nucleus, where sections of DNA wrap around them to form a structure that resembles beads, or knots, on a string. The beads are DNA segments wrapped around the histones; the string is the intervening DNA. And it is the structure of these beaded DNA strings that guide the fate of the cells in which they are located.

1. The passage is most probably directed at which kind of audience?
  - (A) State legislators deciding about funding levels for a state-funded biological laboratory
  - (B) Scientists specializing in molecular genetics
  - (C) Readers of an alumni newsletter published by the college that Paul Gross attended
  - (D) Marine biologists studying the processes that give rise to new species

- (E) Undergraduate biology majors in a molecular biology course
2. It can be inferred from the passage that the morphogenetic determinants present in the early embryo are
- (A) located in the nucleus of the embryo cells
  - (B) evenly distributed unless the embryo is not developing normally
  - (C) inactive until the embryo cells become irreversibly committed to their final function
  - (D) identical to those that were already present in the unfertilized egg
  - (E) present in larger quantities than is necessary for the development of a single individual
3. The main topic of the passage is
- (A) the early development of embryos of lower marine organisms
  - (B) the main contribution of modern embryology to molecular biology
  - (C) the role of molecular biology in disproving older theories of embryonic development
  - (D) cell determination as an issue in the study of embryonic development
  - (E) scientific dogma as a factor in the recent debate over the value of molecular biology
4. According to the passage, when biologists believed that the cells in the early embryo were undetermined, they made which of the following mistakes?
- (A) They did not attempt to replicate the original experiment of separating an embryo into two parts.
  - (B) They did not realize that there was a connection between the issue of cell determination and the outcome of the separation experiment.
  - (C) They assumed that the results of experiments on embryos did not depend on the particular animal species used for such experiments.
  - (D) They assumed that it was crucial to perform the separation experiment at an early stage in the embryo's life.
  - (E) They assumed that different ways of separating an embryo into two parts would be equivalent as far as the fate of the two parts was concerned.
5. It can be inferred from the passage that the initial production of histones after an egg is fertilized takes place
- (A) in the cytoplasm
  - (B) in the maternal genes
  - (C) throughout the protoplasm
  - (D) in the beaded portions of the DNA strings
  - (E) in certain sections of the cell nucleus
6. It can be inferred from the passage that which of the following is dependent on

the fertilization of an egg?

- (A) Copying of maternal genes to produce maternal messenger RNA's
  - (B) Synthesis of proteins called histones
  - (C) Division of a cell into its nucleus and the cytoplasm
  - (D) Determination of the egg cell's potential for division
  - (E) Generation of all of a cell's morphogenetic determinants
7. According to the passage, the morphogenetic determinants present in the unfertilized egg cell are which of the following?
- (A) Proteins bound to the nucleus
  - (B) Histones
  - (C) Maternal messenger RNA's
  - (D) Cytoplasm
  - (E) Nonbeaded intervening DNA
8. The passage suggests that which of the following plays a role in determining whether an embryo separated into two parts will develop as two normal embryos?
- I. The stage in the embryo's life at which the separation occurs
  - II. The instrument with which the separations is accomplished
  - III. The plane in which the cut is made that separates the embryo
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II, and III
9. Which of the following circumstances is most comparable to the impasse biologists encountered in trying to resolve the debate about cell determination (lines 12-18)?
- (A) The problems faced by a literary scholar who wishes to use original source materials that are written in an unfamiliar foreign language
  - (B) The situation of a mathematician who in preparing a proof of a theorem for publication detects a reasoning error in the proof
  - (C) The difficulties of a space engineer who has to design equipment to function in an environment in which it cannot first be tested
  - (D) The predicament of a linguist trying to develop a theory of language acquisition when knowledge of the structure of language itself is rudimentary at best
  - (E) The dilemma confronting a foundation when the funds available to it are sufficient to support one of two equally deserving scientific projects but not both

## Passage 15 (15/63)

In the two decades between 1910 and 1930, over ten percent of the Black population of the United States left the South, where the preponderance of the Black population had been located, and migrated to northern states, with the largest number moving, it is claimed, between 1916 and 1918. It has been frequently assumed, but not proved, that the majority of the migrants in what has come to be called the Great Migration came from rural areas and were motivated by two concurrent factors: the collapse of the cotton industry following the boll weevil infestation, which began in 1898, and increased demand in the North for labor following the cessation of European immigration caused by the outbreak of the First World War in 1914. This assumption has led to the conclusion that the migrants' subsequent lack of economic mobility in the North is tied to rural background, a background that implies unfamiliarity with urban living and a lack of industrial skills.

But the question of who actually left the South has never been rigorously investigated. Although numerous investigations document an exodus from rural southern areas to southern cities prior to the Great Migration, no one has considered whether the same migrants then moved on to northern cities. In 1910 over 600,000 Black workers, or ten percent of the Black work force, reported themselves to be engaged in "manufacturing and mechanical pursuits," the federal census category roughly encompassing the entire industrial sector. The Great Migration could easily have been made up entirely of this group and their families. It is perhaps surprising to argue that an employed population could be enticed to move, but an explanation lies in the labor conditions then prevalent in the South.

About thirty-five percent of the urban Black population in the South was engaged in skilled trades. Some were from the old artisan class of slavery—blacksmiths, masons, carpenters—which had had a monopoly of certain trades, but they were gradually being pushed out by competition, mechanization, and obsolescence. The remaining sixty-five percent, more recently urbanized, worked in newly developed industries—tobacco, lumber, coal and iron manufacture, and railroads. Wages in the South, however, were low, and Black workers were aware, through labor recruiters and the Black press, that they could earn more even as unskilled workers in the North than they could as artisans in the South. After the boll weevil infestation, urban Black workers faced competition from the continuing influx of both Black and White rural workers, who were driven to undercut the wages formerly paid for industrial jobs. Thus, a move north would be seen as advantageous to a group that was already urbanized and steadily employed, and the easy conclusion tying their subsequent economic problems in the North to their rural background comes into question.

1. The author indicates explicitly that which of the following records has been a source of information in her investigation?
  - (A) United States Immigration Service reports from 1914 to 1930
  - (B) Payrolls of southern manufacturing firms between 1910 and 1930
  - (C) The volume of cotton exports between 1898 and 1910
  - (D) The federal census of 1910
  - (E) Advertisements of labor recruiters appearing in southern newspapers after

1910

2. In the passage, the author anticipates which of the following as a possible objection to her argument?
  - (A) It is uncertain how many people actually migrated during the Great Migration.
  - (B) The eventual economic status of the Great Migration migrants has not been adequately traced.
  - (C) It is not likely that people with steady jobs would have reason to move to another area of the country.
  - (D) It is not true that the term “manufacturing and mechanical pursuits” actually encompasses the entire industrial sector.
  - (E) Of the Black workers living in southern cities, only those in a small number of trades were threatened by obsolescence.
3. According to the passage, which of the following is true of wages in southern cities in 1910?
  - (A) They were being pushed lower as a result of increased competition.
  - (B) They had begun to rise so that southern industry could attract rural workers.
  - (C) They had increased for skilled workers but decreased for unskilled workers.
  - (D) They had increased in large southern cities but decreased in small southern cities.
  - (E) They had increased in newly developed industries but decreased in the older trades.
4. The author cites each of the following as possible influences in a Black worker’s decision to migrate north in the Great Migration EXCEPT
  - (A) wage levels in northern cities
  - (B) labor recruiters
  - (C) competition from rural workers
  - (D) voting rights in northern states
  - (E) the Black press
5. It can be inferred from the passage that the “easy conclusion” mentioned in line 53 is based on which of the following assumptions?
  - (A) People who migrate from rural areas to large cities usually do so for economic reasons.
  - (B) Most people who leave rural areas to take jobs in cities return to rural areas as soon as it is financially possible for them to do so.
  - (C) People with rural backgrounds are less likely to succeed economically in cities than are those with urban backgrounds.
  - (D) Most people who were once skilled workers are not willing to work as unskilled workers.

- (E) People who migrate from their birthplaces to other regions of country seldom undertake a second migration.
6. The primary purpose of the passage is to
- (A) support an alternative to an accepted methodology
  - (B) present evidence that resolves a contradiction
  - (C) introduce a recently discovered source of information
  - (D) challenge a widely accepted explanation
  - (E) argue that a discarded theory deserves new attention
7. According to information in the passage, which of the following is a correct sequence of groups of workers, from highest paid to lowest paid, in the period between 1910 and 1930?
- (A) Artisans in the North; artisans in the South; unskilled workers in the North; unskilled workers in the South
  - (B) Artisans in the North and South; unskilled workers in the North; unskilled workers in the South
  - (C) Artisans in the North; unskilled workers in the North; artisans in the South
  - (D) Artisans in the North and South; unskilled urban workers in the North; unskilled rural workers in the South
  - (E) Artisans in the North and South, unskilled rural workers in the North and South; unskilled urban workers in the North and South
8. The material in the passage would be most relevant to a long discussion of which of the following topics?
- (A) The reasons for the subsequent economic difficulties of those who participated in the Great Migration
  - (B) The effect of migration on the regional economies of the United States following the First World War
  - (C) The transition from a rural to an urban existence for those who migrated in the Great Migration
  - (D) The transformation of the agricultural South following the boll weevil infestation
  - (E) The disappearance of the artisan class in the United States as a consequence of mechanization in the early twentieth century

### Passage 16 (16/63)

In 1896 a Georgia couple **suing for** damages in the accidental death of their two year old was told that since the child had made no real economic contribution to the family, there was no liability for damages. In contrast, less than a century later, in 1979, the parents of a three-year-old sued in New York for accidental-death damages and won an award of \$750,000.

The transformation in social values implicit in juxtaposing these two incidents is the subject



of Viviana Zelizer's excellent book, *Pricing the Priceless Child*. During the nineteenth century, she argues, the concept of the "useful" child who contributed to the family economy gave way gradually to the present-day notion of the "useless" child who, though producing no income for, and indeed extremely costly to, its parents, is yet considered emotionally "priceless." Well established among segments of the middle and upper classes by the mid-1800's, this new view of childhood spread throughout society in the late-nineteenth and early-twentieth centuries as reformers introduced child-labor regulations and compulsory education laws predicated in part on the assumption that a child's emotional value made child labor taboo.

For Zelizer the origins of this transformation were many and complex. The gradual erosion of children's productive value in a maturing industrial economy, the decline in birth and death rates, especially in child mortality, and the development of the companionate family (a family in which members were united by explicit bonds of love rather than duty) were all factors critical in changing the assessment of children's worth. Yet "expulsion of children from the 'cash nexus,' although clearly shaped by profound changes in the economic, occupational, and family structures," Zelizer maintains, "was also part of a cultural process 'of sacralization' of children's lives." Protecting children from the crass business world became enormously important for late-nineteenth-century middle-class Americans, she suggests; this sacralization was a way of resisting what they perceived as the relentless corruption of human values by the marketplace.

In stressing the cultural determinants of a child's worth, Zelizer takes issue with practitioners of the new "sociological economics," who have analyzed such traditionally sociological topics as crime, marriage, education, and health solely in terms of their economic determinants. Allowing only a small role for cultural forces in the form of individual "preferences," these sociologists tend to view all human behaviors as directed primarily by the principle of maximizing economic gain. Zelizer is highly critical of this approach, and emphasizes instead the opposite phenomenon: the power of social values to transform price. As children became more valuable in emotional terms, she argues, their "exchange" or "surrender" value on the market, that is, the conversion of their intangible worth into cash terms, became much greater.

1. It can be inferred from the passage that accidental-death damage awards in America during the nineteenth century tended to be based principally on the
  - (A) earnings of the person at time of death
  - (B) wealth of the party causing the death
  - (C) degree of culpability of the party causing the death
  - (D) amount of money that had been spent on the person killed
  - (E) amount of suffering endured by the family of the person killed
2. It can be inferred from the passage that in the early 1800's children were generally regarded by their families as individuals who
  - (A) needed enormous amounts of security and affection
  - (B) required constant supervision while working
  - (C) were important to the economic well-being of a family
  - (D) were unsuited to spending long hours in school

- (E) were financial burdens assumed for the good of society
3. Which of the following alternative explanations of the change in the cash value of children would be most likely to be put forward by sociological economists as they are described in the passage?
- (A) The cash value of children rose during the nineteenth century because parents began to increase their emotional investment in the upbringing of their children.
  - (B) The cash value of children rose during the nineteenth century because their expected earnings over the course of a lifetime increased greatly.
  - (C) The cash value of children rose during the nineteenth century because the spread of humanitarian ideals resulted in a wholesale reappraisal of the worth of an individual.
  - (D) The cash value of children rose during the nineteenth century because compulsory education laws reduced the supply, and thus raised the costs, of available child labor.
  - (E) The cash value of children rose during the nineteenth century because of changes in the way negligence law assessed damages in accidental death cases.
4. The primary purpose of the passage is to
- (A) review the literature in a new academic sub-field
  - (B) present the central thesis of a recent book
  - (C) contrast two approaches to analyzing historical change
  - (D) refute a traditional explanation of a social phenomenon
  - (E) encourage further work on a neglected historical topic
5. It can be inferred from the passage that which of the following statements was true of American families over the course of the nineteenth century?
- (A) The average size of families grew considerably.
  - (B) The percentage of families involved in industrial work declined dramatically.
  - (C) Family members became more emotionally bonded to one another.
  - (D) Family members spent an increasing amount of time working with each other.
  - (E) Family members became more economically dependent on each other.
6. Zelizer refers to all of the following as important influences in changing the assessment of children's worth EXCEPT changes in
- (A) the mortality rate
  - (B) the nature of industry
  - (C) the nature of the family
  - (D) attitudes toward reform movements
  - (E) attitudes toward the marketplace



7. Which of the following would be most consistent with the practices of sociological economics as these practices are described in the passage?
- (A) Arguing that most health-care professionals enter the field because they believe it to be the most socially useful of any occupation
  - (B) Arguing that most college students choose majors that they believe will lead to the most highly paid jobs available to them
  - (C) Arguing that most decisions about marriage and divorce are based on rational assessments of the likelihood that each partner will remain committed to the relationship
  - (D) Analyzing changes in the number of people enrolled in colleges and universities as a function of changes in the economic health of these institutions
  - (E) Analyzing changes in the ages at which people get married as a function of a change in the average number of years that young people have lived away from their parents

### Passage 17 (17/63)

Prior to 1975, union efforts to organize public-sector clerical workers, most of whom are women, were somewhat limited. The factors favoring unionization drives seem to have been either the presence of large numbers of workers, as in New York City, to make it worth the effort, or the concentration of small numbers in one or two locations, such as a hospital, to make it relatively easy. Receptivity to unionization on the workers' part was also a consideration, but when there were large numbers involved or the clerical workers were the only unorganized group in a jurisdiction, the multi-occupational unions would often try to organize them regardless of the workers' initial receptivity. The strategic reasoning was based, first, on the concern that politicians and administrators might **play off** unionized against non-unionized workers, and, second, on the conviction that a fully unionized public work force meant power, both at the bargaining table and in the legislature. In localities where clerical workers were few in number, were scattered in several workplaces, and expressed no interest in being organized, unions more often than not ignored them in the pre-1975 period.

But since the mid-1970's, a different strategy has emerged. In 1977, 34 percent of government clerical workers were represented by a labor organization, compared with 46 percent of government professionals, 44 percent of government blue-collar workers, and 41 percent of government service workers. Since then, however, the biggest increases in public-sector unionization have been among clerical workers. Between 1977 and 1980, the number of unionized government workers in blue-collar and service occupations increased only about 1.5 percent, while in the white-collar occupations the increase was 20 percent and among clerical workers in particular, the increase was 22 percent.

What accounts for this upsurge in unionization among clerical workers? First, more women have entered the work force in the past few years, and more of them plan to remain working until retirement age. Consequently, they are probably more concerned than their predecessors were about job security and economic benefits. Also, the women's movement has succeeded in

legitimizing the economic and political activism of women on their own behalf, thereby producing a more positive attitude toward unions. The absence of any comparable increase in unionization among private-sector clerical workers, however, identifies the primary catalyst—the structural change in the multi-occupational public-sector unions themselves. Over the past twenty years, the occupational distribution in these unions has been steadily shifting from predominantly blue-collar to predominantly white-collar. Because there are far more women in white-collar jobs, an increase in the proportion of female members has accompanied the occupational shift and has altered union policy-making in favor of organizing women and addressing women's issues.

1. According to the passage, the public-sector workers who were most likely to belong to unions in 1977 were
  - (A) professionals
  - (B) managers
  - (C) clerical workers
  - (D) service workers
  - (E) blue-collar workers
2. The author cites union efforts to achieve a fully unionized work force ([line 13-19](#)) in order to account for why
  - (A) politicians might try to oppose public-sector union organizing
  - (B) public-sector unions have recently focused on organizing women
  - (C) early organizing efforts often focused on areas where there were large numbers of workers
  - (D) union efforts with regard to public-sector clerical workers increased dramatically after 1975
  - (E) unions sometimes tried to organize workers regardless of the workers' initial interest in unionization
3. The author's claim that, since the mid-1970's, a new strategy has emerged in the unionization of public-sector clerical workers ([line 23](#)) would be strengthened if the author
  - (A) described more fully the attitudes of clerical workers toward labor unions
  - (B) compared the organizing strategies employed by private-sector unions with those of public-sector unions
  - (C) explained why politicians and administrators sometimes oppose unionization of clerical workers
  - (D) indicated that the number of unionized public-sector clerical workers was increasing even before the mid-1970's
  - (E) showed that the factors that favored unionization drives among these workers prior to 1975 have decreased in importance
4. According to the passage, in the period prior to 1975, each of the following

considerations helped determine whether a union would attempt to organize a certain group of clerical workers EXCEPT

- (A) the number of clerical workers in that group
  - (B) the number of women among the clerical workers in that group
  - (C) whether the clerical workers in that area were concentrated in one workplace or scattered over several workplaces
  - (D) the degree to which the clerical workers in that group were interested in unionization
  - (E) whether all the other workers in the same jurisdiction as that group of clerical workers were unionized
5. The author states that which of the following is a consequence of the women's movement of recent years?
- (A) An increase in the number of women entering the work force
  - (B) A structural change in multi-occupational public-sector unions
  - (C) A more positive attitude on the part of women toward unions
  - (D) An increase in the proportion of clerical workers that are women
  - (E) An increase in the number of women in administrative positions
6. The main concern of the passage is to
- (A) advocate particular strategies for future efforts to organize certain workers into labor unions
  - (B) explain differences in the unionized proportions of various groups of public-sector workers
  - (C) evaluate the effectiveness of certain kinds of labor unions that represent public-sector workers
  - (D) analyzed and explain an increase in unionization among a certain category of workers
  - (E) describe and distinguish strategies appropriate to organizing different categories of workers
7. The author implies that if the increase in the number of women in the work force and the impact of the women's movement were the main causes of the rise in unionization of public-sector clerical workers, then
- (A) more women would hold administrative positions in unions
  - (B) more women who hold political offices would have positive attitudes toward labor unions
  - (C) there would be an equivalent rise in unionization of private-sector clerical workers
  - (D) unions would have shown more interest than they have in organizing women
  - (E) the increase in the number of unionized public-sector clerical workers would have been greater than it has been

8. The author suggests that it would be disadvantageous to a union if
- (A) many workers in the locality were not unionized
  - (B) the union contributed to political campaigns
  - (C) the union included only public-sector workers
  - (D) the union included workers from several jurisdictions
  - (E) the union included members from only a few occupations
9. The author implies that, in comparison with working women today, women working in the years prior to the mid-1970's showed a greater tendency to
- (A) prefer smaller workplaces
  - (B) express a positive attitude toward labor unions
  - (C) maximize job security and economic benefits
  - (D) side with administrators in labor disputes
  - (E) quit working prior of retirement age

### Passage 18 (18/63)

Milankovitch proposed in the early twentieth century that the ice ages were caused by variations in the Earth's orbit around the Sun. For sometime this theory was considered untestable, largely because there was no sufficiently precise chronology of the ice ages with which the orbital variations could be matched.

To establish such a chronology it is necessary to determine the relative amounts of land ice that existed at various times in the Earth's past. A recent discovery makes such a determination possible: relative land-ice volume for a given period can be deduced from the ratio of two oxygen isotopes, 16 and 18, found in ocean sediments. Almost all the oxygen in water is oxygen 16, but a few molecules out of every thousand incorporate the heavier isotope 18. When an ice age begins, the continental ice sheets grow, steadily reducing the amount of water evaporated from the ocean that will eventually return to it. Because heavier isotopes tend to be left behind when water evaporates from the ocean surfaces, the remaining ocean water becomes progressively enriched in oxygen 18. The degree of enrichment can be determined by analyzing ocean sediments of the period, because these sediments are composed of calcium carbonate shells of marine organisms, shells that were constructed with oxygen atoms drawn from the surrounding ocean. The higher the ratio of oxygen 18 to oxygen 16 in a sedimentary specimen, the more land ice there was when the sediment was laid down.

As an indicator of shifts in the Earth's climate, the isotope record has two advantages. First, it is a global record: there is remarkably little variation in isotope ratios in sedimentary specimens taken from different continental locations. Second, it is a more continuous record than that taken from rocks on land. Because of these advantages, sedimentary evidence can be dated with sufficient accuracy by radiometric methods to establish a precise chronology of the ice ages. The dated isotope record shows that the fluctuations in global ice volume over the past several hundred thousand years have a pattern: an ice age occurs roughly once every 100,000 years. These data have established a strong connection between variations in the Earth's orbit and the periodicity of the ice ages.

However, it is important to note that other factors, such as volcanic particulates or variations in the amount of sunlight received by the Earth, could potentially have affected the climate. The advantage of the Milankovitch theory is that it is testable: changes in the Earth's orbit can be calculated and dated by applying Newton's laws of gravity to progressively earlier configurations of the bodies in the solar system. Yet the lack of information about other possible factors affecting global climate does not make them unimportant.

1. In the passage, the author is primarily interested in
  - (A) suggesting an alternative to an outdated research method
  - (B) introducing a new research method that calls an accepted theory into question
  - (C) emphasizing the instability of data gathered from the application of a new scientific method
  - (D) presenting a theory and describing a new method to test that theory
  - (E) initiating a debate about a widely accepted theory
2. The author of the passage would be most likely to agree with which of the following statements about the Milankovitch theory?
  - (A) It is the only possible explanation for the ice ages.
  - (B) It is too limited to provide a plausible explanation for the ice ages, despite recent research findings.
  - (C) It cannot be tested and confirmed until further research on volcanic activity is done.
  - (D) It is one plausible explanation, though not the only one, for the ice ages.
  - (E) It is not a plausible explanation for the ice ages, although it has opened up promising possibilities for future research.
3. It can be inferred from the passage that the isotope record taken from ocean sediments would be less useful to researchers if which of the following were true?
  - (A) It indicated that lighter isotopes of oxygen predominated at certain times.
  - (B) It had far more gaps in its sequence than the record taken from rocks on land.
  - (C) It indicated that climate shifts did not occur every 100,000 years.
  - (D) It indicated that the ratios of oxygen 16 and oxygen 18 in ocean water were not consistent with those found in fresh water.
  - (E) It stretched back for only a million years.
4. According to the passage, which of the following is true of the ratios of oxygen isotopes in ocean sediments?
  - (A) They indicate that sediments found during an ice age contain more calcium carbonate than sediments formed at other times.
  - (B) They are less reliable than the evidence from rocks on land in determining the volume of land ice.
  - (C) They can be used to deduce the relative volume of land ice that was present when the sediment was laid down.

- (D) They are more unpredictable during an ice age than in other climatic conditions.
- (E) They can be used to determine atmospheric conditions at various times in the past.
5. It can be inferred from the passage that precipitation formed from evaporated ocean water has
- (A) the same isotopic ratio as ocean water
- (B) less oxygen 18 than does ocean water
- (C) less oxygen 18 than has the ice contained in continental ice sheets
- (D) a different isotopic composition than has precipitation formed from water on land
- (E) more oxygen 16 than has precipitation formed from fresh water
6. According to the passage, which of the following is (are) true of the ice ages?
- I. The last ice age occurred about 25,000 years ago.
- II. Ice ages have lasted about 10,000 years for at least the last several hundred thousand years.
- III. Ice ages have occurred about every 100,000 years for at least the last several hundred thousand years.
- (A) I only
- (B) II only
- (C) III only
- (D) I and only
- (E) I, II and III
7. It can be inferred from the passage that calcium carbonate shells
- (A) are not as susceptible to deterioration as rocks
- (B) are less common in sediments formed during an ice age
- (C) are found only in areas that were once covered by land ice
- (D) contain radioactive material that can be used to determine a sediment's isotopic composition
- (E) reflect the isotopic composition of the water at the time the shells were formed
8. The purpose of the last paragraph of the passage is to
- (A) offer a note of caution
- (B) introduce new evidence
- (C) present two recent discoveries
- (D) summarize material in the preceding paragraphs
- (E) offer two explanations for a phenomenon



9. According to the passage, one advantage of studying the isotope record of ocean sediments is that it
- (A) corresponds with the record of ice volume taken from rocks on land
  - (B) shows little variation in isotope ratios when samples are taken from different continental locations
  - (C) corresponds with predictions already made by climatologists and experts in other fields
  - (D) confirms the record of ice volume initially established by analyzing variations in volcanic emissions
  - (E) provides data that can be used to substantiate records concerning variations in the amount of sunlight received by the Earth

### Passage 19 (19/63)

In contrast to traditional analyses of minority business, the sociological analysis contends that minority business ownership is a group-level phenomenon, in that it is largely dependent upon social-group resources for its development. Specifically, this analysis indicates that support networks play a critical role in starting and maintaining minority business enterprises by providing owners with a range of assistance, from the informal encouragement of family members and friends to dependable sources of labor and clientele from the owner's **ethnic group**. Such self-help networks, which encourage and support ethnic minority entrepreneurs, consist of "primary" institutions, those closest to the individual in shaping his or her behavior and beliefs. They are characterized by the face-to-face association and cooperation of persons united by ties of mutual concern. They form an intermediate social level between the individual and larger "secondary" institutions based on impersonal relationships. Primary institutions comprising the support network include kinship, peer, and neighborhood or community subgroups.

A major function of self-help networks is financial support. Most scholars agree that minority business owners have depended primarily on family funds and ethnic community resources for investment capital. Personal savings have been accumulated, often through frugal living habits that require sacrifices by the entire family and are thus a product of long-term family financial behavior. Additional loans and gifts from relatives, forthcoming because of group obligation rather than narrow investment calculation, have supplemented personal savings. Individual entrepreneurs do not necessarily rely on their kin because they cannot obtain financial backing from commercial resources. They may actually avoid banks because they assume that commercial institutions either cannot comprehend the special needs of minority enterprise or charge unreasonably high interest rates.

Within the larger ethnic community, rotating credit associations have been used to raise capital. These associations are informal clubs of friends and other trusted members of the ethnic group who make regular contributions to a fund that is given to each contributor in rotation. One author estimates that 40 percent of New York Chinatown firms established during 1900-1950 utilized such associations as their initial source of capital. However, recent immigrants and third or fourth generations of older groups now employ rotating credit

associations only occasionally to raise investment funds. Some groups, like Black Americans, found other means of financial support for their entrepreneurial efforts. The first Black-operated banks were created in the late nineteenth century as **depositories** for **dues** collected from fraternal or lodge groups, which themselves had sprung from Black churches. Black banks made limited investments in other Black enterprises. Irish immigrants in American cities organized many building and loan associations to provide capital for home construction and purchase. They, in turn, provided work for many Irish home-building contractor firms. Other ethnic and minority groups followed similar practices in founding ethnic-directed financial institutions.

1. Based on the information in the passage, it would be LEAST likely for which of the following persons to be part of a self-help network?
  - (A) The entrepreneur's childhood friend
  - (B) The entrepreneur's aunt
  - (C) The entrepreneur's religious leader
  - (D) The entrepreneur's neighbor
  - (E) The entrepreneur's banker
2. Which of the following illustrates the working of a self-help support network, as such networks are described in the passage?
  - (A) A public high school offers courses in book-keeping and accounting as part of its open-enrollment adult education program.
  - (B) The local government in a small city sets up a program that helps teen-agers find summer jobs.
  - (C) A major commercial bank offers low-interest loans to experienced individuals who hope to establish their own businesses.
  - (D) A neighborhood-based fraternal organization develops a program of **on-the-job** training for its members and their friends.
  - (E) A community college offers country residents training programs that can lead to certification in a variety of technical trades.
3. Which of the following can be inferred from the passage about rotating credit associations?
  - (A) They were developed exclusively by Chinese immigrants.
  - (B) They accounted for a significant portion of the investment capital used by Chinese immigrants in New York in the early twentieth century.
  - (C) Third-generation members of an immigrant group who started businesses in the 1920's would have been unlikely to rely on them.
  - (D) They were frequently joint endeavors by members of two or three different ethnic groups.
  - (E) Recent immigrants still frequently turn to rotating credit associations instead of banks for investment capital.



4. The passage best supports which of the following statements?
- (A) A minority entrepreneur who had no assistance from family members would not be able to start a business.
  - (B) Self-help networks have been effective in helping entrepreneurs primarily in the last 50 years.
  - (C) Minority groups have developed a range of alternatives to standard financing of business ventures.
  - (D) The financial institutions founded by various ethnic groups owe their success to their unique formal organization.
  - (E) Successful minority-owned businesses succeed primarily because of the personal strengths of their founders.
5. Which of the following best describes the organization of the [second paragraph](#)?
- (A) An argument is delineated, followed by a counter-argument.
  - (B) An assertion is made and several examples are provided to illustrate it.
  - (C) A situation is described and its historical background is then outlined.
  - (D) An example of a phenomenon is given and is then used as a basis for general conclusions.
  - (E) A group of parallel incidents is described and the distinctions among the incidents are then clarified.
6. According to the passage, once a minority-owned business is established, self-help networks contribute which of the following to that business?
- (A) Information regarding possible expansion of the business into nearby communities
  - (B) Encouragement of a business climate that is nearly free of direct competition
  - (C) Opportunities for the business owner to reinvest profits in other minority-owned businesses
  - (D) Contact with people who are likely to be customers of the new business
  - (E) Contact with minority entrepreneurs who are members of other ethnic groups
7. It can be inferred from the passage that traditional analyses of minority business would be LEAST likely to do which of the following?
- (A) Examine businesses primarily in their social contexts
  - (B) Focus on current, rather than historical, examples of business enterprises
  - (C) Stress common experiences of individual entrepreneurs in starting businesses
  - (D) Focus on the maintenance of businesses, rather than means of starting them
  - (E) Focus on the role of individual entrepreneurs in starting a business
8. Which of the following can be inferred from the passage about the Irish building and loan associations mentioned in the last paragraph?
- (A) They were started by third- or fourth-generation immigrants.

- (B) They originated as offshoots of church-related groups.
- (C) They frequently helped Irish entrepreneurs to finance business not connected with construction.
- (D) They contributed to the employment of many Irish construction workers.
- (E) They provided assistance for construction businesses owned by members of other ethnic groups.

### Passage 20 (20/63)

Species interdependence in nature confers many benefits on the species involved, but it can also become a point of weakness when one species involved in the relationship is affected by a catastrophe. Thus, flowering plant species dependent on insect pollination, as opposed to self-pollination or wind pollination, could be endangered when the population of insect-pollinators is depleted by the use of pesticides.

In the forests of New Brunswick, for example, various pesticides have been sprayed in the past 25 years in efforts to control the spruce budworm, an economically significant pest. Scientists have now investigated the effects of the spraying of Matacil, one of the anti-budworm agents that is least toxic to insect-pollinators. They studied Matacil's effects on insect mortality in a wide variety of wild insect species and on plant fecundity, expressed as the percentage of the total flowers on an individual plant that actually developed fruit and bore seeds. They found that the most pronounced mortality after the spraying of Matacil occurred among the smaller bees and one family of flies, insects that were all important pollinators of numerous species of plants growing beneath the tree canopy of forests. The fecundity of plants in one common indigenous species, the red-osier dogwood, was significantly reduced in the sprayed areas as compared to that of plants in control plots where Matacil was not sprayed. This species is highly dependent on the insect-pollinators most vulnerable to Matacil. The creeping dogwood, a species similar to the red-osier dogwood, but which is pollinated by large bees, such as bumblebees, showed no significant decline in fecundity. Since large bees are not affected by the spraying of Matacil, these results add weight to the argument that spraying where the pollinators are sensitive to the pesticide used decreases plant fecundity.

The question of whether the decrease in plant fecundity caused by the spraying of pesticides actually causes a decline in the overall population of flowering plant species still remains unanswered. Plant species dependent solely on seeds for survival or dispersal are obviously more vulnerable to any decrease in plant fecundity that occurs, whatever its cause. If, on the other hand, vegetative growth and dispersal (by means of shoots or runners) are available as alternative reproductive strategies for a species, then decreases in plant fecundity may be of little consequence. The fecundity effects described here are likely to have the most profound impact on plant species with all four of the following characteristics: a short life span, a narrow geographic range, an incapacity for vegetative propagation, and a dependence on a small number of insect-pollinator species. Perhaps we should give special attention to the conservation of such plant species since they lack key factors in their defenses against the environmental disruption caused by pesticide use.

1. Which of the following best summarizes the main point of the passage?

- (A) Species interdependence is a point of weakness for some plants, but is generally beneficial to insects involved in pollination.
- (B) Efforts to control the spruce budworm have had deleterious effects on the red-osier dogwood.
- (C) The use of pesticides may be endangering certain plant species dependent on insects for pollination.
- (D) The spraying of pesticides can reduce the fecundity of a plant species, but probably does not affect its overall population stability.
- (E) Plant species lacking key factors in their defenses against human environmental disruption will probably become extinct.
2. According to the author, a flowering plant species whose fecundity has declined due to pesticide spraying may not experience an overall population decline if the plant species can do which of the following?
- (A) Reproduce itself by means of shoots and runners.
- (B) Survive to the end of the growing season.
- (C) Survive in harsh climates.
- (D) Respond to the fecundity decline by producing more flowers.
- (E) Attract large insects as pollinators.
3. The passage suggests that the lack of an observed decline in the fecundity of the creeping dogwood strengthens the researchers' conclusions regarding pesticide use because the
- (A) creeping dogwood is a species that does not resemble other forest plants
- (B) creeping dogwood is a species pollinated by a broader range of insect species than are most dogwood species
- (C) creeping dogwood grows primarily in regions that were not sprayed with pesticide, and so served as a control for the experiment
- (D) creeping dogwood is similar to the red-osier dogwood, but its insect pollinators are known to be insensitive to the pesticide used in the study
- (E) geographical range of the creeping dogwood is similar to that of the red-osier dogwood, but the latter species relies less on seeds for reproduction
4. The passage suggests that which of the following is true of the forest regions in New Brunswick sprayed with most anti-budworm pesticides other than Matacil?
- (A) The fecundity of some flowering plants in those regions may have decreased to an even greater degree than in the regions where Matacil is used.
- (B) Insect mortality in those regions occurs mostly among the larger species of insects, such as bumblebees.
- (C) The number of seeds produced by common plant species in those regions is probably comparable to the number produced where Matacil is sprayed.
- (D) Many more plant species have become extinct in those regions than in the

- regions where Matacil is used.
- (E) The spruce budworm is under better control in those regions than in the regions where Matacil is sprayed.
5. It can be inferred that which of the following is true of plant fecundity as it is defined in the passage?
- (A) A plant's fecundity decreases as the percentage of unpollinated flowers on the plant increases.
- (B) A plant's fecundity decreases as the number of flowers produced by the plant decreases.
- (C) A plant's fecundity increases as the number of flowers produced by the plant increases.
- (D) A plant's fecundity is usually low if the plant relies on a small number of insect species for pollination.
- (E) A plant's fecundity is high if the plant can reproduce quickly by means of vegetative growth as well as by the production of seeds.
6. It can be inferred from the passage that which of the following plant species would be LEAST likely to experience a decrease in fecundity as a result of the spraying of a pesticide not directly toxic to plants?
- (A) A flowering tree pollinated by only a few insect species
- (B) A kind of insect-pollinated vine producing few flowers
- (C) A wind-pollinated flowering tree that is short-lived
- (D) A flowering shrub pollinated by a large number of insect species
- (E) A type of wildflower typically pollinated by larger insects
7. Which of the following assumptions most probably underlies the author's tentative recommendation in [lines 51-54](#)?
- (A) Human activities that result in environmental disruption should be abandoned.
- (B) The use of pesticides is likely to continue into the future.
- (C) It is economically beneficial to preserve endangered plant species.
- (D) Preventing the endangerment of a species is less costly than trying to save an already endangered one.
- (E) Conservation efforts aimed at preserving a few well-chosen species are more cost-effective than are broader-based efforts to improve the environment.

### Passage 21 (21/63)

Bernard Bailyn has recently reinterpreted the early history of the United States by applying new social research findings on the experiences of European migrants. In his reinterpretation, migration becomes the organizing principle for rewriting the history of preindustrial North America. His approach rests on four separate propositions.

The first of these asserts that residents of early modern England moved regularly about their countryside; migrating to the New World was simply a “natural spillover.” Although at first the colonies held little positive attraction for the English—they would rather have stayed home—by the eighteenth century people increasingly migrated to America because they regarded it as the land of opportunity. Secondly, Bailyn holds that, contrary to the notion that used to flourish in America history textbooks, there was never a typical New World community. For example, the economic and demographic character of early New England towns varied considerably.

Bailyn’s third proposition suggests two general patterns prevailing among the many thousands of migrants: one group came as indentured servants, another came to acquire land. Surprisingly, Bailyn suggests that those who recruited indentured servants were the driving forces of transatlantic migration. These colonial entrepreneurs helped determine the social character of people who came to preindustrial North America. At first, thousands of unskilled laborers were recruited; by the 1730’s, however, American employers demanded skilled artisans.

Finally, Bailyn argues that the colonies were a half-civilized hinterland of the European culture system. He is undoubtedly correct to insist that the colonies were part of an Anglo-American empire. But to divide the empire into English core and colonial periphery, as Bailyn does, devalues the achievements of colonial culture. It is true, as Bailyn claims, that high culture in the colonies never matched that in England. But *what of* seventeenth-century New England, where the settlers created effective laws, built a distinguished university, and published books? Bailyn might respond that New England was exceptional. However, the ideas and institutions developed by New England Puritans had powerful effects on North American culture.

Although Bailyn goes on to apply his approach to some thousands of indentured servants who migrated just prior to the revolution, he fails to link their experience with the political development of the United States. Evidence presented in his work suggests how we might make such a connection. These indentured servants were treated as slaves for the period during which they had sold their time to American employers. It is not surprising that as soon as they served their time they *passed up* good wages in the cities and headed west to ensure their personal independence by acquiring land. Thus, it is in the west that a peculiarly American political culture began, among colonists who were suspicious of authority and intensely anti-aristocratic.

1. Which of the following statements about migrants to colonial North America is supported by information in the passage?
  - (A) A larger percentage of migrants to colonial North America came as indentured servants than as free agents interested in acquiring land.
  - (B) Migrants who came to the colonies as indentured servants were more successful at making a livelihood than were farmers and artisans.
  - (C) Migrants to colonial North America were more successful at acquiring their own land during the eighteenth century than during the seven-tenth century.
  - (D) By the 1730’s, migrants already skilled in a trade were in more demand by

- American employers than were unskilled laborers.
- (E) A significant percentage of migrants who came to the colonies to acquire land were forced to work as field hands for prosperous American farmers.
2. The author of the passage states that Bailyn failed to
- (A) give sufficient emphasis to the cultural and political interdependence of the colonies and England
- (B) describe carefully how migrants of different ethnic backgrounds preserved their culture in the united States
- (C) take advantage of social research on the experiences of colonists who migrated to colonial North America specifically to acquire land
- (D) relate the experience of the migrants to the political values that eventually shaped the character of the United States
- (E) investigate the lives of Europeans before they came to colonial North America to determine more adequately their motivations for migrating
3. Which of the following best summarizes the author's evaluation of Bailyn's fourth proposition?
- (A) It is totally implausible.
- (B) It is partially correct.
- (C) It is highly admirable.
- (D) It is controversial though persuasive.
- (E) It is intriguing though unsubstantiated.
4. According to the passage, Bailyn and the author agree on which of the following statements about the culture of colonial New England?
- (A) High culture in New England never equaled the high culture of England.
- (B) The cultural achievements of colonial New England have generally been unrecognized by historians.
- (C) The colonists imitated the high culture of England, and did not develop a culture that was uniquely their own.
- (D) The southern colonies were greatly influenced by the high culture of New England.
- (E) New England communities were able to create laws and build a university, but unable to create anything innovative in the arts.
5. According to the passage, which of the following is true of English migrants to the colonies during the eighteenth century?
- (A) Most of them were farmers rather than trades people or artisans.
- (B) Most of them came because they were unable to find work in England.
- (C) They differed from other English people in that they were willing to travel.
- (D) They expected that the colonies would offer them increased opportunity.



- (E) They were generally not as educated as the people who remained in England.
6. The author of the passage is primarily concerned with
- (A) comparing several current interpretations of early American history
  - (B) suggesting that new social research on migration should lead to revisions in current interpretations of early American history
  - (C) providing the theoretical framework that is used by most historians in understanding early American history
  - (D) refuting an argument about early American history that has been proposed by social historians
  - (E) discussing a reinterpretation of early American history that is based on new social research on migration
7. It can be inferred from the passage that American history textbooks used to assert that
- (A) many migrants to colonial North America were not successful financially
  - (B) more migrants came to America out of religious or political conviction than came in the hope of acquiring land
  - (C) New England communities were much alike in terms of their economics and demographics
  - (D) many migrants to colonial North America failed to maintain ties with their European relations
  - (E) the level of literacy in New England communities was very high
8. The author of the passage would be most likely to agree with which of the following statements about Bailyn's work?
- (A) Bailyn underestimates the effects of Puritan thought on North American culture.
  - (B) Bailyn overemphasizes the economic dependence of the colonies on Great Britain.
  - (C) Bailyn's description of the colonies as part of an Anglo-American empire is misleading and incorrect.
  - (D) Bailyn failed to test his propositions on a specific group of migrants to colonial North America.
  - (E) Bailyn overemphasizes the experiences of migrants to the New England colonies, and neglects the southern and the western parts of the New World.

### Passage 22 (22/63)

Many United States companies have, unfortunately, made the search for legal protection from import competition into a major line of work. Since 1980 the United States International Trade Commission (ITC) has received about 280 complaints alleging damage from imports that benefit from subsidies by foreign governments. Another 340 charge that foreign companies



“dumped” their products in the United States at “less than fair value.” Even when no unfair practices are alleged, the simple claim that an industry has been injured by imports is sufficient grounds to seek relief.

Contrary to the general impression, this quest for import relief has hurt more companies than it has helped. As corporations begin to function globally, they develop an intricate web of marketing, production, and research relationships. The complexity of these relationships makes it unlikely that a system of import relief laws will meet the strategic needs of all the units under the same parent company.

Internationalization increases the danger that foreign companies will use import relief laws against the very companies the laws were designed to protect. Suppose a United States-owned company establishes an overseas plant to manufacture a product while its competitor makes the same product in the United States. If the competitor can prove injury from the imports—and that the United States company received a subsidy from a foreign government to build its plant abroad—the United States company’s products will be uncompetitive in the United States, since they would be subject to duties.

Perhaps the most brazen case occurred when the ITC investigated allegations that Canadian companies were injuring the United States salt industry by dumping rock salt, used to de-ice roads. The bizarre aspect of the complaint was that a foreign conglomerate with United States operations was crying for help against a United States company with foreign operations. The “United States” company claiming injury was a subsidiary of a Dutch conglomerate, while the “Canadian” companies included a subsidiary of a Chicago firm that was the second-largest domestic producer of rock salt.

1. The passage is chiefly concerned with
  - (A) arguing against the increased internationalization of United States corporations
  - (B) warning that the application of laws affecting trade frequently has unintended consequences
  - (C) demonstrating that foreign-based firms receive more subsidies from their governments than United States firms receive from the United States government
  - (D) advocating the use of trade restrictions for “dumped” products but not for other imports
  - (E) recommending a uniform method for handling claims of unfair trade practices
2. It can be inferred from the passage that the minimal basis for a complaint to the International Trade Commission is which of the following?
  - (A) A foreign competitor has received a subsidy from a foreign government.
  - (B) A foreign competitor has substantially increased the volume of products shipped to the United States.
  - (C) A foreign competitor is selling products in the United States at less than fair market value.
  - (D) The company requesting import relief has been injured by the sale of imports

in the United States.

- (E) The company requesting import relief has been barred from exporting products to the country of its foreign competitor.
3. The last paragraph performs which of the following functions in the passage?
- (A) It summarizes the discussion thus far and suggests additional areas of research.
- (B) It presents a recommendation based on the evidence presented earlier.
- (C) It discusses an exceptional case in which the results expected by the author of the passage were not obtained.
- (D) It introduces an additional area of concern not mentioned earlier.
- (E) It cites a specific case that illustrates a problem presented more generally in the previous paragraph.
4. The passage warns of which of the following dangers?
- (A) Companies in the United States may receive no protection from imports unless they actively seek protection from import competition.
- (B) Companies that seek legal protection from import competition may incur legal costs that far exceed any possible gain.
- (C) Companies that are United States-owned but operate internationally may not be eligible for protection from import competition under the laws of the countries in which their plants operate.
- (D) Companies that are not United States-owned may seek legal protection from import competition under United States import relief laws.
- (E) Companies in the United States that import raw materials may have to pay duties on those materials.
5. The passage suggests that which of the following is most likely to be true of United States trade laws?
- (A) They will eliminate the practice of “dumping” products in the United States.
- (B) They will enable manufacturers in the United States to compete more profitably outside the United States.
- (C) They will affect United States trade with Canada more negatively than trade with other nations.
- (D) Those that help one unit within a parent company will not necessarily help other units in the company.
- (E) Those that are applied to international companies will accomplish their intended result.
6. It can be inferred from the passage that the author believes which of the following about the complaint mentioned in the last paragraph?
- (A) The ITC acted unfairly toward the complainant in its investigation.
- (B) The complaint violated the intent of import relief laws.

- (C) The response of the ITC to the complaint provided suitable relief from unfair trade practices to the complainant.
  - (D) The ITC did not have access to appropriate information concerning the case.
  - (E) Each of the companies involved in the complaint acted in its own best interest.
7. According to the passage, companies have the general impression that International Trade Commission import relief practices have
- (A) caused unpredictable fluctuations in volumes of imports and exports
  - (B) achieved their desired effect only under unusual circumstances
  - (C) actually helped companies that have requested import relief
  - (D) been opposed by the business community
  - (E) had less impact on international companies than the business community expected
8. According to the passage, the International Trade Commission is involved in which of the following?
- (A) Investigating allegations of unfair import competition
  - (B) Granting subsidies to companies in the United States that have been injured by import competition
  - (C) Recommending legislation to ensure fair
  - (D) Identifying international corporations that wish to build plants in the United States
  - (E) Assisting corporations in the United States that wish to compete globally

### Passage 23 (23/63)

At the end of the nineteenth century, a rising interest in Native American customs and an increasing desire to understand Native American culture prompted ethnologists to begin recording the life stories of Native American. Ethnologists had a distinct reason for wanting to hear the stories: they were after linguistic or anthropological data that would supplement their own field observations, and they believed that the personal stories, even of a single individual, could increase their understanding of the cultures that they had been observing **from without**. In addition many ethnologists at the turn of the century believed that Native American manners and customs were rapidly disappearing, and that it was important to preserve for posterity as much information as could be adequately recorded before the cultures disappeared forever.

There were, however, arguments against this method as a way of acquiring accurate and complete information. Franz Boas, for example, described autobiographies as being "of limited value, and useful chiefly for the study of the perversion of truth by memory," while Paul Radin contended that investigators rarely spent enough time with the tribes they were observing, and inevitably derived results too tinged by the investigator's own emotional tone to be reliable.

Even more importantly, as these life stories moved from the traditional oral mode to recorded written form, much was inevitably lost. Editors often decided what elements were

significant to the field research on a given tribe. Native Americans recognized that the essence of their lives could not be communicated in English and that events that they thought significant were often deemed unimportant by their interviewers. Indeed, the very act of telling their stories could force Native American narrators to distort their cultures, as taboos had to be broken to speak the names of dead relatives crucial to their family stories.

Despite all of this, autobiography remains a useful tool for ethnological research: such personal reminiscences and impressions, incomplete as they may be, are likely to throw more light on the working of the mind and emotions than any amount of speculation from an ethnologist or ethnological theorist from another culture.

1. Which of the following best describes the organization of the passage?
  - (A) The historical backgrounds of two currently used research methods are chronicled.
  - (B) The validity of the data collected by using two different research methods is compared.
  - (C) The usefulness of a research method is questioned and then a new method is proposed.
  - (D) The use of a research method is described and the limitations of the results obtained are discussed.
  - (E) A research method is evaluated and the changes necessary for its adaptation to other subject areas are discussed.
2. Which of the following is most similar to the actions of nineteenth-century ethnologists in their editing of the life stories of Native Americans?
  - (A) A witness in a jury trial invokes the Fifth Amendment in order to avoid relating personally incriminating evidence.
  - (B) A stockbroker refuses to divulge the source of her information on the possible future increase in a stock's value.
  - (C) A sports announcer describes the action in a team sport with which he is unfamiliar.
  - (D) A chef purposely excludes the special ingredient from the recipe of his prizewinning dessert.
  - (E) A politician fails to mention in a campaign speech the similarities in the positions held by her opponent for political office and by herself.
3. According to the passage, collecting life stories can be a useful methodology because
  - (A) life stories provide deeper insights into a culture than the hypothesizing of academics who are not members of that culture
  - (B) life stories can be collected easily and they are not subject to invalid interpretations
  - (C) ethnologists have a limited number of research methods from which to choose
  - (D) life stories make it easy to distinguish between the important and unimportant

- features of a culture
- (E) the collection of life stories does not require a culturally knowledgeable investigator
4. Information in the passage suggests that which of the following may be a possible way to eliminate bias in the editing of life stories?
- (A) Basing all inferences made about the culture on an ethnological theory
- (B) Eliminating all of the emotion-laden information reported by the informant
- (C) Translating the informant's words into the researcher's language
- (D) Reducing the number of questions and carefully specifying the content of the questions that the investigator can ask the informant
- (E) Reporting all of the information that the informant provides regardless of the investigator's personal opinion about its intrinsic value
5. The primary purpose of the passage as a whole is to
- (A) question an explanation
- (B) correct a misconception
- (C) critique a methodology
- (D) discredit an idea
- (E) clarify an ambiguity
6. It can be inferred from the passage that a characteristic of the ethnological research on Native Americans conducted during the nineteenth century was the use of which of the following?
- (A) Investigators familiar with the culture under study
- (B) A language other than the informant's for recording life stories
- (C) Life stories as the ethnologist's primary source of information
- (D) Complete transcriptions of informants' descriptions of tribal beliefs
- (E) Stringent guidelines for the preservation of cultural data
7. The passage mentions which of the following as a factor that can affect the accuracy of ethnologists' transcriptions of life stories?
- (A) The informants' social standing within the culture
- (B) The inclusiveness of the theory that provided the basis for the research
- (C) The length of time the researchers spent in the culture under study
- (D) The number of life stories collected by the researchers
- (E) The verifiability of the information provided by the research informants
8. It can be inferred from the passage that the author would be most likely to agree with which of the following statements about the usefulness of life stories as a source of ethnographic information?
- (A) They can be a source of information about how people in a culture view the

world.

- (B) They are most useful as a source of linguistic information.
- (C) They require editing and interpretation before they can be useful.
- (D) They are most useful as a source of information about ancestry.
- (E) They provide incidental information rather than significant insights into a way of life.

### Passage 24 (24/63)

All of the cells in a particular plant **start out** with the same complement of genes. How then can these cells differentiate and form structures as different as roots, stems, leaves, and fruits? The answer is that only a small subset of the genes in a particular kind of cell are expressed, or turned on, at a given time. This is accomplished by a complex system of chemical messengers that in plants include hormones and other regulatory molecules. Five major hormones have been identified: auxin, **abscisic acid**, cytokinin, ethylene, and gibberellin. Studies of plants have now identified a new class of regulatory molecules called oligosaccharins.

Unlike the oligosaccharins, the five well-known plant hormones are pleiotropic rather than specific; that is, each has more than one effect on the growth and development of plants. The five has so many simultaneous effects that they are not very useful in artificially controlling the growth of crops. Auxin, for instance, stimulates the rate of cell elongation, causes shoots to grow up and roots to grow down, and inhibits the growth of lateral shoots. Auxin also causes the plant to develop a vascular system, to form lateral roots, and to produce ethylene.

The pleiotropy of the five well-studied plant hormones is somewhat analogous to that of certain hormones in animal. For example, hormones from the hypothalamus in the brain stimulate the anterior lobe of the **pituitary gland** to synthesize and release many different hormones, one of which stimulates the release of hormones from the **adrenal cortex**. These hormones have specific effects on target organs all over the body. One hormone stimulates the thyroid gland, for example, another the **ovarian follicle** cells, and so forth. In other words, there is a hierarchy of hormones. Such a hierarchy may also exist in plants. Oligosaccharins are fragments of the cell wall released by enzymes: different enzymes release different oligosaccharins. There are indications that pleiotropic plant hormones may actually function by activating the enzymes that release these other, more specific chemical messengers from the cell wall.

1. According to the passage, the five well-known plant hormones are not useful in controlling the growth of crops because
  - (A) it is not known exactly what functions the hormones perform
  - (B) each hormone has various effects on plants
  - (C) none of the hormones can function without the others
  - (D) each hormone has different effects on different kinds of plants
  - (E) each hormone works on only a small subset of a cell's genes at any particular time



2. The passage suggests that the place of hypothalamic hormones in the hormonal hierarchies of animals is similar to the place of which of the following in plants?
  - (A) Plant cell walls
  - (B) The complement of genes in each plant cell
  - (C) A subset of a plant cell's gene complement
  - (D) The five major hormones
  - (E) The oligosaccharins
3. The passage suggests that which of the following is a function likely to be performed by an oligosaccharin?
  - (A) To stimulate a particular plant cell to become part of a plant's root system
  - (B) To stimulate the walls of a particular cell to produce other oligosaccharins
  - (C) To activate enzymes that release specific chemical messengers from plant cell walls
  - (D) To duplicate the gene complement in a particular plant cell
  - (E) To produce multiple effects on a particular subsystem of plant cells
4. The author mentions specific effects that auxin has on plant development in order to illustrate the
  - (A) point that some of the effects of plant hormones can be harmful
  - (B) way in which hormones are produced by plants
  - (C) hierarchical nature of the functioning of plant hormones
  - (D) differences among the best-known plant hormones
  - (E) concept of pleiotropy as it is exhibited by plant hormones
5. According to the passage, which of the following best describes a function performed by oligosaccharins?
  - (A) Regulating the daily functioning of a plant's cells
  - (B) Interacting with one another to produce different chemicals
  - (C) Releasing specific chemical messengers from a plant's cell walls
  - (D) Producing the hormones that cause plant cells to differentiate to perform different functions
  - (E) Influencing the development of a plant's cells by controlling the expression of the cells' genes
6. The passage suggests that, unlike the pleiotropic hormones, oligosaccharins could be used effectively to
  - (A) trace the passage of chemicals through the walls of cells
  - (B) pinpoint functions of other plant hormones
  - (C) artificially control specific aspects of the development of crops
  - (D) alter the complement of genes in the cells of plants



- (E) alter the effects of the five major hormones on plant development
7. The author discusses animal hormones primarily in order to
- (A) introduce the idea of a hierarchy of hormones
  - (B) explain the effects that auxin has on plant cells
  - (C) contrast the functioning of plant hormones and animals hormones
  - (D) illustrate the way in which particular hormones affect animals
  - (E) explain the distinction between hormones and regulatory molecules

### Passage 25 (25/63)

In 1977 the prestigious Ewha Women's University in Seoul, Korea, announced the opening of the first women's studies program in Asia. Few academic programs have ever received such public attention. In broadcast debates, critics dismissed the program as a betrayal of national identity, an imitation of Western ideas, and a distraction from the real task of national unification and economic development. Even supporters underestimated the program; they thought it would be merely another of the many Western ideas that had already proved useful in Asian culture, akin to airlines, electricity, and the assembly line. The founders of the program, however, realized that neither view was correct. They had some reservations about the applicability of Western feminist theories to the role of women in Asia and felt that such theories should be closely examined. Their approach has thus far yielded important critiques of Western theory, informed by the special experience of Asian women.

For instance, like the Western feminist critique of the Freudian model of the human psyche, the Korean critique finds Freudian theory culture-bound, but in ways different from those cited by Western theorists. The Korean theorists claim that Freudian theory assumes the universality of the Western nuclear, male-headed family and focuses on the personality formation of the individual, independent of society. An analysis based on such assumptions could be valid for a highly competitive, individualistic society. In the Freudian family drama, family members are assumed to be engaged in a Darwinian struggle against each other—father against son and sibling against sibling. Such a concept projects the competitive model of Western society onto human personalities. But in the Asian concept of personality there is no ideal attached to individualism or to the independent self. The Western model of personality development does not explain major characteristics of the Korean personality, which is social and group-centered. The "self" is a social being defined by and acting in a group, and the well-being of both men and women is determined by the equilibrium of the group, not by individual self-assertion. The ideal is one of interdependency.

In such a context, what is recognized as "dependency" in Western psychiatric terms is not, in Korean terms, an admission of weakness or failure. All this bears directly on the Asian perception of men's and women's psychology because men are also "dependent." In Korean culture, men cry and otherwise easily show their emotions, something that might be considered a betrayal of masculinity in Western culture. In the kinship-based society of Korea, four generations may live in the same house, which means that people can be sons and daughters all their lives, whereas in Western culture, the roles of husband and son, wife and daughter, are often incompatible.

1. Which of the following best summarizes the content of the passage?
  - (A) A critique of a particular women's studies program
  - (B) A report of work in social theory done by a particular women's studies program
  - (C) An assessment of the strengths and weaknesses of a particular women's studies program
  - (D) An analysis of the philosophy underlying women's studies programs
  - (E) An abbreviated history of Korean women's studies programs
2. It can be inferred from the passage that Korean scholars in the field of women's studies undertook an analysis of Freudian theory as a response to which of the following?
  - (A) Attacks by critics of the Ewha women's studies program
  - (B) The superficiality of earlier critiques of Freudian theory
  - (C) The popularity of Freud in Korean psychiatric circles
  - (D) Their desire to encourage Korean scholars to adopt the Freudian model
  - (E) Their assessment of the relevance and limitations of Western feminist theory with respect to Korean culture
3. Which of the following conclusions about the introduction of Western ideas to Korean society can be supported by information contained in the passage?
  - (A) Except for technological innovations, few Western ideas have been successfully transplanted into Korean society.
  - (B) The introduction of Western ideas to Korean society is viewed by some Koreans as a challenge to Korean identity.
  - (C) The development of the Korean economy depends heavily on the development of new academic programs modeled after Western programs.
  - (D) The extent to which Western ideas must be adapted for acceptance by Korean society is minimal.
  - (E) The introduction of Western ideas to Korean society accelerated after 1977.
4. It can be inferred from the passage that the broadcast media in Korea considered the establishment of the Ewha women's studies program
  - (A) praiseworthy
  - (B) insignificant
  - (C) newsworthy
  - (D) imitative
  - (E) incomprehensible
5. It can be inferred from the passage that the position taken by some of the supporters of the Ewha women's studies program was problematic to the founders of the program because those supporters

- (A) assumed that the program would be based on the uncritical adoption of Western theory
- (B) failed to show concern for the issues of national unification and economic development
- (C) were unfamiliar with Western feminist theory
- (D) were not themselves scholars in the field of women's studies
- (E) accepted the universality of Freudian theory
6. Which of the following statements is most consistent with the view of personality development held by the Ewha women's studies group?
- (A) Personality development occurs in identifiable stages, beginning with dependency in childhood and ending with independence in adulthood.
- (B) Any theory of personality development, in order to be valid, must be universal.
- (C) Personality development is influenced by the characteristics of the society in which a person lives.
- (D) Personality development is hindered if a person is not permitted to be independent.
- (E) No theory of personality development can account for the differences between Korean and Western culture.
7. Which of the following statements about the Western feminist critique of Freudian theory can be supported by information contained in the passage?
- (A) It recognizes the influence of Western culture on Freudian theory.
- (B) It was written after 1977.
- (C) It acknowledges the universality of the nuclear, male-headed family.
- (D) It challenges Freud's analysis of the role of daughters in Western society.
- (E) It fails to address the issue of competitiveness in Western society.
8. According to the passage, critics of the Ewha women's studies program cited the program as a threat to which of the following?
- I. National identity
- II. National unification
- III. Economic development
- IV. Family integrity
- (A) I only
- (B) I and II only
- (C) I, II, and III only
- (D) II, III, and IV only
- (E) I, II, III, and IV

## Passage 26 (26/63)

In choosing a method for determining climatic conditions that existed in the past, paleoclimatologists invoke four principal criteria. First, the material—rocks, lakes, vegetation, etc.—on which the method relies must be widespread enough to provide plenty of information, since analysis of material that is rarely encountered will not permit correlation with other regions or with other periods of geological history. Second, in the process of formation, the material must have received an environmental signal that reflects a change in climate and that can be deciphered by modern physical or chemical means. Third, at least some of the material must have retained the signal unaffected by subsequent changes in the environment. Fourth, it must be possible to determine the time at which the inferred climatic conditions held. This last criterion is more easily met in dating marine sediments, because dating of only a small number of layers in a marine sequence allows the age of other layers to be estimated fairly reliably by extrapolation and interpolation. By contrast, because sedimentation is much less continuous in continental regions, estimating the age of a continental bed from the known ages of beds above and below is more risky.

One very old method used in the investigation of past climatic conditions involves the measurement of water levels in ancient lakes. In temperate regions, there are enough lakes for correlations between them to give us a reliable picture. In arid and semiarid regions, on the other hand, the small number of lakes and the great distances between them reduce the possibilities for correlation. Moreover, since lake levels are controlled by rates of evaporation as well as by precipitation, the interpretation of such levels is ambiguous. For instance, the fact that lake levels in the semiarid southwestern United States appear to have been higher during the last ice age than they are now was at one time attributed to increased precipitation. On the basis of snow-line elevations, however, it has been concluded that the climate then was not necessarily wetter than it is now, but rather that both summers and winters were cooler, resulting in reduced evaporation.

Another problematic method is to reconstruct former climates on the basis of pollen profiles. The type of vegetation in a specific region is determined by identifying and counting the various pollen grains found there. Although the relationship between vegetation and climate is not as direct as the relationship between climate and lake levels, the method often works well in the temperate zones. In arid and semiarid regions in which there is not much vegetation, however, small changes in one or a few plant types can change the picture dramatically, making accurate correlations between neighboring areas difficult to obtain.

1. Which of the following statements about the difference between marine and continental sedimentation is supported by information in the passage?
  - (A) Data provided by dating marine sedimentation is more consistent with researchers' findings in other disciplines than is data provided by dating continental sedimentation.
  - (B) It is easier to estimate the age of a layer in a sequence of continental sedimentation than it is to estimate the age of a layer in a sequence of marine sedimentation.

- (C) Marine sedimentation is much less widespread than continental sedimentation.
  - (D) Researchers are more often forced to rely on extrapolation when dating a layer of marine sedimentation than when dating a layer of continental sedimentation.
  - (E) Marine sedimentation is much more continuous than is continental sedimentation.
2. Which of the following statements best describes the organization of the passage as a whole?
- (A) The author describes a method for determining past climatic conditions and then offers specific examples of situations in which it has been used.
  - (B) The author discusses the method of dating marine and continental sequences and then explains how dating is more difficult with lake levels than with pollen profiles.
  - (C) The author describes the common requirements of methods for determining past climatic conditions and then discusses examples of such methods.
  - (D) The author describes various ways of choosing a material for determining past climatic conditions and then discusses how two such methods have yielded contradictory data.
  - (E) The author describes how methods for determining past climatic conditions were first developed and then describes two of the earliest known methods.
3. It can be inferred from the passage that paleoclimatologists have concluded which of the following on the basis of their study of snow-line elevations in the southwestern United States?
- (A) There is usually more precipitation during an ice age because of increased amounts of evaporation.
  - (B) There was less precipitation during the last ice age than there is today.
  - (C) Lake levels in the semiarid southwestern United States were lower during the last ice age than they are today.
  - (D) During the last ice age, cooler weather led to lower lake levels than paleoclimatologists had previously assumed.
  - (E) The high lake levels during the last ice age may have been a result of less evaporation rather than more precipitation.
4. Which of the following would be the most likely topic for a paragraph that logically continues the passage?
- (A) The kinds of plants normally found in arid regions
  - (B) The effect of variation in lake levels on pollen distribution
  - (C) The material best suited to preserving signals of climatic changes
  - (D) Other criteria invoked by paleoclimatologists when choosing a method to determine past climatic conditions

- (E) A third method for investigating past climatic conditions
5. The author discusses lake levels in the southwestern United States in order to
- (A) illustrate the mechanics of the relationship between lake level, evaporation, and precipitation
  - (B) provide an example of the uncertainty involved in interpreting lake levels
  - (C) prove that there are not enough ancient lakes with which to make accurate correlations
  - (D) explain the effects of increased rates of evaporation on levels of precipitation
  - (E) suggest that snow-line elevations are invariably more accurate than lake levels in determining rates of precipitation at various points in the past
6. It can be inferred from the passage that an environmental signal found in geological material would not be useful to paleoclimatologists if it
- (A) had to be interpreted by modern chemical means
  - (B) reflected a change in climate rather than a long-term climatic condition
  - (C) was incorporated into a material as the material was forming
  - (D) also reflected subsequent environmental changes
  - (E) was contained in a continental rather than a marine sequence
7. According to the passage, the material used to determine past climatic conditions must be widespread for which of the following reasons?
- I. Paleoclimatologists need to make comparisons between periods of geological history.
  - II. Paleoclimatologists need to compare materials that have supported a wide variety of vegetation.
  - III. Paleoclimatologists need to make comparisons with data collected in other regions.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only
  - (E) II and III only
8. Which of the following can be inferred from the passage about the study of past climates in arid and semiarid regions?
- (A) It is sometimes more difficult to determine past climatic conditions in arid and semiarid regions than in temperate regions.
  - (B) Although in the past more research has been done on temperate regions, paleoclimatologists have recently turned their attention to arid and semiarid regions.
  - (C) Although more information about past climates can be gathered in arid and



semiarid than in temperate regions, dating this information is more difficult.

- (D) It is difficult to study the climatic history of arid and semiarid regions because their climates have tended to vary more than those of temperate regions.
- (E) The study of past climates in arid and semiarid regions has been neglected because temperate regions support a greater variety of plant and animal life.

### Passage 27 (27/63)

Since the late 1970's, in the face of a severe loss of **market share** in dozens of industries, manufacturers in the United States have been trying to improve productivity—and therefore enhance their international competitiveness—through cost-cutting programs. (Cost-cutting here is defined as raising labor output while holding the amount of labor constant.) However, from 1978 through 1982, productivity—the value of goods manufactured divided by the amount of labor input—did not improve; and while the results were better in the business upturn of the three years following, they ran 25 percent lower than productivity improvements during earlier, post-1945 upturns. At the same time, it became clear that the harder manufactures worked to implement cost-cutting, the more they lost their competitive edge.

With this paradox in mind, I recently visited 25 companies; it became clear to me that the cost-cutting approach to increasing productivity is fundamentally flawed. Manufacturing regularly observes a “40, 40, 20” rule. Roughly 40 percent of any manufacturing-based competitive advantage derives from long-term changes in manufacturing structure (decisions about the number, size, location, and capacity of facilities) and in approaches to materials. Another 40 percent comes from major changes in equipment and process technology. The final 20 percent rests on implementing conventional cost-cutting. This rule does not imply that cost-cutting should not be tried. The well-known tools of this approach—including simplifying jobs and retraining employees to work smarter, not harder—do produce results. But the tools quickly reach the limits of what they can contribute.

Another problem is that the cost-cutting approach hinders innovation and discourages creative people. As Abernathy's study of automobile manufacturers has shown, an industry can easily become prisoner of its own investments in cost-cutting techniques, reducing its ability to develop new products. And managers under pressure to maximize cost-cutting will resist innovation because they know that more fundamental changes in processes or systems will wreak havoc with the results on which they are measured. Production managers have always seen their job as one of minimizing costs and maximizing output. This dimension of performance has until recently sufficed as a basis of evaluation, but it has created a **penny-pinching**, mechanistic culture in most factories that has kept away creative managers.

Every company I know that has freed itself from the paradox has done so, in part, by developing and implementing a manufacturing strategy. Such a strategy focuses on the manufacturing structure and on equipment and process technology. In one company a manufacturing strategy that allowed different areas of the factory to specialize in different markets replaced the conventional cost-cutting approach; within three years the company regained its competitive advantage. Together with such strategies, successful companies are



also encouraging managers to focus on a wider set of objectives besides cutting costs. There is hope for manufacturing, but it clearly rests on a different way of managing.

1. The author of the passage is primarily concerned with
  - (A) summarizing a thesis
  - (B) recommending a different approach
  - (C) comparing points of view
  - (D) making a series of predictions
  - (E) describing a number of paradoxes
2. It can be inferred from the passage that the manufacturers mentioned in line 2 expected that the measures they implemented would
  - (A) encourage innovation
  - (B) keep labor output constant
  - (C) increase their competitive advantage
  - (D) permit business upturns to be more easily predicted
  - (E) cause managers to focus on a wider set of objectives
3. The primary function of the first paragraph of the passage is to
  - (A) outline in brief the author's argument
  - (B) anticipate challenges to the prescriptions that follow
  - (C) clarify some disputed definitions of economic terms
  - (D) summarize a number of long-accepted explanations
  - (E) present a historical context for the author's observations
4. The author refers to Abernathy's study (line 36) most probably in order to
  - (A) qualify an observation about one rule governing manufacturing
  - (B) address possible objections to a recommendation about improving manufacturing competitiveness
  - (C) support an earlier assertion about one method of increasing productivity
  - (D) suggest the centrality in the United States economy of a particular manufacturing industry
  - (E) given an example of research that has questioned the wisdom of revising a manufacturing strategy
5. The author's attitude toward the culture in most factories is best described as
  - (A) cautious
  - (B) critical
  - (C) disinterested
  - (D) respectful
  - (E) adulatory

6. In the passage, the author includes all of the following EXCEPT
- (A) personal observation
  - (B) a business principle
  - (C) a definition of productivity
  - (D) an example of a successful company
  - (E) an illustration of a process technology
7. The author suggests that implementing conventional cost-cutting as a way of increasing manufacturing competitiveness is a strategy that is
- (A) flawed and ruinous
  - (B) shortsighted and difficult to sustain
  - (C) popular and easily accomplished
  - (D) useful but inadequate
  - (E) misunderstood but promising

### Passage 28 (28/63)

The settlement of the United States has **occupied** traditional historians since 1893 when Frederick Jackson Turner developed his *Frontier Thesis*, a thesis that explained American development in terms of westward expansion. From the perspective of women's history, Turner's exclusively masculine assumptions constitute a major drawback: his defenders and critics alike have reconstructed men's, not women's, lives on the frontier. However, precisely because of this masculine orientation, revising the *Frontier Thesis* by focusing on women's experience introduces new themes into women's history—woman as lawmaker and entrepreneur—and, consequently, new interpretations of women's relationship to capital, labor, and statute.

Turner claimed that the frontier produced the individualism that is the hallmark of American culture, and that this individualism in turn promoted democratic institutions and economic equality. He argued for the frontier as an agent of social change. Most novelists and historians writing in the early to midtwentieth century who considered women in the West, when they considered women at all, fell under Turner's spell. In their works these authors tended to glorify women's contributions to frontier life. Western women, in Turnerian tradition, were a fiercely independent, capable, and durable **lot, free from** the constraints binding their eastern sisters. This interpretation implied that the West provided a congenial environment where women could aspire to their own goals, free from constrictive stereotypes and **sexist** attitudes. In Turnerian terminology, the frontier had furnished "a gate of escape from the bondage of the past."

By the middle of the twentieth century, the *Frontier Thesis* **fell into** disfavor among historians. Later, Reactionist writers took the view that frontier women were lonely, displaced persons in a hostile milieu that intensified the worst aspects of gender relations. The renaissance of the feminist movement during the 1970's led to the Stasist school, which sidestepped the good bad dichotomy and argued that frontier women lived lives similar to the live of women in the East. In one now-standard text, Faragher demonstrated the persistence of

the “cult of true womanhood” and the illusionary quality of change on the westward journey. Recently the Stasist position has been revised but not entirely discounted by new research.

1. The primary purpose of the passage is to
  - (A) provide a framework within which the history of women in nineteenth-century America can be organized
  - (B) discuss divergent interpretations of women’s experience on the western frontier
  - (C) introduce a new hypothesis about women’s experience in nineteenth-century America
  - (D) advocate an empirical approach to women’s experience on the western frontier
  - (E) resolve ambiguities in several theories about women’s experience on the western frontier
2. Which of the following can be inferred about the novelists and historians mentioned in [lines 19-20](#)?
  - (A) They misunderstood the powerful influence of constrictive stereotypes on women in the East.
  - (B) They assumed that the frontier had offered more opportunities to women than had the East.
  - (C) They included accurate information about women’s experiences on the frontier.
  - (D) They underestimated the endurance and fortitude of frontier women.
  - (E) They agreed with some of Turner’s assumptions about frontier women, but disagreed with other assumptions that he made.
3. Which of the following, if true, would provide additional evidence for the Stasists’ argument as it is described in the passage?
  - (A) Frontier women relied on smaller support groups of relatives and friends in the West than they had in the East.
  - (B) The urban frontier in the West offered more occupational opportunity than the agricultural frontier offered.
  - (C) Women participated more fully in the economic decisions of the family group in the West than they had in the East.
  - (D) Western women received financial compensation for labor that was comparable to what women received in the East.
  - (E) Western women did not have an effect on divorce laws, but lawmakers in the West were more responsive to women’s concerns than lawmakers in the East were.
4. According to the passage, Turner makes which of the following connections in his Frontier Thesis?

- I. A connection between American individualism and economic equality
  - II. A connection between geographical expansion and social change
  - III. A connection between social change and financial prosperity
- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II and III
5. It can be inferred that which of the following statements is consistent with the Reactionist position as it is described in the passage?
- (A) Continuity, not change, marked women's lives as they moved from East to West.
- (B) Women's experience on the North American frontier has not received enough attention from modern historians.
- (C) Despite its rigors, the frontier offered women opportunities that had not been available in the East.
- (D) Gender relations were more difficult for women in the West than they were in the East.
- (E) Women on the North American frontier adopted new roles while at the same time reaffirming traditional roles.
6. Which of the following best describes the organization of the passage?
- (A) A current interpretation of a phenomenon is described and then ways in which it was developed are discussed.
- (B) Three theories are presented and then a new hypothesis that discounts those theories is described.
- (C) An important theory and its effects are discussed and then ways in which it has been revised are described.
- (D) A controversial theory is discussed and then viewpoints both for and against it are described.
- (E) A phenomenon is described and then theories concerning its correctness are discussed.
7. Which of the following is true of the Stasist School as it is described in the passage?
- (A) It provides new interpretations of women's relationship to work and the law.
- (B) It resolves some of the ambiguities inherent in Turnerian and Reactionist thought.
- (C) It has recently been discounted by new research gathered on women's experience.
- (D) It avoids extreme positions taken by other writers on women's history.

- (E) It was the first school of thought to suggest substantial revisions to the *Frontier Thesis*.

### Passage 29 (29/63)

Studies of the Weddell seal in the laboratory have described the physiological mechanisms that allow the seal to cope with the extreme oxygen deprivation that occurs during its longest dives, which can extend 500 meters below the ocean's surface and last for over 70 minutes. Recent field studies, however, suggest that during more typical dives in the wild, this seal's physiological behavior is different.

In the laboratory, when the seal dives below the surface of the water and stops breathing, its heart beats more slowly, requiring less oxygen, and its arteries become constricted, ensuring that the seal's blood remains concentrated near those organs most crucial to its ability to navigate underwater. The seal essentially shuts off the flow of blood to other organs, which either stop functioning until the seal surfaces or switch to an anaerobic (oxygen-independent) metabolism. The latter results in the production of large amounts of lactic acid which can adversely affect the pH of the seal's blood, but since the anaerobic metabolism occurs only in those tissues which have been isolated from the seal's blood supply, the lactic acid is released into the seal's blood only after the seal surfaces, when the lungs, liver, and other organs quickly clear the acid from the seal's bloodstream.

Recent field studies, however, reveal that on dives in the wild, the seal usually heads directly for its prey and returns to the surface in less than twenty minutes. The absence of high levels of lactic acid in the seal's blood after such dives suggests that during them, the seal's organs do not resort to the anaerobic metabolism observed in the laboratory, but are supplied with oxygen from the blood. The seal's longer excursions underwater, during which it appears to be either exploring distant routes or evading a predator, do evoke the diving response seen in the laboratory. But why do the seal's laboratory dives always evoke this response, regardless of their length or depth? Some biologists speculate that because in laboratory dives the seal is forcibly submerged, it does not know how long it will remain underwater and so prepares for the worst.

1. The passage provides information to support which of the following generalizations?
  - (A) Observations of animals' physiological behavior in the wild are not reliable unless verified by laboratory studies.
  - (B) It is generally less difficult to observe the physiological behavior of an animal in the wild than in the laboratory.
  - (C) The level of lactic acid in an animal's blood is likely to be higher when it is searching for prey than when it is evading predators.
  - (D) The level of lactic acid in an animal's blood is likely to be lowest during those periods in which it experiences oxygen deprivation.
  - (E) The physiological behavior of animals in a laboratory setting is not always consistent with their physiological behavior in the wild.

2. It can be inferred from the passage that by describing the Weddell seal as preparing “for the worst” (line 41), biologists mean that it
  - (A) prepares to remain underwater for no longer than twenty minutes
  - (B) exhibits physiological behavior similar to that which characterizes dives in which it heads directly for its prey
  - (C) exhibits physiological behavior similar to that which characterizes its longest dives in the wild
  - (D) begins to exhibit predatory behavior
  - (E) clears the lactic acid from its blood before attempting to dive
3. The passage suggests that during laboratory dives, the pH of the Weddell seal’s blood is not adversely affected by the production of lactic acid because
  - (A) only those organs that are essential to the seal’s ability to navigate underwater revert to an anaerobic mechanism
  - (B) the seal typically reverts to an anaerobic metabolism only at the very end of the dive
  - (C) organs that revert to an anaerobic metabolism are temporarily isolated from the seal’s bloodstream
  - (D) oxygen continues to be supplied to organs that clear lactic acid from the seal’s bloodstream
  - (E) the seal remains submerged for only short periods of time
4. Which of the following best summarizes the main point of the passage?
  - (A) Recent field studies have indicated that descriptions of the physiological behavior of the Weddell seal during laboratory dives are not applicable to its most typical dives in the wild.
  - (B) The Weddell seal has developed a number of unique mechanisms that enable it to remain submerged at depths of up to 500 meters for up to 70 minutes.
  - (C) The results of recent field studies have made it necessary for biologists to revise previous perceptions of how the Weddell seal behaves physiologically during its longest dives in the wild.
  - (D) Biologists speculate that laboratory studies of the physiological behavior of seals during dives lasting more than twenty minutes would be more accurate if the seals were not forcibly submerged.
  - (E) How the Weddell seal responds to oxygen deprivation during its longest dives appears to depend on whether the seal is searching for prey or avoiding predators during such dives.
5. According to the author, which of the following is true of the laboratory studies mentioned in [line 1](#)?
  - (A) They fail to explain how the seal is able to tolerate the increased production of lactic acid by organs that revert to an anaerobic metabolism during its longest dives in the wild.



- (B) They present an oversimplified account of mechanisms that the Weddell seal relies on during its longest dives in the wild.
  - (C) They provide evidence that undermines the view that the Weddell seal relies on an anaerobic metabolism during its most typical dives in the wild.
  - (D) They are based on the assumption that Weddell seals rarely spend more than twenty minutes underwater on a typical dive in the wild.
  - (E) They provide an accurate account of the physiological behavior of Weddell seals during those dives in the wild in which they are either evading predators or exploring distant routes.
6. The author cites which of the following as characteristic of the Weddell seal's physiological behavior during dives observed in the laboratory?
- I. A decrease in the rate at which the seal's heart beats
  - II. A constriction of the seal's arteries
  - III. A decrease in the levels of lactic acid in the seal's blood
  - IV. A temporary halt in the functioning of certain organs
- (A) I and III only
  - (B) II and IV only
  - (C) II and III only
  - (D) I, II, and IV only
  - (E) I, III, and IV only
7. The passage suggests that because Weddell seals are forcibly submerged during laboratory dives, they do which of the following?
- (A) Exhibit the physiological responses that are characteristic of dives in the wild that last less than twenty minutes.
  - (B) Exhibit the physiological responses that are characteristic of the longer dives they undertake in the wild.
  - (C) Cope with oxygen deprivation less effectively than they do on typical dives in the wild.
  - (D) Produce smaller amounts of lactic acid than they do on typical dives in the wild.
  - (E) Navigate less effectively than they do on typical dives in the wild.

### Passage 30 (30/63)

Since the early 1970's, historians have begun to devote serious attention to the working class in the United States. Yet while we now have studies of working-class communities and culture, we know remarkably little of worklessness. When historians have paid any attention at all to unemployment, they have focused on the Great Depression of the 1930's. The narrowness of this perspective ignores the pervasive recessions and joblessness of the previous decades, as Alexander Keyssar shows in his recent book. Examining the period 1870-1920, Keyssar



concentrates on Massachusetts, where the historical materials are particularly rich, and the findings applicable to other industrial areas.

The unemployment rates that Keyssar calculates appear to be relatively modest, at least by Great Depression standards: during the worst years, in the 1870's and 1890's, unemployment was around 15 percent. Yet Keyssar rightly understands that a better way to measure the impact of unemployment is to calculate unemployment frequencies—measuring the percentage of workers who experience any unemployment **in the course of** a year. Given this perspective, joblessness looms much larger.

Keyssar also scrutinizes unemployment patterns according to skill level, ethnicity, race, age, class, and gender. He finds that rates of joblessness differed primarily according to class: those in middle-class and white-collar occupations were far less likely to be unemployed. Yet the impact of unemployment on a specific class was not always the same. Even when dependent on the same trade, adjoining communities could have dramatically different unemployment rates. Keyssar uses these differential rates to help explain a phenomenon that has puzzled historians—the startlingly high rate of geographical mobility in the nineteenth-century United States. But mobility was not the dominant working-class strategy for coping with unemployment, nor was assistance from private charities or state agencies. Self-help and the help of kin got most workers through jobless spells.

While Keyssar might have spent more time developing the implications of his findings on joblessness for contemporary public policy, his study, in its thorough research and creative use of quantitative and qualitative evidence, is a model of historical analysis.

1. The passage is primarily concerned with
  - (A) recommending a new course of investigation
  - (B) summarizing and assessing a study
  - (C) making distinctions among categories
  - (D) criticizing the current state of a field
  - (E) comparing and contrasting two methods for calculating data
2. The passage suggests that before the early 1970's, which of the following was true of the study by historians of the working class in the United States?
  - (A) The study was infrequent or superficial, or both.
  - (B) The study was repeatedly criticized for its allegedly narrow focus.
  - (C) The study relied more on qualitative than quantitative evidence.
  - (D) The study focused more on the working-class community than on working-class culture.
  - (E) The study ignored working-class joblessness during the Great Depression.
3. According to the passage, which of the following is true of Keyssar's findings concerning unemployment in Massachusetts?
  - (A) They tend to contradict earlier findings about such unemployment.
  - (B) They are possible because Massachusetts has the most easily accessible historical records.

- (C) They are the first to mention the existence of high rates of geographical mobility in the nineteenth century.
- (D) They are relevant to a historical understanding of the nature of unemployment in other states.
- (E) They have caused historians to reconsider the role of the working class during the Great Depression.
4. According to the passage, which of the following is true of the unemployment rates mentioned in line 15?
- (A) They hovered, on average, around 15 percent during the period 1870-1920.
- (B) They give less than a full sense of the impact of unemployment on working-class people.
- (C) They overestimate the importance of middle class and white-collar unemployment.
- (D) They have been considered by many historians to underestimate the extent of working-class unemployment.
- (E) They are more open to question when calculated for years other than those of peak recession.
5. Which of the following statements about the unemployment rate during the Great Depression can be inferred from the passage?
- (A) It was sometimes higher than 15 percent.
- (B) It has been analyzed seriously only since the early 1970's.
- (C) It can be calculated more easily than can unemployment frequency.
- (D) It was never as high as the rate during the 1870's.
- (E) It has been shown by Keyssar to be lower than previously thought.
6. According to the passage, Keyssar considers which of the following to be among the important predictors of the likelihood that a particular person would be unemployed in late nineteenth-century Massachusetts?
- I. The person's class
- II. Where the person lived or worked
- III. The person's age
- (A) I only
- (B) II only
- (C) I and II only
- (D) I and III only
- (E) I, II, and III
7. The author views Keyssar's study with
- (A) impatient disapproval
- (B) wary concern

- (C) polite skepticism
  - (D) scrupulous neutrality
  - (E) qualified admiration
8. Which of the following, if true, would most strongly support Keyssar's findings as they are described by the author?
- (A) Boston, Massachusetts, and Quincy, Massachusetts, adjoining communities, had a higher rate of unemployment for working-class people in 1870 than in 1890.
  - (B) White-collar professionals such as attorneys had as much trouble as day laborers in maintaining a steady level of employment throughout the period 1870-1920.
  - (C) Working-class women living in Cambridge, Massachusetts, were more likely than working-class men living in Cambridge to be unemployed for some period of time during the year 1873.
  - (D) In the 1890's, shoe-factory workers moved away in large numbers from Chelmsford, Massachusetts, where shoe factories were being replaced by other industries, to adjoining West Chelmsford, where the shoe industry flourished.
  - (E) In the late nineteenth century, workers of all classes in Massachusetts were more likely than workers of all classes in other states to move their place of residence from one location to another within the state.

### Passage 31 (31/63)

The number of women directors appointed to corporate boards in the United States has increased dramatically, but the ratio of female to male directors remains low. Although pressure to recruit women directors, unlike that to employ women in the general work force, does not derive from legislation, it is nevertheless real.

Although small companies were the first to have women directors, large corporations currently have a higher percentage of women on their boards. When the chairs of these large corporations began recruiting women to serve on boards, they initially sought women who were chief executive officers (CEO's) of large corporations. However, such women CEO's are still rare. In addition, the ideal of six CEO's (female or male) serving on the board of each of the largest corporations is realizable only if every CEO serves on six boards. This raises the specter of director over-commitment and the resultant dilution of contribution. Consequently, the chairs next sought women in business who had the equivalent of CEO experience. However, since it is only recently that large numbers of women have begun to rise in management, the chairs began to recruit women of high achievement outside the business world. Many such women are well known for their contributions in government, education, and the nonprofit sector. The fact that the women from these sectors who were appointed were often acquaintances of the boards' chairs seems quite reasonable: chairs have always considered it important for directors to **interact** comfortably in the boardroom.

Although many successful women from outside the business world are unknown to corporate leaders, these women are particularly qualified to serve on boards because of the changing nature of corporations. Today a company's ability to be responsive to the concerns of the community and the environment can influence that company's growth and survival. Women are uniquely positioned to be responsive to some of these concerns. Although conditions have changed, it should be remembered that most directors of both sexes are over fifty years old. Women of that generation were often encouraged to direct their attention toward efforts to improve the community. This fact is reflected in the **career development** of most of the outstandingly successful women of the generation now in their fifties, who currently serve on corporate boards: 25 percent are in education and 22 percent are in government, law, and the nonprofit sector.

One organization of women directors is helping business become more responsive to the changing needs of society by raising the level of corporate awareness about social issues, such as problems with the economy, government regulation, the aging population, and the environment. This organization also serves as a resource center of information on accomplished women who are potential candidates for corporate boards.

1. The author of the passage would be most likely to agree with which of the following statements about achievement of the "ideal" mentioned in [line 14](#)?
  - (A) It has only recently become a possibility.
  - (B) It would be easier to meet if more CEO's were women.
  - (C) It is very close to being a reality for most corporate boards.
  - (D) It might affect the quality of directors' service to corporations.
  - (E) It would be more realizable if CEO's had a more extensive range of business experience.
2. According to the passage, the pressure to appoint women to corporate boards differs from the pressure to employ women in the work force in which of the following ways?
  - (A) Corporate boards are under less pressure because they have such a small number of openings.
  - (B) Corporate boards have received less pressure from stockholders, consumers, and workers within companies to include women on their boards.
  - (C) Corporate boards have received less pressure from the media and the public to include women on their boards.
  - (D) Corporations have only recently been pressured to include women on their boards.
  - (E) Corporations are not subject to statutory penalty for failing to include women on their boards.
3. All of the following are examples of issues that the organization described in the [last paragraph](#) would be likely to advise corporations on EXCEPT
  - (A) long-term inflation

- (B) health and safety regulations
  - (C) retirement and pension programs
  - (D) the energy shortage
  - (E) how to develop new markets
4. It can be inferred from the passage that, when seeking to appoint new members to a corporation's board, the chair traditionally looked for candidates who
- (A) had legal and governmental experience
  - (B) had experience dealing with community affairs
  - (C) could work easily with other members of the board
  - (D) were already involved in establishing policy for that corporation
  - (E) had influential connections outside the business world
5. According to the passage, which of the following is true about women outside the business world who are currently serving on corporate boards?
- (A) Most do not serve on more than one board.
  - (B) A large percentage will eventually work on the staff of corporations.
  - (C) Most were already known to the chairs of the board to which they were appointed.
  - (D) A larger percentage are from government and law than are from the nonprofit sector.
  - (E) Most are less than fifty years old.
6. The passage suggests that corporations of the past differ from modern corporations in which of the following ways?
- (A) Corporations had greater input on government policies affecting the business community.
  - (B) Corporations were less responsive to the financial needs of their employees.
  - (C) The ability of a corporation to keep up with changing markets was not a crucial factor in its success.
  - (D) A corporation's effectiveness in coping with community needs was less likely to affect its growth and prosperity.
  - (E) Corporations were subject to more stringent government regulations.
7. Which of the following best describes the organization of the passage?
- (A) A problem is described, and then reasons why various proposed solutions succeeded or failed are discussed.
  - (B) A problem is described, and then an advantage of resolving it is offered.
  - (C) A problem is described, and then reasons for its continuing existence are summarized.
  - (D) The historical origins of a problem are described, and then various measures that have successfully resolved it are discussed.

- (E) The causes of a problem are described, and then its effects are discussed.
8. It can be inferred from the passage that factors making women uniquely valuable members of modern corporate boards would include which of the following?
- I. The nature of modern corporations
  - II. The increased number of women CEO's
  - III. The careers pursued by women currently available to serve on corporate boards
- (A) I only  
(B) II only  
(C) III only  
(D) I and III only  
(E) I, II, and III

### Passage 32 (32/63)

Increasingly, historians are blaming diseases imported from the Old World for the staggering disparity between the indigenous population of America in 1492—new estimates of which soar as high as 100 million, or approximately one-sixth of the human race at that time—and the few million **full-blooded** Native Americans alive at the end of the nineteenth century. There is no doubt that chronic disease was an important factor in the precipitous decline, and it is highly probable that the greatest killer was **epidemic disease**, especially as manifested in virgin-soil epidemics.

Virgin-soil epidemics are those in which the populations at risk have had no previous contact with the diseases that strike them and are therefore immunologically almost defenseless. That virgin-soil epidemics were important in American history is strongly indicated by evidence that a number of dangerous maladies—smallpox, measles, malaria, yellow fever, and undoubtedly several more—were unknown in the pre-Columbian New World. The effects of their sudden introduction are demonstrated in the early chronicles of America, which contain reports of horrendous epidemics and steep population declines, confirmed in many cases by recent quantitative analyses of Spanish tribute records and other sources. The evidence provided by the documents of British and French colonies is not as definitive because the conquerors of those areas did not establish permanent settlements and begin to keep continuous records until the seventeenth century, by which time the worst epidemics had probably already taken place. Furthermore, the British tended to drive the native populations away, rather than enslaving them as the Spaniards did, so that the epidemics of British America occurred beyond the range of colonists' direct observation.

Even so, the surviving records of North America do contain references to deadly epidemics among the indigenous population. In 1616-1619 an epidemic, possibly of bubonic or pneumonic plague, swept coastal New England, killing as many as nine out of ten. During the 1630's smallpox, the disease most fatal to the Native American people, eliminated half the population of the Huron and Iroquois confederations. In the 1820's fever devastated the people of the Columbia River area, killing eight out of ten of them.



Unfortunately, the documentation of these and other epidemics is slight and frequently unreliable, and it is necessary to supplement what little we do know with evidence from recent epidemics among Native Americans. For example, in 1952 an outbreak of measles among the Native American inhabitants of Ungava Bay, Quebec, affected 99 percent of the population and killed 7 percent, even though some had the benefit of modern medicine. Cases such as this demonstrate that even diseases that are not normally fatal can have devastating consequences when they strike an immunologically defenseless community.

1. The primary purpose of the passage is to
  - (A) refute a common misconception
  - (B) provide support for a hypothesis
  - (C) analyze an argument
  - (D) suggest a solution to a dilemma
  - (E) reconcile opposing viewpoints
2. According to the passage, virgin-soil epidemics can be distinguished from other catastrophic outbreaks of disease in that virgin-soil epidemics
  - (A) recur more frequently than other chronic diseases
  - (B) affect a minimum of one-half of a given population
  - (C) involve populations with no prior exposure to a disease
  - (D) usually involve a number of interacting diseases
  - (E) are less responsive to medical treatment than are other diseases
3. According to the passage, the British colonists were unlike the Spanish colonists in that the British colonists
  - (A) collected tribute from the native population
  - (B) kept records from a very early date
  - (C) drove Native Americans off the land
  - (D) were unable to provide medical care against epidemic disease
  - (E) enslaved the native populations in America
4. Which of the following can be inferred from the passage concerning Spanish tribute records?
  - (A) They mention only epidemics of smallpox.
  - (B) They were instituted in 1492.
  - (C) They were being kept prior to the seventeenth century.
  - (D) They provide quantitative and qualitative evidence about Native American populations.
  - (E) They prove that certain diseases were unknown in the pre-Columbian New World.
5. The author implies which of the following about measles?
  - (A) It is not usually a fatal disease.



- (B) It ceased to be a problem by the seventeenth century.
  - (C) It is the disease most commonly involved in virgin-soil epidemics.
  - (D) It was not a significant problem in Spanish colonies.
  - (E) It affects only those who are immunologically defenseless against it.
6. Which of the following can be inferred from the passage about the Native American inhabitants of Ungava Bay?
- (A) They were almost all killed by the 1952 epidemic.
  - (B) They were immunologically defenseless against measles.
  - (C) They were the last native people to be struck by a virgin-soil epidemic.
  - (D) They did not come into frequent contact with white Americans until the twentieth century.
  - (E) They had been inoculated against measles.
7. The author mentions the 1952 measles outbreak most probably in order to
- (A) demonstrate the impact of modern medicine on epidemic disease
  - (B) corroborate the documentary evidence of epidemic disease in colonial America
  - (C) refute allegations of unreliability made against the historical record of colonial America
  - (D) advocate new research into the continuing problem of epidemic disease
  - (E) challenge assumptions about how the statistical evidence of epidemics should be interpreted
8. Which of the following, if newly discovered, would most seriously weaken the author's argument concerning the importance of virgin-soil epidemics in the depopulation of Native Americans?
- (A) Evidence setting the pre-Columbian population of the New World at only 80 million
  - (B) Spanish tribute records showing periodic population fluctuations
  - (C) Documents detailing sophisticated Native American medical procedures
  - (D) Fossils indicating Native American contact with smallpox prior to 1492
  - (E) Remains of French settlements dating back to the sixteenth century

### Passage 33 (33/63)

Until recently most astronomers believed that the space between the galaxies in our universe was a near-perfect vacuum. This orthodox view of the universe is now being challenged by astronomers who believe that a heavy "rain" of gas is falling into many galaxies from the supposedly empty space around them. The gas apparently condenses into a collection of small stars, each a little larger than the planet Jupiter. These stars vastly outnumber the other stars in a given galaxy. The amount of "intergalactic rainfall" into some of these galaxies has been enough to double their mass in the time since they formed. Scientists have begun to

suspect that this intergalactic gas is probably a mixture of gases left over from the “big bang” when the galaxies were formed and gas was forced out of galaxies by supernova explosions.

It is well known that when gas is cooled at a constant pressure its volume decreases. Thus, the physicist Fabian reasoned that as intergalactic gas cools, the cooler gas shrinks inward toward the center of the galaxy. Meanwhile its place is taken by hotter intergalactic gas from farther out on the edge of the galaxy, which cools as it is compressed and flows into the galaxy. The net result is a continuous flow of gas, starting as hot gases in intergalactic space and ending as a drizzle of cool gas called a “cooling flow,” falling into the central galaxy.

A fairly heretical idea in the 1970’s, the cooling-flow theory gained support when Fabian observed a cluster of galaxies in the constellation Perseus and found the central galaxy, NGC 1275, to be a strange-looking object with irregular, thin strands of gas radiating from it. According to previous speculation, these strands were gases that had been blown out by an explosion in the galaxy. Fabian, however, disagreed. Because the strands of gas radiating from NGC 1275 are visible in optical photographs, Fabian suggested that such strands consisted not of gas blown out of the galaxy but of cooling flows of gas streaming inward. He noted that the wavelengths of the radiation emitted by a gas would change as the gas cooled, so that as the gas flowed into the galaxy and became cooler, it would emit not x-rays, but visible light, like that which was captured in the photographs. Fabian’s hypothesis was supported by Canizares’ determination in 1982 that most of the gas in the Perseus cluster was at a temperature of 80 million degrees Kelvin, whereas the gas immediately surrounding NGC 1275 (the subject of the photographs) was at one-tenth this temperature.

1. The primary purpose of the passage is to
  - (A) illustrate a hypothesis about the origin of galaxies
  - (B) provide evidence to dispute an accepted theory about the evolution of galaxies
  - (C) summarize the state of and prospects for research in intergalactic astronomy
  - (D) report new data on the origins of intergalactic gas
  - (E) reconcile opposing views on the formation of intergalactic gas
2. The author uses the phrase “orthodox view of the universe” ([line 3](#)) to refer to the belief that
  - (A) the space between the galaxies is devoid of matter
  - (B) the space between galaxies is occupied by stars that cannot be detected by optical photographs
  - (C) galaxies have decreased in mass by half since their formation
  - (D) galaxies contain stars, each the size of Jupiter, which form clusters
  - (E) galaxies are being penetrated by gas forced out of other galaxies by supernova explosions
3. It can be inferred from the passage that, if Fabian is correct, gas in the peripheral regions of a galaxy cluster
  - (A) streams outward into intergalactic space

- (B) is hotter than gas in the central regions of the galaxy
  - (C) is composed primarily of gas left over from the big bang
  - (D) results in the creation of unusually large stars
  - (E) expands to increase the size of the galaxy
4. The author of the passage probably mentions Canizares' determination in order to
- (A) clarify an ambiguity in Fabian's research findings
  - (B) illustrate a generalization about the temperature of gas in a galaxy cluster
  - (C) introduce a new argument in support of the orthodox view of galaxies
  - (D) provide support for Fabian's assertions about the Perseus galaxies
  - (E) provide an alternate point of view concerning the movement of gas within a galaxy cluster
5. According to the passage, Fabian believes that gas flowing into a central galaxy has which of the following characteristics?
- (A) It is one-tenth hotter than it was in the outer regions of the galaxy cluster.
  - (B) It emits radiation with wavelengths that change as the gas moves toward the center of the galaxy.
  - (C) The total amount of radiation emitted diminishes as the gas cools.
  - (D) It loses 90 percent of its energy as it moves to the center of the galaxy.
  - (E) It condenses at a rate much slower than the rate of decrease in temperature as the gas flows inward.
6. According to the passage, Fabian's theory makes use of which of the following principles?
- (A) Gas emanating from an explosion will be hotter the more distant it is from the origin.
  - (B) The wavelength of radiation emitted by a gas as it cools remains constant.
  - (C) If pressure remains constant, the volume of a gas will decrease as it is cooled.
  - (D) The volume of a gas will increase as the pressure increases.
  - (E) As gas cools, its density decreases.
7. It can be inferred from the passage that which of the following is true of Fabian's theory?
- (A) It did not receive approval until Canizares' work was published.
  - (B) It was not widely accepted in the 1970's.
  - (C) It did not receive support initially because technology was not available to confirm its tenets.
  - (D) It supports earlier speculation that intergalactic gas was largely the result of explosions outside the galaxy.
  - (E) It was widely challenged until x-ray evidence of gas temperatures in NGC 1275 had been presented.

## Passage 34 (34/63)

Kazuko Nakane's history of the early Japanese immigrants to central California's Pajaro Valley focuses on the development of farming communities there from 1890 to 1940. The Issei (first-generation immigrants) were brought into the Pajaro Valley to raise sugar beets. Like Issei laborers in American cities, Japanese men in rural areas sought employment via the "boss" system. The system comprised three elements: immigrant wage laborers; Issei **boardinghouses** where laborers stayed; and labor contractors, who gathered workers for a particular job and then negotiated a contract between workers and employer. This same system was originally utilized by the Chinese laborers who had preceded the Japanese. A related institution was the "labor club," which provided job information and negotiated employment contracts and other legal matters, such as the rental of land, for Issei who chose to belong and paid an annual fee to the cooperative for membership.

When the local sugar beet industry collapsed in 1902, the Issei began to lease land from the valley's strawberry farmers. The Japanese provided the labor and the crop was divided between laborers and landowners. The Issei thus moved quickly from wage-labor employment to **sharecropping** agreements. A limited amount of economic progress was made as some Issei were able to rent or buy farmland directly, while others joined together to form farming corporations. As the Issei began to operate farms, they began to marry and start families, forming an established Japanese American community. Unfortunately, the Issei's efforts to attain agricultural independence were hampered by government restrictions, such as the Alien Land Law of 1913. But immigrants could circumvent such exclusionary laws by leasing or purchasing land in their American-born children's names.

Nakane's **case study** of one rural Japanese American community provides valuable information about the lives and experiences of the Issei. It is, however, too **particularistic**. This limitation derives from Nakane's methodology—that of oral history—which cannot substitute for a broader theoretical or comparative perspective. Future research might well consider two issues raised by her study: were the Issei of the Pajaro Valley similar to or different from Issei in urban settings, and what variations existed between rural Japanese American communities?

1. The primary purpose of the passage is to
  - (A) defend a controversial hypothesis presented in a history of early Japanese immigrants to California
  - (B) dismiss a history of an early Japanese settlement in California as narrow and ill constructed
  - (C) summarize and critique a history of an early Japanese settlement in California
  - (D) compare a history of one Japanese American community with studies of Japanese settlements throughout California
  - (E) examine the differences between Japanese and Chinese immigrants to central California in the 1890's
2. Which of the following best describes a "labor club," as defined in the passage?
  - (A) An organization to which Issei were compelled to belong if they sought

- employment in the Pajaro Valley
- (B) An association whose members included labor contractors and landowning “bosses”
- (C) A type of farming corporation set up by Issei who had resided in the Pajaro Valley for some time
- (D) A cooperative association whose members were dues-paying Japanese laborers
- (E) A social organization to which Japanese laborers and their families belonged
3. Based on information in the passage, which of the following statements concerning the Alien Land Law of 1913 is most accurate?
- (A) It excluded American-born citizens of Japanese ancestry from landownership.
- (B) It sought to restrict the number of foreign immigrants to California.
- (C) It successfully prevented Issei from ever purchasing farmland.
- (D) It was applicable to first-generation immigrants but not to their American-born children.
- (E) It was passed under pressure from the Pajaro Valley’s strawberry farmers.
4. Several Issei families join together to purchase a strawberry field and the necessary farming equipment. Such a situation best exemplifies which of the following, as it is described in the passage?
- (A) A typical sharecropping agreement
- (B) A farming corporation
- (C) A “labor club”
- (D) The “boss” system
- (E) Circumvention of the Alien Land Law
5. The passage suggests that which of the following was an indirect consequence of the collapse of the sugar beet industry in the Pajaro Valley?
- (A) The Issei formed a permanent, family-based community.
- (B) Boardinghouses were built to accommodate the Issei.
- (C) The Issei began to lease land in their children’s names.
- (D) The Issei adopted a labor contract system similar to that used by Chinese immigrants.
- (E) The Issei suffered a massive dislocation caused by unemployment.
6. The author of the passage would most likely agree that which of the following, if it had been included in Nakane’s study, would best remedy the particularistic nature of that study?
- (A) A statistical table comparing per capita income of Issei wage laborers and sharecroppers in the Pajaro Valley
- (B) A statistical table showing per capita income of Issei in the Pajaro Valley from

1890 to 1940

- (C) A statistical table showing rates of farm ownership by Japanese Americans in four central California counties from 1890 to 1940
  - (D) A discussion of original company documents dealing with the Pajaro Valley sugar beet industry at the turn of the century
  - (E) Transcripts of interviews conducted with members of the Pajaro Valley Japanese American community who were born in the 1920's and 1930's
7. It can be inferred from the passage that, when the Issei began to lease land from the Valley's strawberry farmers, the Issei most probably did which of the following?
- (A) They used profits made from selling the strawberry crop to hire other Issei.
  - (B) They negotiated such agricultural contracts using the "boss" system.
  - (C) They paid for the use of the land with a share of the strawberry crop.
  - (D) They earned higher wages than when they raised sugar beets.
  - (E) They violated the Alien Land Law.

### Passage 35 (35/63)

It can be argued that much consumer dissatisfaction with marketing strategies arises from an inability to aim advertising at only the likely buyers of a given product.

There are three groups of consumers who are affected by the marketing process. First, there is the market segment—people who need the commodity in question. Second, there is the program target—people in the market segment with the "best fit" characteristics for a specific product. Lots of people may need trousers, but only a few qualify as likely buyers of very expensive designer trousers. Finally, there is the program audience—all people who are actually exposed to the marketing program without regard to whether they need or want the product.

These three groups are rarely identical. An exception occurs occasionally in cases where customers for a particular industrial product may be few and easily identifiable. Such customers, all sharing a particular need, are likely to form a meaningful target, for example, all companies with a particular application of the product in question, such as high-speed fillers of bottles at breweries. In such circumstances, direct selling (marketing that reaches only the program target) is likely to be economically justified, and highly specialized trade media exist to expose members of the program target—and only members of the program target—to the marketing program.

Most consumer-goods markets are significantly different. Typically, there are many rather than few potential customers. Each represents a relatively small percentage of potential sales. Rarely do members of a particular market segment group themselves neatly into a meaningful program target. There are substantial differences among consumers with similar demographic characteristics. Even with all the past decade's advances in information technology, direct selling of consumer goods is rare, and mass marketing—a marketing approach that aims at a wide audience—remains the only economically feasible mode. Unfortunately, there are few



media that allow the marketer to direct a marketing program exclusively to the program target. Inevitably, people get exposed to a great deal of marketing for products in which they have no interest and so they become annoyed.

1. The passage suggests which of the following about highly specialized trade media?
  - (A) They should be used only when direct selling is not economically feasible.
  - (B) They can be used to exclude from the program audience people who are not part of the program target.
  - (C) They are used only for very expensive products.
  - (D) They are rarely used in the implementation of marketing programs for industrial products.
  - (E) They are used only when direct selling has not reached the appropriate market segment.
2. According to the passage, most consumer-goods markets share which of the following characteristics?
  - I. Customers who differ significantly from each other
  - II. Large numbers of potential customers
  - III. Customers who each represent a small percentage of potential sales
  - (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
3. The passage suggests which of the following about direct selling?
  - (A) It is used in the marketing of most industrial products.
  - (B) It is often used in cases where there is a large program target.
  - (C) It is not economically feasible for most marketing programs.
  - (D) It is used only for products for which there are many potential customers.
  - (E) It is less successful at directing a marketing program to the target audience than are other marketing approaches.
4. The author mentions “trousers” ([lines 9 and 11](#)) most likely in order to
  - (A) make a comparison between the program target and the program audience
  - (B) emphasize the similarities between the market segment and the program target
  - (C) provide an example of the way three groups of consumers are affected by a marketing program
  - (D) clarify the distinction between the market segment and the program target
  - (E) introduce the concept of the program audience



5. Which of the following best exemplifies the situation described in the [last two sentences](#) of the passage?
- (A) A product suitable for women age 21-30 is marketed at meetings attended only by potential customers.
  - (B) A company develops a new product and must develop an advertising campaign to create a market for it.
  - (C) An idea for a specialized product remains unexplored because media exposure of the product to its few potential customers would be too expensive.
  - (D) A new product is developed and marketers collect demographic data on potential consumers before developing a specific advertising campaign.
  - (E) A product suitable for men age 60 and over is advertised in a magazine read by adults of all ages.
6. The passage suggests that which of the following is true about the marketing of industrial products like those discussed in the [third paragraph](#)?
- (A) The market segment and program target are identical.
  - (B) Mass marketing is the only feasible way of advertising such products.
  - (C) The marketing program cannot be directed specifically to the program target.
  - (D) More customers would be needed to justify the expense of direct selling.
  - (E) The program audience would necessarily be made up of potential customers, regardless of the marketing approach that was used.
7. The passage supports which of the following statements about demographic characteristics and marketing?
- (A) Demographic research is of no use in determining how successful a product will be with a particular group of consumers.
  - (B) A program audience is usually composed of people with similar demographic characteristics.
  - (C) Psychological factors are more important than demographic factors in defining a market segments.
  - (D) Consumers with similar demographic characteristics do not necessarily form a meaningful program target.
  - (E) Collecting demographic data is the first step that marketers take in designing a marketing program.
8. It can be inferred from the passage that which of the following is true for most consumer-goods markets?
- (A) The program audience is smaller than the market segment.
  - (B) The program audience and the market segment are usually identical.
  - (C) The market segment and the program target are usually identical.
  - (D) The program target is larger than the market segment.

- (E) The program target and the program audience are not usually identical.

### Passage 36 (36/63)

Protein synthesis begins when the gene encoding a protein is activated. The gene's sequence of nucleotides is transcribed into a molecule of messenger RNA (mRNA), which reproduces the information contained in that sequence. Transported outside the nucleus to the cytoplasm, the mRNA is translated into the protein it encodes by an organelle known as a ribosome, which strings together amino acids in the order specified by the sequence of elements in the mRNA molecule. Since the amount of mRNA in a cell determines the amount of the corresponding protein, factors affecting the abundance of mRNA's play a major part in the normal functioning of a cell by appropriately regulating protein synthesis. For example, an excess of certain proteins can cause cells to proliferate abnormally and become cancerous; a lack of the protein insulin results in diabetes.

Biologists once assumed that the variable rates at which cells synthesize different mRNA's determine the quantities of mRNA's and their corresponding proteins in a cell. However, recent investigations have shown that the concentrations of most mRNA's correlate best, not with their synthesis rate, but rather with the equally variable rates at which cells degrade the different mRNA's in their cytoplasm. If a cell degrades both a rapidly and a slowly synthesized mRNA slowly, both mRNA's will accumulate to high levels.

An important example of this phenomenon is the development of red blood cells from their unspecialized parent cells in **bone marrow**. For red blood cells to accumulate sufficient concentrations of **hemoglobin** (which transports oxygen) to carry out their main function, the cells' parent cells must simultaneously produce more of the constituent proteins of hemoglobin and less of most other proteins. To do this, the parent cells halt synthesis of non-hemoglobin mRNA's in the nucleus and rapidly degrade copies of the non-hemoglobin mRNA's remaining in the cytoplasm. Halting synthesis of mRNA alone would not affect the quantities of proteins synthesized by the mRNA's still existing in the cytoplasm. Biologists now believe that most cells can regulate protein production most efficiently by varying both mRNA synthesis and degradation, as developing red cells do, rather than by just varying one or the other.

1. The passage is primarily concerned with discussing the
  - (A) influence of mRNA concentrations on the development of red blood cells
  - (B) role of the synthesis and degradation of mRNA in cell functioning
  - (C) mechanism by which genes are transcribed into mRNA
  - (D) differences in mRNA concentrations in cell nuclei and in the cytoplasm
  - (E) way in which mRNA synthesis contributes to the onset of diabetes
2. The passage suggests that a biologist who held the view described in the first sentence of the second paragraph would most probably also have believed which of the following?
  - (A) The rate of degradation of specific mRNA's has little effect on protein concentrations.
  - (B) The rate of degradation of specific mRNA's should be studied intensively.

- (C) The rates of synthesis and degradation for any given mRNA are normally equal.
- (D) Different mRNA's undergo degradation at widely varying rates.
- (E) Most mRNA's degrade very rapidly.
3. Which of the following best describes the relationship between the second and third paragraphs of the passage?
- (A) The second paragraph presents arguments in support of a new theory and the third paragraph presents arguments against that same theory.
- (B) The second paragraph describes a traditional view and the third paragraph describes the view that has replaced it on the basis of recent investigations.
- (C) The third paragraph describes a specific case of a phenomenon that is described generally in the second paragraph.
- (D) The third paragraph describes an investigation that was undertaken to resolve problems raised by phenomena described in the second paragraph.
- (E) Both paragraphs describe in detail specific examples of the phenomenon that is introduced in the first paragraph.
4. The accumulation of concentrations of hemoglobin in red blood cells is mentioned in the passage as an example of which of the following?
- (A) The effectiveness of simultaneous variation of the rates of synthesis and degradation of mRNA
- (B) The role of the ribosome in enabling a parent cell to develop properly into a more specialized form
- (C) The importance of activating the genes for particular proteins at the correct moment
- (D) The abnormal proliferation of a protein that threatens to make the cell cancerous
- (E) The kind of evidence that biologists relied on for support of a view of mRNA synthesis that is now considered obsolete
5. To begin to control a disease caused by a protein deficiency, the passage suggests that a promising experimental treatment would be to administer a drug that would reduce
- (A) only the degradation rate for the mRNA of the protein involved
- (B) only the synthesis rate for the mRNA of the protein involved
- (C) both the synthesis and degradation rates for the mRNA of the protein involved
- (D) the incidence of errors in the transcription of mRNA's from genetic nucleotide sequences
- (E) the rate of activity of ribosomes in the cytoplasm of most cells
6. According to the passage, which of the following best describes the current view

on the relationship between the synthesis and the degradation of mRNA in regulating protein synthesis?

- (A) Biologists have recently become convinced that the ribosome controls the rates of synthesis and degradation of mRNA.
  - (B) There is no consensus among biologists as to the significance of mRNA degradation in regulating protein synthesis.
  - (C) The concept of mRNA degradation is so new that most biologists still believe that the vital role in protein regulation belongs to mRNA synthesis.
  - (D) Degradation of mRNA is now considered to be the key process and mRNA synthesis is no longer believed to play a significant role.
  - (E) Degradation of mRNA is now considered to be as important as mRNA synthesis has been, and still is, believed to be.
7. According to the passage, which of the following can happen when protein synthesis is not appropriately regulated?
- (A) Diabetes can result from errors that occur when the ribosomes translate mRNA into protein.
  - (B) Cancer can result from an excess of certain proteins and diabetes can result from an insulin deficiency.
  - (C) A deficiency of red blood cells can occur if bone marrow cells produce too much hemoglobin.
  - (D) Cancer can be caused by excessively rapid degradation of certain amino acids in the cytoplasm of cells.
  - (E) Excessive synthesis of one protein can trigger increased degradation of mRNA's for other proteins and create severe protein imbalances.
8. The passage suggests that a biologist who detected high levels of two proteins in a certain type of cell would be likely to consider which of the following as a possible explanation?
- (A) The rate of mRNA degradation for one of the proteins increases as this type of cell develops a more specialized function.
  - (B) The two proteins are most likely constituents of a complex substance supporting the cells' specialized function.
  - (C) The cells are likely to proliferate abnormally and possibly become cancerous due to the levels of these proteins.
  - (D) The mRNA's for both proteins are being degraded at a low rate in that type of cell.
  - (E) The mRNA's for the two proteins are being synthesized at identical rates in that type of cell.

**Passage 37 (37/63)**

(This passage was excerpted from material written in 1990.)

As the economic role of multinational, global corporations expands, the international economic environment will be shaped increasingly not by governments or international institutions, but by the interaction between governments and global corporations, especially in the United States, Europe, and Japan. A significant factor in this shifting world economy is the trend toward regional trading blocs of nations, which has a potentially large effect on the evolution of the world trading system. Two examples of this trend are the United States-Canada Free Trade Agreement (FTA) and Europe 1992, the move by the European Community (EC) to dismantle impediments to the free flow of goods, services, capital, and labor among member states by the end of 1992. However, although numerous political and economic factors were operative in launching the move to integrate the EC's markets, concern about protectionism within the EC does not appear to have been a major consideration. This is in sharp contrast to the FTA; the overwhelming reason for that bilateral initiative was fear of increasing United States protectionism. Nonetheless, although markedly different in origin and nature, both regional developments are highly significant in that they will foster integration in the two largest and richest markets of the world, as well as provoke questions about the future direction of the world trading system.

1. The primary purpose of the passage as a whole is to
  - (A) describe an initiative and propose its continuance
  - (B) chronicle a development and illustrate its inconsistencies
  - (C) identify a trend and suggest its importance
  - (D) summarize a process and question its significance
  - (E) report a phenomenon and outline its probable future
2. According to the passage, all of the following are elements of the shifting world economy EXCEPT
  - (A) an alteration in the role played by governments
  - (B) an increase in interaction between national governments and international regulatory institutions
  - (C) an increase in the formation of multinational trading alliances
  - (D) an increase in integration in the two richest markets of the world
  - (E) a fear of increasing United States protectionism
3. The passage suggests which of the following about global corporations?
  - (A) Their continued growth depends on the existence of a fully integrated international market.
  - (B) Their potential effect on the world market is a matter of ongoing concern to international institutions.
  - (C) They will have to assume quasi-governmental functions if current economic trends continue.
  - (D) They have provided a model of economic success for regional trading blocs.
  - (E) Their influence on world economics will continue to increase.

4. According to the passage, one similarity between the FTA and Europe 1992 is that they both
- (A) overcame concerns about the role of politics in the shifting world economy
  - (B) originated out of concern over unfair trade practices by other nations
  - (C) exemplify a trend toward regionalization of commercial markets
  - (D) place the economic needs of the trading bloc ahead of those of the member nations
  - (E) help to ensure the continued economic viability of the world community
5. Which of the following can be inferred from the passage about the European Community prior to the adoption of the Europe 1992 program?
- (A) There were restrictions on commerce between the member nations.
  - (B) The economic policies of the member nations focused on global trading issues.
  - (C) There were few impediments to trade between the member nations and the United States.
  - (D) The flow of goods between the member nations and Canada was insignificant.
  - (E) Relations between multinational corporations and the governments of the member nations were strained.
6. The author discusses the FTA and Europe 1992 most likely in order to
- (A) point out the similarities between two seemingly disparate trading alliances
  - (B) illustrate how different economic motivations produce different types of trading blocs
  - (C) provide contrasting examples of a trend that is influencing the world economy
  - (D) identify the most important characteristics of successful economic integration
  - (E) trace the history of regional trading blocs
7. Which of the following best describes the organization of the passage?
- (A) An argument is put forth and evidence for and against it given.
  - (B) An assertion is made and opposing evidence presented.
  - (C) Two hypotheses are described and shown to inconsistent with one another.
  - (D) A phenomenon is identified and illustrations of this phenomenon offered.
  - (E) A specific case of a phenomenon is discussed a generalization drawn.

### Passage 38 (38/63)

In *Forces of Production*, David Noble examines the transformation of the machine-tool industry as the industry moved from reliance on skilled artisans to automation. Noble writes from a Marxist perspective, and his central argument is that management, in its decisions to automate, conspired against labor: the power that the skilled machinists wielded in the industry



was intolerable to management. Noble fails to substantiate this claim, although his argument is impressive when he applies the Marxist concept of “de-skilling”—the use of technology to replace skilled labor—to the automation of the machine-tool industry. In automating, the industry moved to computer-based, digitized “numerical-control” (N/C) technology, rather than to artisan-generated “record-playback” (R/P) technology.

Although both systems reduced reliance on skilled labor, Noble clearly prefers R/P, with its inherent acknowledgment of workers’ skills: unlike N/C, its programs were produced not by engineers at their computers, but by skilled machinists, who recorded their own movements to “teach” machines to duplicate those movements. However, Noble’s only evidence of conspiracy is that, although the two approaches were roughly equal in technical merit, management chose N/C. From this he concludes that automation is undertaken not because efficiency demands it or scientific advances allow it, but because it is a tool in the ceaseless war of capitalists against labor.

1. The author of the passage is primarily concerned with
  - (A) reexamining a political position and defending its validity
  - (B) examining a management decision and defending its necessity
  - (C) analyzing a scholarly study and pointing out a central weakness
  - (D) explaining a trend in automation and warning about its dangers
  - (E) chronicling the history of an industry and criticizing its development
2. According to information in the passage, the term “de-skilling” refers to the
  - (A) loss of skills to industry when skilled workers are replaced by unskilled laborers
  - (B) substitution of mechanized processes for labor formerly performed by skilled workers
  - (C) labor theory that automation is technologically comparable to skilled labor
  - (D) process by which skilled machinists “teach” machines to perform certain tasks
  - (E) exclusion of skilled workers from participation in the development of automated technology
3. Which of the following best characterizes the function of the second paragraph of the passage?
  - (A) It develops a topic introduced in the first paragraph.
  - (B) It provides evidence to refute a claim presented in the first paragraph.
  - (C) It gives examples of a phenomenon mentioned in the first paragraph.
  - (D) It presents a generalization about examples given in the first paragraph.
  - (E) It suggests two possible solutions to a problem presented in the first paragraph.
4. The passage suggests which of the following about N/C automation in the machine-tool industry?



- (A) It displaced fewer skilled workers than R/P automation did.
  - (B) It could have been implemented either by experienced machinists or by computer engineers.
  - (C) It was designed without the active involvement skilled machinists.
  - (D) It was more difficult to design than R/P automation was.
  - (E) It was technically superior to R/P automation.
5. Which of the following phrases most clearly reveals the attitude of the author of the passage toward Noble's central argument?
- (A) "conspired against" (line 6)
  - (B) "intolerable to management" (line 7)
  - (C) "impressive when he applies the Marxist concept" (line 9)
  - (D) "clearly prefers" (line 16)
  - (E) "only evidence of conspiracy" (line 21)
6. The author of the passage commends Noble's book for which of the following?
- (A) Concentrating on skilled as opposed to unskilled workers in its discussion of the machine-tool industry
  - (B) Offering a generalization about the motives behind the machine-tool industry's decision to automate
  - (C) Making an essential distinction between two kinds of technology employed in the machine-tool industry
  - (D) Calling into question the notion that managers conspired against labor in the automation of the machine-tool industry
  - (E) Applying the concept of de-skilling to the machine tool industry
7. Which of the following best characterizes Forces of Production as it is described in the passage?
- (A) A comparison of two interpretations of how a particular industry evolved
  - (B) An examination of the origin of a particular concept in industrial economics
  - (C) A study that points out the weakness of a particular interpretation of an industrial phenomenon
  - (D) A history of a particular industry from an ideological point of view
  - (E) An attempt to relate an industrial phenomenon in one industry to a similar phenomenon in another industry

### Passage 39 (39/63)

The **sensation of pain** cannot accurately be described as "located" at the point of an injury, or, **for that matter**, in any one place in the nerves or brain. Rather, pain signals—and pain relief—are delivered through a highly complex interacting circuitry.

When a cell is injured, a rush of prostaglandins sensitizes nerve endings at the injury.

Prostaglandins are chemicals produced in and released from virtually all mammalian cells when they are injured: these are the only pain signals that do not originate in the nervous system. Aspirin and other similar drugs (such as indomethacin and ibuprofen) keep prostaglandins from being made by interfering with an enzyme known as prostaglandin synthetase, or cyclooxygenase. The drugs' effectiveness against pain is proportional to their success in blocking this enzyme at the site of injury.

From nerve endings at the injury, pain signals move to nerves feeding into the **spinal cord**. The long, tubular membranes of nerve cells carry electrical impulses. When electrical impulses get to the spinal cord, a pain-signaling chemical known as substance P is released there. Substance P then excites nearby neurons to send impulses to the brain. Local anesthetics such as novocaine and xylocaine work by blocking the electrical transmission along nerves in a particular area. They inhibit the flow of sodium ions through the membranes, making the nerves electrically quiescent; thus no pain signals are sent to the spinal cord or to the brain.

Recent discoveries in the study of pain have involved the brain itself—the supervising organ that notices pain signals and that sends messages down to the spinal cord to regulate incoming pain traffic. Endorphins—the brain's own morphine—are a class of small peptides that help to block pain signals within the brain itself. The presence of endorphins may also help to explain differences in response to pain signals, since individuals seem to differ in their ability to produce endorphins. It now appears that a number of techniques for blocking chronic pain—such as acupuncture and electrical stimulation of the central **brain stem**—involve the release of endorphins in the brain and spinal cord.

1. The passage is primarily concerned with
  - (A) analyzing ways that enzymes and other chemicals influence how the body feels pain
  - (B) describing the presence of endorphins in the brain and discussing ways the body blocks pain within the brain itself
  - (C) describing how pain signals are conveyed in the body and discussing ways in which the pain signals can be blocked
  - (D) demonstrating that pain can be influenced by acupuncture and electrical stimulation of the central brain stem
  - (E) differentiating the kinds of pain that occur at different points in the body's nervous system
2. According to the passage, which of the following is one of the first things to occur when cells are injured?
  - (A) The flow of electrical impulses through nerve cells at the site of the injury is broken.
  - (B) The production of substance P traveling through nerve cells to the brain increases.
  - (C) Endorphins begin to speed up the response of nerve cells at the site of the injury.
  - (D) A flood of prostaglandins sensitizes nerve endings at the site of the injury.

- (E) Nerve cells connected to the spinal cord become electrically quiescent.
3. Of the following, which is most likely attributable to the effect of endorphins as described in the passage?
- (A) After an injection of novocaine, a patient has no feeling in the area where the injection was given.
- (B) After taking ibuprofen, a person with a headache gets quick relief.
- (C) After receiving a local anesthetic, an injured person reports relief in the anesthetized area.
- (D) After being given aspirin, a child with a badly scraped elbow feels better.
- (E) After acupuncture, a patient with chronic back pain reports that the pain is much less severe.
4. It can be inferred from the passage that if the prostaglandin synthetase is only partially blocked, which of the following is likely to be true?
- (A) Some endorphins will be produced, and some pain signals will be intensified.
- (B) Some substance P is likely to be produced, so some pain signals will reach the brain.
- (C) Some sodium ions will be blocked, so some pain signals will not reach the brain.
- (D) Some prostaglandins will be produced, but production of substance P will be prevented.
- (E) Some peptides in the brain will receive pain signals and begin to regulate incoming pain traffic.

### Passage 40 (40/63)

Japanese firms have achieved the highest levels of manufacturing efficiency in the world automobile industry. Some observers of Japan have assumed that Japanese firms use the same manufacturing equipment and techniques as United States firms but have benefited from the unique characteristics of Japanese employees and the Japanese culture. However, if this were true, then one would expect Japanese auto plants in the United States to perform no better than factories run by United States companies. This is not the case; Japanese-run automobile plants located in the United States and staffed by local workers have demonstrated higher levels of productivity when compared with factories owned by United States companies.

Other observers link high Japanese productivity to higher levels of capital investment per worker. But a historical perspective leads to a different conclusion. When the two top Japanese automobile makers matched and then doubled United States productivity levels in the mid-sixties, capital investment per employee was comparable to that of United States firms. Furthermore, by the late seventies, the amount of fixed assets required to produce one vehicle was roughly equivalent in Japan and in the United States.

Since capital investment was not higher in Japan, it had to be other factors that led to higher productivity. A more fruitful explanation may lie with Japanese production techniques.

Japanese automobile producers did not simply implement conventional processes more effectively: they made critical changes in United States procedures. For instance, the mass-production philosophy of United States automakers encouraged the production of huge lots of cars in order to utilize fully expensive, component-specific equipment and to occupy fully workers who have been trained to execute one operation efficiently. Japanese automakers chose to make small-lot production feasible by introducing several departures from United States practices, including the use of flexible equipment that could be altered easily to do several different production tasks and the training of workers in multiple jobs. Automakers could schedule the production of different components or models on single machines, thereby eliminating the need to store the buffer stocks of extra components that result when specialized equipment and workers are kept constantly active.

1. The primary purpose of the passage is to
  - (A) present the major steps of a process
  - (B) clarify an ambiguity
  - (C) chronicle a dispute
  - (D) correct misconceptions
  - (E) defend an accepted approach
2. The author suggests that if the observers of Japan mentioned in [line 3](#) were correct, which of the following would be the case?
  - (A) The equipment used in Japanese automobile plants would be different from the equipment used in United States plants.
  - (B) Japanese workers would be trained to do several different production jobs.
  - (C) Culture would not have an influence on the productivity levels of workers.
  - (D) The workers in Japanese-run plants would have higher productivity levels regardless of where they were located.
  - (E) The production levels of Japanese-run plants located in the United States would be equal to those of plants run by United States companies.
3. Which of the following statements concerning the productivity levels of automakers can be inferred from the passage?
  - (A) Prior to the 1960's, the productivity levels of the top Japanese automakers were exceeded by those of United States automakers.
  - (B) The culture of a country has a large effect on the productivity levels of its automakers.
  - (C) During the late 1970's and early 1980's, productivity levels were comparable in Japan and the United States.
  - (D) The greater the number of cars that are produced in a single lot, the higher a plant's productivity level.
  - (E) The amount of capital investment made by automobile manufacturers in their factories determines the level of productivity.

4. According to the passage, which of the following statements is true of Japanese automobile workers?
  - (A) Their productivity levels did not equal those of United States automobile workers until the late seventies.
  - (B) Their high efficiency levels are a direct result of cultural influences.
  - (C) They operate component-specific machinery.
  - (D) They are trained to do more than one job.
  - (E) They produce larger lots of cars than do workers in United States factories.
5. Which of the following best describes the organization of the first paragraph?
  - (A) A thesis is presented and supporting examples are provided.
  - (B) Opposing views are presented, classified, and then reconciled.
  - (C) A fact is stated, and an explanation is advanced and then refuted.
  - (D) A theory is proposed, considered, and then amended.
  - (E) An opinion is presented, qualified, and then reaffirmed.
6. It can be inferred from the passage that one problem associated with the production of huge lots of cars is which of the following?
  - (A) The need to manufacture flexible machinery and equipment
  - (B) The need to store extra components not required for immediate use
  - (C) The need for expensive training programs for workers, which emphasize the development of facility in several production jobs
  - (D) The need to alter conventional mass-production processes
  - (E) The need to increase the investment per vehicle in order to achieve high productivity levels
7. Which of the following statements is supported by information stated in the passage?
  - (A) Japanese and United States automakers differ in their approach to production processes.
  - (B) Japanese automakers have perfected the use of single-function equipment.
  - (C) Japanese automakers invest more capital per employee than do United States automakers.
  - (D) United States-owned factories abroad have higher production levels than do Japanese owned plants in the United States.
  - (E) Japanese automakers have benefited from the cultural heritage of their workers.
8. With which of the following predictive statement regarding Japanese automakers would the author most likely agree?
  - (A) The efficiency levels of the Japanese automakers will decline if they become less flexible in their approach to production.

- (B) Japanese automakers productivity levels double during the late 1990's.
- (C) United States automakers will originate new production processes before Japanese automakers do.
- (D) Japanese automakers will hire fewer workers than will United States automakers because each worker is required to perform several jobs.
- (E) Japanese automakers will spend less on equipment repairs than will United States automakers because Japanese equipment can be easily altered.

### Passage 41 (41/63)

It was once believed that the brain was independent of metabolic processes occurring elsewhere in the body. In recent studies, however, we have discovered that the production and release in brain neurons of the neurotransmitter **serotonin** (neurotransmitters are compounds that neurons use to transmit signals to other cells) depend directly on the food that the body processes.

Our first studies sought to determine whether the increase in serotonin observed in rats given a large injection of the amino acid tryptophan might also occur after rats ate meals that change tryptophan levels in the blood. We found that, immediately after the rats began to eat, parallel elevations occurred in blood tryptophan, brain tryptophan, and brain serotonin levels. These findings suggested that the production and release of serotonin in brain neurons were normally coupled with blood-tryptophan increases. In later studies we found that injecting insulin into a rat's bloodstream also caused parallel elevations in blood and brain tryptophan levels and in serotonin levels. We then decided to see whether the secretion of the animal's own insulin similarly affected serotonin production. We gave the rats a carbohydrate-containing meal that we knew would elicit insulin secretion. As we had hypothesized, the blood tryptophan level and the concentrations of tryptophan serotonin in the brain increased after the meal.

Surprisingly, however, when we added a large amount of protein to the meal, brain tryptophan and serotonin levels fell. Since protein contains tryptophan, why should it depress brain tryptophan levels? The answer lies in the mechanism that provides blood tryptophan to the brain cells. This same mechanism also provides the brain cells with other amino acids found in protein, such as tyrosine and Leucine. The consumption of protein increases blood concentration of the other amino acids much more, proportionately, than it does that of tryptophan. The more protein in the meal, the lower is the ratio of the resulting blood-tryptophan concentration to the concentration of competing amino acids, and the more slowly is tryptophan provided to the brain. Thus the more protein in a meal, the less serotonin subsequently produced and released.

1. Which of the following titles best summarizes the contents of the passage?
  - (A) Neurotransmitters: Their Crucial Function in Cellular Communication
  - (B) Diet and Survival: An Old Relationship Reexamined
  - (C) The Blood Supply and the Brain: A Reciprocal Dependence
  - (D) Amino Acids and Neurotransmitters: The Connection Between Serotonin Levels and Tyrosine



(E) The Effects of Food Intake on the Production and Release of Serotonin: Some Recent Findings

2. According to the passage, the speed with which tryptophan is provided to the brain cells of a rat varies with the
  - (A) amount of protein present in a meal
  - (B) concentration of serotonin in the brain before a meal
  - (C) concentration of leucine in the blood rather than on the concentration of tyrosine in the blood after a meal
  - (D) concentration of tryptophan in the brain before a meal
  - (E) number of serotonin-containing neurons present in the brain before a meal
3. According to the passage, when the authors began their first studies, they were aware that
  - (A) they would eventually need to design experiments that involved feeding rats high concentrations of protein
  - (B) tryptophan levels in the blood were difficult to monitor with accuracy
  - (C) serotonin levels increased after rats were fed meals rich in tryptophan
  - (D) there were many neurotransmitters whose production was dependent on metabolic processes elsewhere in the body
  - (E) serotonin levels increased after rats were injected with a large amount of tryptophan
4. According to the passage, one reason that the authors gave rats carbohydrates was to
  - (A) depress the rats' tryptophan levels
  - (B) prevent the rats from contracting diseases
  - (C) cause the rats to produce insulin
  - (D) demonstrate that insulin is the most important substance secreted by the body
  - (E) compare the effect of carbohydrates with the effect of proteins
5. According to the passage, the more protein a rat consumes, the lower will be the
  - (A) ratio of the rat's blood-tryptophan concentration to the amount of serotonin produced and released in the rat's brain
  - (B) ratio of the rat's blood-tryptophan concentration to the concentration in its blood of the other amino acids contained in the protein
  - (C) ratio of the rat's blood-tyrosine concentration to its blood-leucine concentration
  - (D) number of neurotransmitters of any kind that the rat will produce and release
  - (E) number of amino acids the rat's blood will contain
6. The authors' discussion of the "mechanism that provides blood tryptophan to the brain cells" (lines 31-32) is meant to



- (A) stimulate further research studies
  - (B) summarize an area of scientific investigation
  - (C) help explain why a particular research finding was obtained
  - (D) provide supporting evidence for a controversial scientific theory
  - (E) refute the conclusions of a previously mentioned research study
7. According to the passage, an injection of insulin was most similar in its effect on rats to an injection of
- (A) tyrosine
  - (B) leucine
  - (C) blood
  - (D) tryptophan
  - (E) protein
8. It can be inferred from the passage that which of the following would be LEAST likely to be a potential source of aid to a patient who was not adequately producing and releasing serotonin?
- (A) Meals consisting almost exclusively of protein
  - (B) Meals consisting almost exclusively of carbohydrates
  - (C) Meals that would elicit insulin secretion
  - (D) Meals that had very low concentrations of tyrosine
  - (E) Meals that had very low concentrations of leucine
9. It can be inferred from the passage that the authors initially held which of the following hypotheses about what would happen when they fed large amounts of protein to rats?
- (A) The rats' brain serotonin levels would not decrease.
  - (B) The rats' brain tryptophan levels would decrease.
  - (C) The rats' tyrosine levels would increase less quickly than would their leucine levels.
  - (D) The rats would produce more insulin.
  - (E) The rats would produce neurotransmitters other than serotonin.

### Passage 42 (42/63)

Historians sometimes forget that history is continually being made and experienced before it is studied, interpreted, and read. These latter activities have their own history, of course, which may impinge in unexpected ways on public events. It is difficult to predict when "new pasts" will overturn established historical interpretations and change the course of history.

In the fall of 1954, for example, C. Vann Woodward delivered a lecture series at the University of Virginia which challenged the prevailing dogma concerning the history, continuity,

and uniformity of racial segregation in the South. He argued that the Jim Crow laws of the late nineteenth and early twentieth centuries not only codified traditional practice but also were a determined effort to erase the considerable progress made by Black people during and after Reconstruction in the 1870's. This revisionist view of Jim Crow legislation grew in part from the research that Woodward had done for the NAACP legal campaign during its preparation for *Brown v. Board of Education*. The Supreme Court had issued its ruling in this epochal desegregation case a few months before Woodward's lectures.

The lectures were soon published as a book, *The Strange Career of Jim Crow*. Ten years later, in a preface to the second revised edition, Woodward confessed with ironic modesty that the first edition "had begun to suffer under some of the handicaps that might be expected in a history of the American Revolution published in 1776." That was a bit like hearing Thomas Paine apologize for the timing of his pamphlet *Common Sense*, which had a comparable impact. Although *Common Sense* also had a mass readership, Paine had intended to reach and inspire: he was not a historian, and thus not concerned with accuracy or the dangers of historical anachronism. Yet, like Paine, Woodward had an unerring sense of the revolutionary moment, and of how historical evidence could undermine the mythological tradition that was crushing the dreams of new social possibilities. Martin Luther King, Jr., testified to the profound effect of *The Strange Career of Jim Crow* on the civil rights movement by praising the book and quoting it frequently.

1. The "new pasts" mentioned in line 6 can best be described as the
  - (A) occurrence of events extremely similar to past events
  - (B) history of the activities of studying, interpreting, and reading new historical writing
  - (C) change in people's understanding of the past due to more recent historical writing
  - (D) overturning of established historical interpretations by politically motivated politicians
  - (E) difficulty of predicting when a given historical interpretation will be overturned
2. It can be inferred from the passage that the "prevailing dogma" (line 10) held that
  - (A) Jim Crow laws were passed to give legal status to well-established discriminatory practices in the South
  - (B) Jim Crow laws were passed to establish order and uniformity in the discriminatory practices of different southern states
  - (C) Jim Crow laws were passed to erase the social gains that Black people had achieved since Reconstruction
  - (D) the continuity of racial segregation in the South was disrupted by passage of Jim Crow laws
  - (E) the Jim Crow laws of the late nineteenth and early twentieth centuries were passed to reverse the effect of earlier Jim Crow laws
3. Which of the following is the best example of writing that is likely to be subject

- to the kinds of “handicaps” referred to in line 27?
- (A) A history of an auto manufacturing plant written by an employee during an auto-buying boom
  - (B) A critique of a statewide school-desegregation plan written by an elementary school teacher in that state
  - (C) A newspaper article assessing the historical importance of a United States President written shortly after the President has taken office
  - (D) A scientific paper describing the benefits of a certain surgical technique written by the surgeon who developed the technique
  - (E) Diary entries narrating the events of a battle written by a soldier who participated in the battle
4. The passage suggests that C. Vann Woodward and Thomas Paine were similar in all of the following ways EXCEPT:
- (A) Both had works published in the midst of important historical events.
  - (B) Both wrote works that enjoyed widespread popularity.
  - (C) Both exhibited an understanding of the relevance of historical evidence to contemporary issues.
  - (D) The works of both had a significant effect on events following their publication.
  - (E) Both were able to set aside worries about historical anachronism in order to reach and inspire.
5. The attitude of the author of the passage toward the work of C. Vann Woodward is best described as one of
- (A) respectful regard
  - (B) qualified approbation
  - (C) implied skepticism
  - (D) pointed criticism
  - (E) fervent advocacy
6. Which of the following best describes the new idea expressed by C. Vann Woodward in his University of Virginia lectures in 1954?
- (A) Southern racial segregation was continuous and uniform.
  - (B) Black people made considerable progress only after Reconstruction.
  - (C) Jim Crow legislation was conventional in nature.
  - (D) Jim Crow laws did not go as far in codifying traditional practice as they might have.
  - (E) Jim Crow laws did much more than merely reinforce a tradition of segregation.

Joseph Glatthaar's *Forged in Battle* is not the first excellent study of Black soldiers and their White officers in the Civil War, but it uses more soldiers' letters and diaries—including rare material from Black soldiers—and concentrates more intensely on Black-White relations in Black regiments than do any of its predecessors. Glatthaar's title expresses his thesis: loyalty, friendship, and respect among White officers and Black soldiers were fostered by the mutual dangers they faced in combat.

Glatthaar accurately describes the government's discriminatory treatment of Black soldiers in pay, promotion, medical care, and job assignments, appropriately emphasizing the campaign by Black soldiers and their officers to get the opportunity to fight. That chance remained limited throughout the war by army policies that kept most Black units serving in rear-echelon assignments and working in labor battalions. Thus, while their combat death rate was only one-third that of White units, their mortality rate from disease, a major killer in his war, was twice as great. Despite these obstacles, the courage and effectiveness of several Black units in combat won increasing respect from initially skeptical or hostile White soldiers. As one White officer put it, "they have fought their way into the respect of all the army."

In trying to demonstrate the magnitude of this attitudinal change, however, Glatthaar seems to exaggerate the prewar racism of the White men who became officers in Black regiments. "Prior to the war," he writes of these men, "virtually all of them held powerful racial prejudices." While perhaps true of those officers who joined Black units for promotion or other self-serving motives, this statement misrepresents the attitudes of the many abolitionists who became officers in Black regiments. Having spent years fighting against the race prejudice endemic in American society, they participated eagerly in this military experiment, which they hoped would help African Americans achieve freedom and postwar civil equality. By current standards of racial egalitarianism, these men's paternalism toward African Americans was racist. But to call their feelings "powerful racial prejudices" is to indulge in generational chauvinism—to judge past eras by present standards.

1. The passage as a whole can best be characterized as which of the following?
  - (A) An evaluation of a scholarly study
  - (B) A description of an attitudinal change
  - (C) A discussion of an analytical defect
  - (D) An analysis of the causes of a phenomenon
  - (E) An argument in favor of revising a view
2. According to the author, which of the following is true of Glatthaar's *Forged in Battle* compared with previous studies on the same topic?
  - (A) It is more reliable and presents a more complete picture of the historical events on which it concentrates than do previous studies.
  - (B) It uses more of a particular kind of source material and focuses more closely on a particular aspect of the topic than do previous studies.
  - (C) It contains some unsupported generalizations, but it rightly emphasizes a theme ignored by most previous studies.
  - (D) It surpasses previous studies on the same topic in that it accurately describes

conditions often neglected by those studies.

- (E) It makes skillful use of supporting evidence to illustrate a subtle trend that previous studies have failed to detect.
3. The author implies that the title of Glatthaar's book refers specifically to which of the following?
- (A) The sense of pride and accomplishment that Black soldiers increasingly felt as a result of their Civil War experiences
  - (B) The civil equality that African Americans achieved after the Civil War, partly as a result of their use of organizational skills honed by combat
  - (C) The changes in discriminatory army policies that were made as a direct result of the performance of Black combat units during the Civil War
  - (D) The improved interracial relations that were formed by the races' facing of common dangers and their waging of a common fight during the Civil War
  - (E) The standards of racial egalitarianism that came to be adopted as a result of White Civil War veterans' repudiation of the previous racism
4. The passage mentions which of the following as an important theme that receives special emphasis in Glatthaar's book?
- (A) The attitudes of abolitionist officers in Black units
  - (B) The struggle of Black units to get combat assignments
  - (C) The consequences of the poor medical care received by Black soldiers
  - (D) The motives of officers serving in Black units
  - (E) The discrimination that Black soldiers faced when trying for promotions
5. The passage suggests that which of the following was true of Black units' disease mortality rates in the Civil War?
- (A) They were almost as high as the combat mortality rates of White units.
  - (B) They resulted in part from the relative inexperience of these units when in combat.
  - (C) They were especially high because of the nature of these units' usual duty assignments.
  - (D) They resulted in extremely high overall casualty rates in Black combat units.
  - (E) They exacerbated the morale problems that were caused by the army's discriminatory policies.
6. The author of the passage quotes the White officer in [lines 23-24](#) primarily in order to provide evidence to support the contention that
- (A) virtually all White officers initially had hostile attitudes toward Black soldiers
  - (B) Black soldiers were often forced to defend themselves from physical attacks initiated by soldiers from White units
  - (C) the combat performance of Black units changed the attitudes of White soldiers toward Black soldiers

- (D) White units paid especially careful attention to the performance of Black units in battle
- (E) respect in the army as a whole was accorded only to those units, whether Black or White, that performed well in battle
7. Which of the following best describes the kind of error attributed to Glatthaar in [lines 25-28](#)?
- (A) Insisting on an unwarranted distinction between two groups of individuals in order to render an argument concerning them internally consistent
- (B) Supporting an argument in favor of a given interpretation of a situation with evidence that is not particularly relevant to the situation
- (C) Presenting a distorted view of the motives of certain individuals in order to provide grounds for a negative evaluation of their actions
- (D) Describing the conditions prevailing before a given event in such a way that the contrast with those prevailing after the event appears more striking than it actually is
- (E) Asserting that a given event is caused by another event merely because the other event occurred before the given event occurred
8. Which of the following actions can best be described as indulging in “generational chauvinism” ([lines 40-41](#)) as that practice is defined in the passage?
- (A) Condemning a present-day monarch merely because many monarchs have been tyrannical in the past.
- (B) Clinging to the formal standards of politeness common in one’s youth to such a degree that any relaxation of those standards is intolerable.
- (C) Questioning the accuracy of a report written by an employee merely because of the employee’s gender.
- (D) Deriding the superstitions accepted as “science” in past eras without acknowledging the prevalence of irrational beliefs today.
- (E) Labeling a nineteenth-century politician as “corrupt” for engaging in once-acceptable practices considered intolerable today.

### Passage 44 (44/63)

It was once assumed that all living things could be divided into two fundamental and exhaustive categories. Multicellular plants and animals, as well as many unicellular organisms, are eukaryotic—their large, complex cells have a well-formed nucleus and many organelles. On the other hand, the true bacteria are **prokaryotic cell**, which are simple and lack a nucleus. The distinction between eukaryotes and bacteria, initially defined in terms of subcellular structures visible with a microscope, was ultimately carried to the molecular level. Here prokaryotic and eukaryotic cells have many features in common. For instance, they translate genetic information into proteins according to the same type of genetic coding. But even where the molecular processes are the same, the details in the two forms are different and characteristic



of the respective forms. For example, the amino acid sequences of various enzymes tend to be typically prokaryotic or eukaryotic. The differences between the groups and the similarities within each group made it seem certain to most biologists that the tree of life had only two stems. Moreover, arguments pointing out the extent of both structural and functional differences between eukaryotes and true bacteria convinced many biologists that the precursors of the eukaryotes must have diverged from the common ancestor before the bacteria arose.

Although much of this picture has been sustained by more recent research, it seems fundamentally wrong in one respect. Among the bacteria, there are organisms that are significantly different both from the cells of eukaryotes and from the true bacteria, and it now appears that there are three stems in the tree of life. New techniques for determining the molecular sequence of the RNA of organisms have produced evolutionary information about the degree to which organisms are related, the time since they diverged from a common ancestor, and the reconstruction of ancestral versions of genes. These techniques have strongly suggested that although the true bacteria indeed form a large coherent group, certain other bacteria, the *archaeobacteria*, which are also prokaryotes and which resemble true bacteria, represent a distinct evolutionary branch that far antedates the common ancestor of all true bacteria.

1. The passage is primarily concerned with
  - (A) detailing the evidence that has led most biologists to replace the trichotomous picture of living organisms with a dichotomous one
  - (B) outlining the factors that have contributed to the current hypothesis concerning the number of basic categories of living organisms
  - (C) evaluating experiments that have resulted in proof that the prokaryotes are more ancient than had been expected
  - (D) summarizing the differences in structure and function found among true bacteria, archaeobacteria, and eukaryotes
  - (E) formulating a hypothesis about the mechanisms of evolution that resulted in the ancestors of the prokaryotes
2. According to the passage, investigations of eukaryotic and prokaryotic cells at the molecular level supported the conclusion that
  - (A) most eukaryotic organisms are unicellular
  - (B) complex cells have well-formed nuclei
  - (C) prokaryotes and eukaryotes form two fundamental categories
  - (D) subcellular structures are visible with a microscope
  - (E) prokaryotic and eukaryotic cells have similar enzymes
3. According to the passage, which of the following statements about the two-category hypothesis is likely to be true?
  - (A) It is promising because it explains the presence of true bacteria-like organisms such as organelles in eukaryotic cells.

- (B) It is promising because it explains why eukaryotic cells, unlike prokaryotic cells, tend to form multicellular organisms.
  - (C) It is flawed because it fails to account for the great variety among eukaryotic organisms.
  - (D) It is flawed because it fails to account for the similarity between prokaryotes and eukaryotes.
  - (E) It is flawed because it fails to recognize an important distinction among prokaryotes.
4. It can be inferred from the passage that which of the following have recently been compared in order to clarify the fundamental classifications of living things?
- (A) The genetic coding in true bacteria and that in other prokaryotes
  - (B) The organelle structures of archaeobacteria, true bacteria, and eukaryotes
  - (C) The cellular structures of multicellular organisms and unicellular organisms
  - (D) The molecular sequences in eukaryotic RNA, true bacterial RNA, and archaeobacterial RNA
  - (E) The amino acid sequences in enzymes of various eukaryotic species and those of enzymes in archaeobacterial species
5. If the “new techniques” mentioned in line 31 were applied in studies of biological classifications other than bacteria, which of the following is most likely?
- (A) Some of those classifications will have to be reevaluated.
  - (B) Many species of bacteria will be reclassified.
  - (C) It will be determined that there are four main categories of living things rather than three.
  - (D) It will be found that true bacteria are much older than eukaryotes.
  - (E) It will be found that there is a common ancestor of the eukaryotes, archaeobacteria, and true bacteria.
6. According to the passage, researchers working under the two-category hypothesis were correct in thinking that
- (A) prokaryotes form a coherent group
  - (B) the common ancestor of all living things had complex properties
  - (C) eukaryotes are fundamentally different from true bacteria
  - (D) true bacteria are just as complex as eukaryotes
  - (E) ancestral versions of eukaryotic genes functioned differently from their modern counterparts
7. All of the following statements are supported by the passage EXCEPT:
- (A) True bacteria form a distinct evolutionary group.
  - (B) Archaeobacteria are prokaryotes that resemble true bacteria.
  - (C) True bacteria and eukaryotes employ similar types of genetic coding.

- (D) True bacteria and eukaryotes are distinguishable at the subcellular level.
- (E) Amino acid sequences of enzymes are uniform for eukaryotic and prokaryotic organisms.
8. The author's attitude toward the view that living things are divided into three categories is best described as one of
- (A) tentative acceptance
- (B) mild skepticism
- (C) limited denial
- (D) studious criticism
- (E) whole hearted endorsement

### Passage 45 (45/63)

Excess inventory, a **massive** problem for many businesses, has several causes, some of which are unavoidable. Overstocks may accumulate through production **overruns** or errors. Certain styles and colors prove unpopular. With some products—computers and software, toys, and books—last year's models are difficult to move even at huge discounts. Occasionally the competition introduces a better product. But in many cases the public's buying tastes simply change, leaving a manufacturer or distributor with thousands (or millions) of items that the fickle public no longer wants.

One common way to **dispose of** this merchandise is to sell it to a liquidator, who buys as cheaply as possible and then resells the merchandise through catalogs, discount stores, and other **outlets**. However, liquidators may pay less for the merchandise than it cost to make it. Another way to dispose of excess inventory is to dump it. The corporation takes a straight cost write-off on its taxes and hauls the merchandise to a landfill. Although it is hard to believe, there is a sort of convoluted logic to this approach. It is perfectly legal, requires little time or preparation on the company's part, and solves the problem quickly. The drawback is the remote possibility of getting caught by the news media. Dumping perfectly useful products can turn into a public relations nightmare. Children living in poverty are freezing and XYZ Company has just sent 500 new **snowsuits** to the local dump. Parents of young children are barely getting by and QRS Company dumps 1,000 cases of disposable diapers because they have slight imperfections.

The managers of these companies are not deliberately wasteful; they are simply unaware of all their alternatives. In 1976 the Internal Revenue Service provided a tangible incentive for businesses to contribute their products to charity. The new tax law allowed corporations to deduct the cost of the product donated plus half the difference between cost and fair market selling price, with the proviso that deductions cannot exceed twice cost. Thus, the federal government sanctions—indeed, encourages—an above-cost federal tax deduction for companies that donate inventory to charity.

1. The author mentions each of the following as a cause of excess inventory EXCEPT
- (A) production of too much merchandise

- (B) inaccurate forecasting of buyers' preferences
  - (C) unrealistic pricing policies
  - (D) products' rapid obsolescence
  - (E) availability of a better product
2. The passage suggests that which of the following is a kind of product that a liquidator who sells to discount stores would be unlikely to wish to acquire?
- (A) Furniture
  - (B) Computers
  - (C) Kitchen equipment
  - (D) Baby-care products
  - (E) Children's clothing
3. The passage provides information that supports which of the following statements?
- (A) Excess inventory results most often from insufficient market analysis by the manufacturer.
  - (B) Products with slight manufacturing defects may contribute to excess inventory.
  - (C) Few manufacturers have taken advantage of the changes in the federal tax laws.
  - (D) Manufacturers who dump their excess inventory are often caught and exposed by the news media.
  - (E) Most products available in discount stores have come from manufacturers' excess-inventory stock.
4. The author cites the examples in [lines 25-29](#) most probably in order to illustrate
- (A) the fiscal irresponsibility of dumping as a policy for dealing with excess inventory
  - (B) the waste-management problems that dumping new products creates
  - (C) the advantages to the manufacturer of dumping as a policy
  - (D) alternatives to dumping explored by different companies
  - (E) how the news media could portray dumping to the detriment of the manufacturer's reputation
5. By asserting that manufacturers "are simply unaware" ([line 31](#)), the author suggests which of the following?
- (A) Manufacturers might donate excess inventory to charity rather than dump it if they knew about the provision in the federal tax code.
  - (B) The federal government has failed to provide sufficient encouragement to manufacturers to make use of advantageous tax policies.
  - (C) Manufacturers who choose to dump excess inventory are not aware of the

- possible effects on their reputation of media coverage of such dumping.
- (D) The manufacturers of products disposed of by dumping are unaware of the needs of those people who would find the products useful.
- (E) The manufacturers who dump their excess inventory are not familiar with the employment of liquidators to dispose of overstock.
6. The information in the passage suggests that which of the following, if true, would make donating excess inventory to charity less attractive to manufacturers than dumping?
- (A) The costs of getting the inventory to the charitable destination are greater than the above-cost tax deduction.
- (B) The news media give manufacturers' charitable contributions the same amount of coverage that they give dumping.
- (C) No straight-cost tax benefit can be claimed for items that are dumped.
- (D) The fair-market value of an item in excess inventory is 5 times its cost.
- (E) Items end up as excess inventory because of a change in the public's preferences.
7. Information in the passage suggests that one reason manufacturers might take advantage of the tax provision mentioned in the last paragraph is that
- (A) there are many kinds of products that cannot be legally dumped in a landfill
- (B) liquidators often refuse to handle products with slight imperfections
- (C) the law allows a deduction in excess of the cost of manufacturing the product
- (D) media coverage of contributions of excess-inventory products to charity is widespread and favorable
- (E) no tax deduction is available for products dumped or sold to a liquidator

### Passage 46 (46/63)

Traditionally, the first firm to commercialize a new technology has benefited from the unique opportunity to shape product definitions, forcing followers to adapt to a standard or invest in an unproven alternative. Today, however, the largest **payoffs** may go to companies that lead in developing integrated approaches for successful mass production and distribution.

Producers of the Beta format for videocassette recorders (VCR's), for example, were first to develop the VCR commercially in 1975, but producers of the rival VHS (Video Home System) format proved to be more successful at forming strategic alliances with other producers and distributors to manufacture and market their VCR format. Seeking to maintain exclusive control over VCR distribution, Beta producers were reluctant to form such alliances and eventually lost ground to VHS in the competition for the global VCR market.

Despite Beta's substantial technological **head start** and the fact that VHS was neither technically better nor cheaper than Beta, developers of VHS quickly turned a slight early lead in sales into a dominant position. Strategic alignments with producers of prerecorded tapes reinforced the VHS advantage. The perception among consumers that prerecorded tapes were

more available in VHS format further expanded VHS's share of the market. By the end of the 1980's, Beta was no longer in production.

1. The passage is primarily concerned with which of the following?
  - (A) Evaluating two competing technologies
  - (B) Tracing the impact of a new technology by narrating a sequence of events
  - (C) Reinterpreting an event from contemporary business history
  - (D) Illustrating a business strategy by means of a case history
  - (E) Proposing an innovative approach to business planning
2. According to the passage, today's successful firms, unlike successful firms in the past, may earn the greatest profits by
  - (A) investing in research to produce cheaper versions of existing technology
  - (B) being the first to market a competing technology
  - (C) adapting rapidly to a technological standard previously set by a competing firm
  - (D) establishing technological leadership in order to shape product definitions in advance of competing firms
  - (E) emphasizing the development of methods for the mass production and distribution of a new technology
3. According to the passage, consumers began to develop a preference for VCR's in the VHS format because they believed which of the following?
  - (A) VCR's in the VHS format were technically better than competing-format VCR's.
  - (B) VCR's in the VHS format were less expensive than competing-format VCR's.
  - (C) VHS was the first standard format for VCR's.
  - (D) VHS prerecorded videotapes were more available than Beta-format tapes.
  - (E) VCR's in the Beta format would soon cease to be produced.
4. The author implies that one way that VHS producers won control over the VCR market was by
  - (A) carefully restricting access to VCR technology
  - (B) giving up a slight early lead in VCR sales in order to improve long-term prospects
  - (C) retaining a strict monopoly on the production of prerecorded videotapes
  - (D) sharing control of the marketing of VHS-format VCR's
  - (E) sacrificing technological superiority over Beta-format VCR's in order to remain competitive in price
5. The alignment of producers of VHS-format VCR's with producers of prerecorded videotapes is most similar to which of the following?
  - (A) The alignment of an automobile manufacturer with another automobile



- manufacturer to adopt a standard design for automobile engines.
- (B) The alignment of an automobile manufacturer with an automotive glass company **whereby** the manufacturer agrees to purchase automobile windshields only from that one glass company.
  - (C) The alignment of an automobile manufacturer with a petroleum company to ensure the widespread availability of the fuel required by a new type of engine developed by the manufacturer.
  - (D) The alignment of an automobile manufacturer with its dealers to adopt a plan to improve automobile design.
  - (E) The alignment of an automobile dealer with an automobile rental chain to adopt a strategy for an advertising campaign to promote a new type of automobile.
6. Which of the following best describes the relation of the first paragraph to the passage as a whole?
- (A) It makes a general observation to be exemplified.
  - (B) It outlines a process to be analyzed.
  - (C) It poses a question to be answered.
  - (D) It advances an argument to be disputed.
  - (E) It introduces conflicting arguments to be reconciled.

### Passage 47 (47/63)

Australian researchers have discovered **electroreceptors** (sensory organs designed to respond to electrical fields) clustered at the tip of the **spiny anteater's** snout. The researchers made this discovery by exposing small areas of the snout to extremely weak electrical fields and recording the transmission of resulting nervous activity to the brain. While it is true that tactile receptors, another kind of sensory organ on the anteater's snout, can also respond to electrical stimuli, such receptors do so only in response to electrical field strengths about 1,000 times greater than those known to excite electroreceptors.

Having discovered the electroreceptors, researchers are now investigating how anteaters utilize such a sophisticated sensory system. In one behavioral experiment, researchers successfully trained an anteater to distinguish between two troughs of water, one with a weak electrical field and the other with none. Such evidence is consistent with researchers' hypothesis that anteaters use electroreceptors to detect electrical signals given off by prey; however, researchers as yet have been unable to detect electrical signals emanating from termite mounds, where the favorite food of anteaters live. Still, researchers have observed anteaters breaking into a nest of ants at an **oblique angle** and quickly locating nesting chambers. This ability quickly to locate unseen prey suggests, according to the researchers, that the anteaters were using their electroreceptors to locate the nesting chambers.

1. According to the passage, which of the following is a characteristic that distinguishes electroreceptors from tactile receptors?

- (A) The manner in which electroreceptors respond to electrical stimuli
  - (B) The tendency of electroreceptors to be found in clusters
  - (C) The unusual locations in which electroreceptors are found in most species
  - (D) The amount of electrical stimulation required to excite electroreceptors
  - (E) The amount of nervous activity transmitted to the brain by electroreceptors when they are excited
2. Which of the following can be inferred about the experiment described in the first paragraph?
- (A) Researchers had difficulty verifying the existence of electroreceptors in the anteater because electroreceptors respond to such a narrow range of electrical field strengths.
  - (B) Researchers found that the level of nervous activity in the anteater's brain increased dramatically as the strength of the electrical stimulus was increased.
  - (C) Researchers found that some areas of the anteater's snout were not sensitive to a weak electrical stimulus.
  - (D) Researchers found that the anteater's tactile receptors were more easily excited by a strong electrical stimulus than were the electroreceptors.
  - (E) Researchers tested small areas of the anteater's snout in order to ensure that only electroreceptors were responding to the stimulus.
3. The author of the passage most probably discusses the function of tactile receptors (lines 7-11) in order to
- (A) eliminate an alternative explanation of anteaters' response to electrical stimuli
  - (B) highlight a type of sensory organ that has a function identical to that of electroreceptors
  - (C) point out a serious complication in the research on electroreceptors in anteaters
  - (D) suggest that tactile receptors assist electroreceptors in the detection of electrical signals
  - (E) introduce a factor that was not addressed in the research on electroreceptors in anteaters
4. Which of the following can be inferred about anteaters from the behavioral experiment mentioned in the second paragraph?
- (A) They are unable to distinguish between stimuli detected by their electroreceptors and stimuli detected by their tactile receptors.
  - (B) They are unable to distinguish between the electrical signals emanating from termite mounds and those emanating from ant nests.
  - (C) They can be trained to recognize consistently the presence of a particular

stimulus.

- (D) They react more readily to strong than to weak stimuli.
  - (E) They are more efficient at detecting stimuli in a controlled environment than in a natural environment.
5. The passage suggests that the researchers mentioned in the second paragraph who observed anteaters break into a nest of ants would most likely agree with which of the following statements?
- (A) The event they observed provides conclusive evidence that anteaters use their electroreceptors to locate unseen prey.
  - (B) The event they observed was atypical and may not reflect the usual hunting practices of anteaters.
  - (C) It is likely that the anteaters located the ants' nesting chambers without the assistance of electroreceptors.
  - (D) Anteaters possess a very simple sensory system for use in locating prey.
  - (E) The speed with which the anteaters located their prey is greater than what might be expected on the basis of chance alone.
6. Which of the following, if true, would most strengthen the hypothesis mentioned in lines 17-19?
- (A) Researchers are able to train anteaters to break into an underground chamber that is emitting a strong electrical signal.
  - (B) Researchers are able to detect a weak electrical signal emanating from the nesting chamber of an ant colony.
  - (C) Anteaters are observed taking increasingly longer amounts of time to locate the nesting chambers of ants.
  - (D) Anteaters are observed using various angles to break into nests of ants.
  - (E) Anteaters are observed using the same angle used with nests of ants to break into the nests of other types of prey.

### Passage 48 (48/63)

When A. Philip Randolph assumed the leadership of the Brotherhood of **Sleeping Car** Porters, he began a ten-year battle to win recognition from the **Pullman** Company, the largest private employer of Black people in the United States and the company that controlled the railroad industry's **sleeping car** and **parlor** service. In 1935 the Brotherhood became the first Black union recognized by a major corporation. Randolph's efforts in the battle helped transform the attitude of Black workers toward unions and toward themselves as an identifiable group; eventually, Randolph helped to weaken organized labor's antagonism toward Black workers.

In the Pullman contest Randolph faced formidable obstacles. The first was Black workers' understandable skepticism toward unions, which had historically barred Black workers from membership. An additional obstacle was the union that Pullman itself had formed, which

weakened support among Black workers for an independent entity.

The Brotherhood possessed a number of advantages, however, including Randolph's own tactical abilities. In 1928 he took the bold step of threatening a strike against Pullman. Such a threat, on a national scale, under Black leadership, helped replace the stereotype of the Black worker as servant with the image of the Black worker as **wage earner**. In addition, the porters' very isolation aided the Brotherhood. Porters were scattered throughout the country, sleeping in dormitories in Black communities; their segregated life protected the union's internal communications from interception. That the porters were a homogeneous group working for a single employer with single labor policy, thus sharing the same grievances from city to city, also strengthened the Brotherhood and encouraged racial identity and solidarity as well. But it was only in the early 1930's that federal legislation prohibiting a company from maintaining its own unions with company money eventually allowed the Brotherhood to become recognized as the porters' representative.

Not content with this triumph, Randolph brought the Brotherhood into the American Federation of Labor, where it became the equal of the Federation's 105 other unions. He reasoned that as a member union, the Brotherhood would be in a better position to exert pressure on member unions that practiced race restrictions. Such restrictions were eventually found unconstitutional in 1944.

1. According to the passage, by 1935 the skepticism of Black workers toward unions was
  - (A) unchanged except among Black employees of railroad-related industries
  - (B) reinforced by the actions of the Pullman Company's union
  - (C) mitigated by the efforts of Randolph
  - (D) weakened by the opening up of many unions to Black workers
  - (E) largely alleviated because of the policies of the American Federation of Labor
2. In using the word "understandable" (line 14), the author most clearly conveys
  - (A) sympathy with attempts by the Brotherhood between 1925 and 1935 to establish an independent union
  - (B) concern that the obstacles faced by Randolph between 1925 and 1935 were indeed formidable
  - (C) ambivalence about the significance of unions to most Black workers in the 1920's
  - (D) appreciation of the attitude of many Black workers in the 1920's toward unions
  - (E) regret at the historical attitude of unions toward Black workers
3. The passage suggests which of the following about the response of porters to the Pullman Company's own union?
  - (A) Few porters ever joined this union.
  - (B) Some porters supported this union before 1935.
  - (C) Porters, more than other Pullman employees, enthusiastically supported this

- union.
- (D) The porters' response was most positive after 1935.
- (E) The porters' response was unaffected by the general skepticism of Black workers concerning unions.
4. The passage suggests that if the grievances of porters in one part of the United States had been different from those of porters in another part of the country, which of the following would have been the case?
- (A) It would have been more difficult for the Pullman Company to have had a single labor policy.
- (B) It would have been more difficult for the Brotherhood to control its channels of communication.
- (C) It would have been more difficult for the Brotherhood to build its membership.
- (D) It would have been easier for the Pullman Company's union to attract membership.
- (E) It would have been easier for the Brotherhood to threaten strikes.
5. The passage suggests that in the 1920's a company in the United States was able to
- (A) use its own funds to set up a union
- (B) require its employees to join the company's own union
- (C) develop a single labor policy for all its employees with little employee dissent
- (D) pressure its employees to contribute money to maintain the company's own union
- (E) use its resources to prevent the passage of federal legislation that would have facilitated the formation of independent unions
6. The passage supplies information concerning which of the following matters related to Randolph?
- (A) The steps he took to initiate the founding of the Brotherhood
- (B) His motivation for bringing the Brotherhood into the American Federation of Labor
- (C) The influence he had on the passage of legislation overturning race restrictions in 1944
- (D) The influence he had on the passage of legislation to bar companies from financing their own unions
- (E) The success he and the Brotherhood had in influencing the policies of the other unions in the American Federation of Labor

### Passage 49 (49/63)

Historians of women's labor in the United States at first largely disregarded the story of

female service workers—women earning wages in occupations such as salesclerk, domestic servant, and office secretary. These historians focused instead on factory work, primarily because it seemed so different from traditional, unpaid “women’s work” in the home, and because the underlying economic forces of industrialism were presumed to be gender-blind and hence emancipatory in effect. Unfortunately, emancipation has been less profound than expected, for not even industrial wage labor has escaped continued sex segregation in the workplace.

To explain this unfinished revolution in the status of women, historians have recently begun to emphasize the way a prevailing definition of femininity often determines the kinds of work allocated to women, even when such allocation is inappropriate to new conditions. For instance, early textile-mill entrepreneurs, in justifying women’s employment in wage labor, made much of the assumption that women were by nature skillful at detailed tasks and patient in carrying out repetitive chores; the mill owners thus imported into the new industrial order hoary stereotypes associated with the homemaking activities they presumed to have been the purview of women. Because women accepted the more unattractive new industrial tasks more readily than did men, such jobs came to be regarded as female jobs. And employers, who assumed that women’s “real” aspirations were for marriage and family life, declined to pay women wages commensurate with those of men. Thus many lower-skilled, lower-paid, less secure jobs came to be perceived as “female.”

More remarkable than the origin has been the persistence of such sex segregation in twentieth-century industry. Once an occupation came to be perceived as “female,” employers showed surprisingly little interest in changing that perception, even when higher profits beckoned. And despite the urgent need of the United States during the Second World War to mobilize its human resources fully, job segregation by sex characterized even the most important war industries. Moreover, once the war ended, employers quickly returned to men most of the “male” jobs that women had been permitted to master.

1. According to the passage, job segregation by sex in the United States was
  - (A) greatly diminished by labor mobilization during the Second World War
  - (B) perpetuated by those textile-mill owners who argued in favor of women’s employment in wage labor
  - (C) one means by which women achieved greater job security
  - (D) reluctantly challenged by employers except when the economic advantages were obvious
  - (E) a constant source of labor unrest in the young textile industry
2. According to the passage, historians of women’s labor focused on factory work as a more promising area of research than service-sector work because factory work
  - (A) involved the payment of higher wages
  - (B) required skill in detailed tasks
  - (C) was assumed to be less characterized by sex segregation
  - (D) was more readily accepted by women than by men
  - (E) fitted the economic dynamic of industrialism better



3. It can be inferred from the passage that early historians of women's labor in the United States paid little attention to women's employment in the service sector of the economy because
- (A) the extreme variety of these occupations made it very difficult to assemble meaningful statistics about them
  - (B) fewer women found employment in the service sector than in factory work
  - (C) the wages paid to workers in the service sector were much lower than those paid in the industrial sector
  - (D) women's employment in the service sector tended to be much more short-term than in factory work
  - (E) employment in the service sector seemed to have much in common with the unpaid work associated with homemaking
4. The passage supports which of the following statements about the early mill owners mentioned in the second paragraph?
- (A) They hoped that by creating relatively unattractive "female" jobs they would discourage women from losing interest in marriage and family life.
  - (B) They sought to increase the size of the available labor force as a means to keep men's wages low.
  - (C) They argued that women were inherently suited to do well in particular kinds of factory work.
  - (D) They thought that factory work bettered the condition of women by emancipating them from dependence on income earned by men.
  - (E) They felt guilty about disturbing the traditional division of labor in family.
5. It can be inferred from the passage that the "unfinished revolution" the author mentions in line 13 refers to the
- (A) entry of women into the industrial labor market
  - (B) recognition that work done by women as homemakers should be compensated at rates comparable to those prevailing in the service sector of the economy
  - (C) development of a new definition of femininity unrelated to the economic forces of industrialism
  - (D) introduction of equal pay for equal work in all professions
  - (E) emancipation of women wage earners from gender-determined job allocation
6. The passage supports which of the following statements about hiring policies in the United States?
- (A) After a crisis many formerly "male" jobs are reclassified as "female" jobs.
  - (B) Industrial employers generally prefer to hire women with previous experience as homemakers.
  - (C) Post-Second World War hiring policies caused women to lose many of their wartime gains in employment opportunity.

- (D) Even war industries during the Second World War were reluctant to hire women for factory work.
- (E) The service sector of the economy has proved more nearly gender-blind in its hiring policies than has the manufacturing sector.
7. Which of the following words best expresses the opinion of the author of the passage concerning the notion that women are more skillful than men in carrying out detailed tasks?
- (A) “patient” (line 21)
- (B) “repetitive” (line 21)
- (C) “hoary” (line 22)
- (D) “homemaking” (line 23)
- (E) “purview” (line 24)
8. Which of the following best describes the relationship of the final paragraph to the passage as a whole?
- (A) The central idea is reinforced by the citation of evidence drawn from twentieth-century history.
- (B) The central idea is restated in such a way as to form a transition to a new topic for discussion.
- (C) The central idea is restated and juxtaposed with evidence that might appear to contradict it.
- (D) A partial exception to the generalizations of the central idea is dismissed as unimportant.
- (E) Recent history is cited to suggest that the central idea’s validity is gradually diminishing.

### Passage 50 (50/63)

According to a recent theory, Archean-age gold-quartz vein systems were formed over two billion years ago from magnetic fluids that originated from molten granite-like bodies deep beneath the surface of the Earth. This theory is contrary to the widely held view that the systems were deposited from metamorphic fluids, that is, from fluids that formed during the dehydration of wet sedimentary rocks.

The recently developed theory has considerable practical importance. Most of the gold deposits discovered during the original gold rushes were exposed at the Earth’s surface and were found because they had shed trails of **alluvial gold** that were easily traced by simple **prospecting** methods. Although these same methods still lead to an occasional discovery, most deposits not yet discovered have gone undetected because they are buried and have no surface expression.

The challenge in exploration is therefore to unravel the subsurface geology of an area and pinpoint the position of buried minerals. Methods widely used today include analysis of aerial images that yield a broad geological overview; geophysical techniques that provide data on the

magnetic, electrical, and mineralogical properties of the rocks being investigated; and sensitive chemical tests that are able to detect the subtle chemical halos that often envelop mineralization. However, none of these high-technology methods are of any value if the sites to which they are applied have never mineralized, and to maximize the chances of discovery the explorer must therefore pay particular attention to selecting the ground formations most likely to be mineralized. Such ground selection relies to varying degrees on conceptual models, which take into account theoretical studies of relevant factors.

These models are constructed primarily from empirical observations of known mineral deposits and from theories of ore-forming processes. The explorer uses the models to identify those geological features that are critical to the formation of the mineralization being modeled, and then tries to select areas for exploration that exhibit as many of the critical features as possible.

1. The author is primarily concerned with
  - (A) advocating a return to an older methodology
  - (B) explaining the importance of a recent theory
  - (C) enumerating differences between two widely used methods
  - (D) describing events leading to a discovery
  - (E) challenging the assumptions on which a theory is based
2. According to the passage, the widely held view of Archean-age gold-quartz vein systems is that such systems
  - (A) were formed from metamorphic fluids
  - (B) originated in molten granite-like bodies
  - (C) were formed from alluvial deposits
  - (D) generally have surface expression
  - (E) are not discoverable through chemical tests
3. The passage implies that which of the following steps would be the first performed by explorers who wish to maximize their chances of discovering gold?
  - (A) Surveying several sites known to have been formed more than two billion years ago
  - (B) Limiting exploration to sites known to have been formed from metamorphic fluid
  - (C) Using an appropriate conceptual model to select a site for further exploration
  - (D) Using geophysical methods to analyze rocks over a broad area
  - (E) Limiting exploration to sites where alluvial gold has previously been found
4. Which of the following statements about discoveries of gold deposits is supported by information in the passage?
  - (A) The number of gold discoveries made annually has increased between the time of the original gold rushes and the present.
  - (B) New discoveries of gold deposits are likely to be the result of exploration

- techniques designed to locate buried mineralization.
- (C) It is unlikely that newly discovered gold deposits will ever yield as much as did those deposits discovered during the original gold rushes.
- (D) Modern explorers are divided on the question of the utility of simple prospecting methods as a source of new discoveries of gold deposits.
- (E) Models based on the theory that gold originated from magnetic fluids have already led to new discoveries of gold deposits.
5. It can be inferred from the passage that which of the following is easiest to detect?
- (A) A gold-quartz vein system originating in magnetic fluids
- (B) A gold-quartz vein system originating in metamorphic fluids
- (C) A gold deposit that is mixed with granite
- (D) A gold deposit that has shed alluvial gold
- (E) A gold deposit that exhibits chemical halos
6. The theory mentioned in line 1 relates to the conceptual models discussed in the passage in which of the following ways?
- (A) It may furnish a valid account of ore-forming processes, and, hence, can support conceptual models that have great practical significance.
- (B) It suggests that certain geological formations, long believed to be mineralized, are in fact mineralized, thus confirming current conceptual models.
- (C) It suggests that there may not be enough similarity across Archean-age gold-quartz vein systems to warrant the formulation of conceptual models.
- (D) It corrects existing theories about the chemical halos of gold deposits, and thus provides a basis for correcting current conceptual models.
- (E) It suggests that simple prospecting methods still have a higher success rate in the discovery of gold deposits than do more modern methods.
7. According to the passage, methods of exploring for gold that are widely used today are based on which of the following facts?
- (A) Most of the Earth's remaining gold deposits are still molten.
- (B) Most of the Earth's remaining gold deposits are exposed at the surface.
- (C) Most of the Earth's remaining gold deposits are buried and have no surface expression.
- (D) Only one type of gold deposit warrants exploration, since the other types of gold deposits are found in regions difficult to reach.
- (E) Only one type of gold deposit warrants exploration, since the other types of gold deposits are unlikely to yield concentrated quantities of gold.
8. It can be inferred from the passage that the efficiency of model-based gold exploration depends on which of the following?
- I. The closeness of the match between the geological features identified by the

model as critical and the actual geological features of a given area

- II. The degree to which the model chosen relies on empirical observation of known mineral deposits rather than on theories of ore-forming processes
  - III. The degree to which the model chosen is based on an accurate description of the events leading to mineralization
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II and III

### Passage 51 (51/63)

While there is no **blueprint** for transforming a largely government-controlled economy into a free one, the experience of the United Kingdom since 1979 clearly shows one approach that works: privatization, in which state-owned industries are sold to private companies. By 1979, the total borrowings and losses of state-owned industries were running at about £3 billion a year. By selling many of these industries, the government has decreased these borrowings and losses, gained over £34 billion from the sales, and now receives tax revenues from the newly privatized companies. Along with a dramatically improved overall economy, the government has been able to repay 12.5 percent of the net national debt over a two-year period.

In fact, privatization has not only rescued individual industries and a whole economy headed for disaster, but has also raised the level of performance in every area. At British Airways and British Gas, for example, productivity per employee has risen by 20 percent. At Associated British Ports, labor disruptions common in the 1970's and early 1980's have now virtually disappeared. At British Telecom, there is no longer a waiting list—as there always was before privatization—to have a telephone installed.

Part of this improved productivity has **come about** because the employees of privatized industries were given the opportunity to buy shares in their own companies. They responded enthusiastically to the offer of shares; at British Aerospace, 89 percent of the eligible work force bought shares; at Associated British Ports, 90 percent; and at British Telecom, 92 percent. When people have a personal stake in something, they think about it, care about it, work to make it prosper. At the National Freight Consortium, the new employee-owners grew so concerned about their company's profits that during wage negotiations they actually pressed their union to lower its wage demands.

Some economists have suggested that giving away free shares would provide a needed acceleration of the privatization process. Yet they miss Thomas Paine's point that "what we obtain too cheap we esteem too lightly." In order for the far-ranging benefits of individual ownership to be achieved by owners, companies, and countries, employees and other individuals must make their own decisions to buy, and they must commit some of their own resources to the choice.

1. According to the passage, all of the following were benefits of privatizing

state-owned industries in the United Kingdom EXCEPT:

- (A) Privatized industries paid taxes to the government.
  - (B) The government gained revenue from selling state-owned industries.
  - (C) The government repaid some of its national debt.
  - (D) Profits from industries that were still state-owned increased.
  - (E) Total borrowings and losses of state-owned industries decreased.
2. According to the passage, which of the following resulted in increased productivity in companies that have been privatized?
- (A) A large number of employees chose to purchase shares in their companies.
  - (B) Free shares were widely distributed to individual shareholders.
  - (C) The government ceased to regulate major industries.
  - (D) Unions conducted wage negotiations for employees.
  - (E) Employee-owners agreed to have their wages lowered.
3. It can be inferred from the passage that the author considers labor disruptions to be
- (A) an inevitable problem in a weak national economy
  - (B) a positive sign of employee concern about a company
  - (C) a predictor of employee reactions to a company's offer to sell shares to them
  - (D) a phenomenon found more often in state-owned industries than in private companies
  - (E) a deterrence to high performance levels in an industry
4. The passage supports which of the following statements about employees buying shares in their own companies?
- (A) At three different companies, approximately nine out of ten of the workers were eligible to buy shares in their companies.
  - (B) Approximately 90% of the eligible workers at three different companies chose to buy shares in their companies.
  - (C) The opportunity to buy shares was discouraged by at least some labor unions.
  - (D) Companies that demonstrated the highest productivity were the first to allow their employees the opportunity to buy shares.
  - (E) Eligibility to buy shares was contingent on employees' agreeing to increased work loads.
5. Which of the following statements is most consistent with the principle described in lines 30-32?
- (A) A democratic government that decides it is inappropriate to own a particular industry has in no way abdicated its responsibilities as guardian of the public interest.
  - (B) The ideal way for a government to protect employee interests is to force



- companies to maintain their share of a competitive market without government subsidies.
- (C) The failure to harness the power of self-interest is an important reason that state-owned industries perform poorly.
- (D) Governments that want to implement privatization programs must try to eliminate all resistance to the free-market system.
- (E) The individual shareholder will reap only a minute share of the gains from whatever sacrifices he or she makes to achieve these gains.
6. Which of the following can be inferred from the passage about the privatization process in the United Kingdom?
- (A) It depends to a potentially dangerous degree on individual ownership of shares.
- (B) It conforms in its most general outlines to Thomas Paine's prescription for business ownership.
- (C) It was originally conceived to include some giving away of free shares.
- (D) It has been successful, even though privatization has failed in other countries.
- (E) It is taking place more slowly than some economists suggest is necessary.
7. The quotation in [line 39](#) is most probably used to
- (A) counter a position that the author of the passage believes is incorrect
- (B) state a solution to a problem described in the previous sentence
- (C) show how opponents of the viewpoint of the author of the passage have supported their arguments
- (D) point out a paradox contained in a controversial viewpoint
- (E) present a historical maxim to challenge the principle introduced in the third paragraph

### Passage 52 (52/63)

Seeking a competitive advantage, some professional service firms (for example, firms providing advertising, accounting, or health care services) have considered offering unconditional guarantees of satisfaction. Such guarantees specify what clients can expect and what the firm will do if it fails to fulfill these expectations. Particularly with first-time clients, an unconditional guarantee can be an effective marketing tool if the client is very cautious, the firm's fees are high, the negative consequences of bad service are grave, or business is difficult to obtain through referrals and **word-of-mouth**.

However, an unconditional guarantee can sometimes hinder marketing efforts. With its implication that failure is possible, the guarantee may, paradoxically, cause clients to doubt the service firm's ability to deliver the promised level of service. It may conflict with a firm's desire to appear sophisticated, or may even suggest that a firm is begging for business. In legal and health care services, it may mislead clients by suggesting that lawsuits or medical procedures will have guaranteed outcomes. Indeed, professional service firms with outstanding reputations

and performance to match have little to gain from offering unconditional guarantees. And any firm that implements an unconditional guarantee without undertaking a commensurate commitment to quality of service is merely employing a potentially costly marketing gimmick.

1. The primary function of the passage as a whole is to
  - (A) account for the popularity of a practice
  - (B) evaluate the utility of a practice
  - (C) demonstrate how to institute a practice
  - (D) weigh the ethics of using a strategy
  - (E) explain the reasons for pursuing a strategy
2. All of the following are mentioned in the passage as circumstances in which professional service firms can benefit from offering an unconditional guarantee EXCEPT:
  - (A) The firm is having difficulty retaining its clients of long standing.
  - (B) The firm is having difficulty getting business through client recommendations.
  - (C) The firm charges substantial fees for its services.
  - (D) The adverse effects of poor performance by the firm are significant for the client.
  - (E) The client is reluctant to incur risk.
3. Which of the following is cited in the passage as a goal of some professional service firms in offering unconditional guarantees of satisfaction?
  - (A) A limit on the firm's liability
  - (B) Successful competition against other firms
  - (C) Ability to justify fee increases
  - (D) Attainment of an outstanding reputation in a field
  - (E) Improvement in the quality of the firm's service
4. The passage's description of the issue raised by unconditional guarantees for health care or legal services most clearly implies that which of the following is true?
  - (A) The legal and medical professions have standards of practice that would be violated by attempts to fulfill such unconditional guarantees.
  - (B) The result of a lawsuit of medical procedure cannot necessarily be determined in advance by the professionals handling a client's case.
  - (C) The dignity of the legal and medical professions is undermined by any attempts at marketing of professional services, including unconditional guarantees.
  - (D) Clients whose lawsuits or medical procedures have unsatisfactory outcomes cannot be adequately compensated by financial settlements alone.

- (E) Predicting the monetary cost of legal or health care services is more difficult than predicting the monetary cost of other types of professional services.
5. Which of the following hypothetical situations best exemplifies the potential problem noted in the second sentence of the second paragraph (lines 14-17)?
- (A) A physician's unconditional guarantee of satisfaction encourages patients to sue for malpractice if they are unhappy with the treatment they receive.
- (B) A lawyer's unconditional guarantee of satisfaction makes clients suspect that the lawyer needs to find new clients quickly to increase the firm's income.
- (C) A business consultant's unconditional guarantee of satisfaction is undermined when the consultant fails to provide all of the services that are promised.
- (D) An architect's unconditional guarantee of satisfaction makes clients wonder how often the architect's buildings fail to please clients.
- (E) An accountant's unconditional guarantee of satisfaction leads clients to believe that tax returns prepared by the accountant are certain to be accurate.
6. The passage most clearly implies which of the following about the professional service firms mentioned in line 22?
- (A) They are unlikely to have offered unconditional guarantees of satisfaction in the past.
- (B) They are usually profitable enough to be able to compensate clients according to the terms of an unconditional guarantee.
- (C) They usually practice in fields in which the outcomes are predictable.
- (D) Their fees are usually more affordable than those charged by other professional service firms.
- (E) Their clients are usually already satisfied with the quality of service that is delivered.

### Passage 53 (53/63)

Although genetic mutations in bacteria and viruses can lead to epidemics, some epidemics are caused by bacteria and viruses that have undergone no significant genetic change. In analyzing the latter, scientists have discovered the importance of social and ecological factors to epidemics. **Poliomyelitis**, for example, emerged as an epidemic in the United States in the twentieth century; **by then**, modern sanitation was able to delay exposure to **polio** until adolescence or adulthood, at which time polio infection produced paralysis. Previously, infection had occurred during infancy, when it typically provided lifelong immunity without paralysis. Thus, the hygiene that helped prevent typhoid epidemics indirectly fostered a paralytic polio epidemic. Another example is Lyme disease, which is caused by bacteria that are transmitted by deer ticks. It occurred only sporadically during the late nineteenth century but has recently become prevalent in parts of the United States, largely due to an increase in the deer population that occurred simultaneously with the growth of the suburbs and increased outdoor recreational activities in the deer's habitat. Similarly, an outbreak of dengue hemorrhagic fever became an epidemic in Asia in the 1950's because of ecological changes that caused *Aedes*

*aegypti*, the mosquito that transmits the dengue virus, to proliferate. The stage is now set in the United States for a dengue epidemic because of the inadvertent introduction and wide dissemination of another mosquito, *Aedes albopictus*.

1. The passage suggests that a lack of modern sanitation would make which of the following most likely to occur?
  - (A) An outbreak of Lyme disease
  - (B) An outbreak of dengue hemorrhagic fever
  - (C) An epidemic of typhoid
  - (D) An epidemic of paralytic polio among infants
  - (E) An epidemic of paralytic polio among adolescents and adults
2. According to the passage, the outbreak of dengue hemorrhagic fever in the 1950's occurred for which of the following reasons?
  - (A) The mosquito *Aedes aegypti* was newly introduced into Asia.
  - (B) The mosquito *Aedes aegypti* became more numerous.
  - (C) The mosquito *Aedes albopictus* became infected with the dengue virus.
  - (D) Individuals who would normally acquire immunity to the dengue virus as infants were not infected until later in life.
  - (E) More people began to visit and inhabit areas in which mosquitoes live and breed.
3. It can be inferred from the passage that Lyme disease has become prevalent in parts of the United States because of which of the following?
  - (A) The inadvertent introduction of Lyme disease bacteria to the United States
  - (B) The inability of modern sanitation methods to eradicate Lyme disease bacteria
  - (C) A genetic mutation in Lyme disease bacteria that makes them more virulent
  - (D) The spread of Lyme disease bacteria from infected humans to noninfected humans
  - (E) An increase in the number of humans who encounter deer ticks
4. Which of the following can most reasonably be concluded about the mosquito *Aedes albopictus* on the basis of information given in the passage?
  - (A) It is native to the United States.
  - (B) It can proliferate only in Asia.
  - (C) It transmits the dengue virus.
  - (D) It caused an epidemic of dengue hemorrhagic fever in the 1950's.
  - (E) It replaced *Aedes aegypti* in Asia when ecological changes altered *Aedes aegypti*'s habitat.
5. Which of the following best describes the organization of the passage?
  - (A) A paradox is stated, discussed and left unresolved.

- (B) Two opposing explanations are presented, argued, and reconciled.
  - (C) A theory is proposed and is then followed by descriptions of three experiments that support the theory.
  - (D) A generalization is stated and is then followed by three instances that support the generalization.
  - (E) An argument is described and is then followed by three counterexamples that refute the argument.
6. Which of the following, if true, would most strengthen the author's assertion about the cause of the Lyme disease outbreak in the United States?
- (A) The deer population was smaller in the late nineteenth century than in the mid-twentieth century.
  - (B) Interest in outdoor recreation began to grow in the late nineteenth century.
  - (C) In recent years the suburbs have stopped growing.
  - (D) Outdoor recreation enthusiasts routinely take measures to protect themselves against Lyme disease.
  - (E) Scientists have not yet developed a vaccine that can prevent Lyme disease.

### Passage 54 (54/63)

Two modes of argumentation have been used on behalf of women's emancipation in Western societies. Arguments in what could be called the "relational" feminist tradition maintain the doctrine of "equality in difference," or equity as distinct for equality. They posit that biological distinctions between the sexes result in a necessary sexual **division of labor** in the family and throughout society and that women's **procreative** labor is currently undervalued by society, to the disadvantage of women. By contrast, the individualist feminist tradition emphasizes individual human rights and celebrates women's quest for personal autonomy, while downplaying the importance of gender roles and minimizing discussion of childbearing and its **attendant** responsibilities.

Before the late nineteenth century, these views coexisted within the feminist movement, often within the writings of the same individual. Between 1890 and 1920, however, relational feminism, which had been the dominant strain in feminist thought, and which still predominates among European and non-Western feminists, lost ground in England and the United States. Because the concept of individual rights was already well established in the Anglo-Saxon legal and political tradition, individualist feminism came to predominate in English-speaking countries. At the same time, the goals of the two approaches began to seem increasingly irreconcilable. Individualist feminists began to advocate a totally gender-blind system with equal rights for all. Relational feminists, while agreeing that equal educational and economic opportunities outside the home should be available for all women, continued to emphasize women's special contributions to society as homemakers and mothers; they demanded special treatment including protective legislation for women workers, state-sponsored maternity benefits, and paid compensation for housework.

Relational arguments have a major pitfall: because they underline women's physiological and psychological distinctiveness, they are often **appropriated** by political adversaries and used to endorse male privilege. But the individualist approach, by attacking gender roles, denying the significance of physiological difference, and condemning existing familial institutions as hopelessly patriarchal, has often simply treated as irrelevant the family roles important to many women. If the individualist framework, with its claim for women's autonomy, could be harmonized with the family-oriented concerns of relational feminists, a more fruitful model for contemporary feminist politics could emerge.

1. The author of the passage alludes to the well-established nature of the concept of individual rights in the Anglo-Saxon legal and political tradition in order to
  - (A) illustrate the influence of individualist feminist thought on more general intellectual trends in English history
  - (B) argue that feminism was already a part of the larger Anglo-Saxon intellectual tradition, even though this has often gone unnoticed by critics of women's emancipation
  - (C) explain the decline in individualist thinking among feminists in non-English-speaking countries
  - (D) help account for an increasing shift toward individualist feminism among feminists in English-speaking countries
  - (E) account for the philosophical differences between individualist and relational feminists in English-speaking countries
2. The passage suggests that the author of the passage believes which of the following?
  - (A) The predominance of individualist feminism in English-speaking countries is a historical phenomenon, the causes of which have not yet been investigated.
  - (B) The individualist and relational feminist views are irreconcilable, given their theoretical differences concerning the foundations of society.
  - (C) A consensus concerning the direction of future feminist politics will probably soon emerge, given the awareness among feminists of the need for cooperation among women.
  - (D) Political adversaries of feminism often misuse arguments predicated on differences between the sexes to argue that the existing social system should be maintained.
  - (E) Relational feminism provides the best theoretical framework for contemporary feminist politics, but individualist feminism could contribute much toward refining and strengthening modern feminist thought.
3. It can be inferred from the passage that the individualist feminist tradition denies the validity of which of the following causal statements?
  - (A) A division of labor in a social group can result in increased efficiency with regard to the performance of group tasks.



- (B) A division of labor in a social group causes inequities in the distribution of opportunities and benefits among group members.
  - (C) A division of labor on the basis of gender in a social group is necessitated by the existence of sex-linked biological differences between male and female members of the group.
  - (D) Culturally determined distinctions based on gender in a social group foster the existence of differing attitudes and opinions among group members.
  - (E) Educational programs aimed at reducing inequalities based on gender among members of a social group can result in a sense of greater well-being for all members of the group.
4. According to the passage, relational feminists and individualist feminists agree that
- (A) individual human rights take precedence over most other social claims
  - (B) the gender-based division of labor in society should be eliminated
  - (C) laws guaranteeing equal treatment for all citizens regardless of gender should be passed
  - (D) a greater degree of social awareness concerning the importance of motherhood would be beneficial to society
  - (E) the same educational and economic opportunities should be available to both sexes
5. According to the author, which of the following was true of feminist thought in Western societies before 1890?
- (A) Individualist feminist arguments were not found in the thought or writing of non-English-speaking feminists.
  - (B) Individualist feminism was a strain in feminist thought, but another strain, relational feminism, predominated.
  - (C) Relational and individualist approaches were equally prevalent in feminist thought and writing.
  - (D) The predominant view among feminists held that the welfare of women was ultimately less important than the welfare of children.
  - (E) The predominant view among feminists held that the sexes should receive equal treatment under the law.
6. The author implies that which of the following was true of most feminist thinkers in England and the United States after 1920?
- (A) They were less concerned with politics than with intellectual issues.
  - (B) They began to reach a broader audience and their programs began to be adopted by mainstream political parties.
  - (C) They called repeatedly for international cooperation among women's groups to achieve their goals.

- (D) They moderated their initial criticism of the economic systems that characterized their societies.
- (E) They did not attempt to unite the two different feminist approaches in their thought.

### Passage 55 (55/63)

(This passage was adapted from an article written in 1992.)

Some observers have attributed the dramatic growth in temporary employment that occurred in the United States during the 1980's to increased participation in the workforce by certain groups, such as first-time or reentering workers, who supposedly prefer such arrangements. However, statistical analyses reveal that demographic changes in the workforce did not correlate with variations in the total number of temporary workers. Instead, these analyses suggest that factors affecting employers account for the rise in temporary employment. One factor is product demand: temporary employment is favored by employers who are adapting to fluctuating demand for products while at the same time seeking to reduce overall labor costs. Another factor is labor's reduced bargaining strength, which allows employers more control over the terms of employment. Given the analyses, which reveal that growth in temporary employment now far exceeds the level explainable by recent workforce entry rates of groups said to prefer temporary jobs, firms should be discouraged from creating excessive numbers of temporary positions. Government policymakers should consider mandating benefit coverage for temporary employees, promoting pay equity between temporary and permanent workers, assisting labor unions in organizing temporary workers, and encouraging firms to assign temporary jobs primarily to employees who explicitly indicate that preference.

1. The primary purpose of the passage is to
  - (A) present the results of statistical analyses and propose further studies.
  - (B) explain a recent development and predict its eventual consequences.
  - (C) identify the reasons for a trend and recommend measures to address it.
  - (D) outline several theories about a phenomenon and advocate one of them.
  - (E) describe the potential consequences of implementing a new policy and argue in favor of that policy.
2. According to the passage, which of the following is true of the "factors affecting employers" that are mentioned in lines 9-10?
  - (A) Most experts cite them as having initiated the growth in temporary employment that occurred during the 1980's.
  - (B) They may account for the increase in the total number of temporary workers during the 1980's.
  - (C) They were less important than demographic change in accounting for the increase of temporary employment during the 1980's.
  - (D) They included a sharp increase in the cost of labor during the 1980's.

- (E) They are more difficult to account for than at other factors involved in the growth of temporary employment during the 1980's.
3. The passage suggests which of the following about the use of temporary employment by firms during the 1980's?
- (A) It enabled firms to deal with fluctuating product demand far more efficiently than they before the 1980's.
- (B) It increased as a result of increased participation in the workforce by certain demography groups.
- (C) It was discouraged by government-mandated policies.
- (D) It was a response to preferences indicated by certain employees for more flexible working arrangements.
- (E) It increased partly as a result of workers' reduced ability to control the terms of their employment.
4. The passage suggests which of the following about the workers who took temporary jobs during the 1980's?
- (A) Their jobs frequently led to permanent positions within firms.
- (B) They constituted a less demographically diverse group than has been suggested.
- (C) They were occasionally involved in actions organized by labor unions.
- (D) Their pay declined during the decade in comparison with the pay of permanent employees.
- (E) They did not necessarily prefer temporary employment to permanent employment.
5. The first sentence in the passage suggests that the observers mentioned in line 1 would be most likely to predict which of the following?
- (A) That the number of new temporary positions would decline as fewer workers who preferred temporary employment entered the workforce.
- (B) That the total number of temporary positions would increase as fewer workers were able to find permanent positions.
- (C) That employers would have less control over the terms of workers' employment as workers increased their bargaining strength.
- (D) That more workers would be hired for temporary positions as product demand increased.
- (E) That the number of workers taking temporary positions would increase as more workers in any given demographic group entered the workforce.
6. In the context of the passage, the word "excessive" (line 21) most closely corresponds to which of the following phrases?
- (A) Far more than can be justified by worker preferences.
- (B) Far more than can be explained by fluctuations in product demand.

- (C) Far more than can be beneficial to the success of the firms themselves.
  - (D) Far more than can be accounted for by an expanding national economy.
  - (E) Far more than can be attributed to increases in the total number of people in the workforce.
7. The passage mentions each of the following as an appropriate kind of governmental action EXCEPT
- (A) getting firms to offer temporary employment primarily to a certain group of people
  - (B) encouraging equitable pay for temporary and permanent employees
  - (C) facilitating the organization of temporary workers by labor unions
  - (D) establishing guidelines on the proportion of temporary workers that firms should employ
  - (E) ensuring that temporary workers obtain benefits from their employers

### Passage 56 (56/63)

Although numbers of animals in a given region may fluctuate from year to year, the fluctuations are often temporary and, over long periods, trivial. Scientists have advanced three theories of population control to account for this relative constancy.

The first theory attributes a relatively constant population to periodic climatic catastrophes that decimate populations with such frequency as to prevent them from exceeding some particular limit. In the case of small organisms with short life cycles, climatic changes need not be catastrophic: normal seasonal changes in photoperiod (daily amount of sunlight), for example, can govern population growth. This theory—the density-independent view—asserts that climatic factors exert the same regulatory effect on population regardless of the number of individuals in a region.

A second theory argues that population growth is primarily density-dependent—that is, the rate of growth of a population in a region decreases as the number of animals increases. The mechanisms that manage regulation may vary. For example, as numbers increase, the food supply would probably diminish, which would increase mortality. In addition, as Lotka and Volterra have shown, predators can find prey more easily in high-density populations. Other regulators include physiological control mechanisms: for example, Christian and Davis have demonstrated how the crowding that results from a rise in numbers may bring about hormonal changes in the pituitary and adrenal glands that in turn may regulate population by lowering sexual activity and inhibiting sexual maturation. There is evidence that these effects may persist for three generations in the absence of the original provocation. One challenge for density-dependent theorists is to develop models that would allow the precise prediction of the effects of crowding.

A third theory, proposed by Wynne-Edwards and termed “epideictic,” argues that organisms have evolved a “code” in the form of social or epideictic behavior displays, such as winter-roosting aggregations or group vocalizing; such codes provide organisms with information on population size in a region so that they can, if necessary, exercise reproductive

restraint. However, Wynne-Edwards' theory, linking animal social behavior and population control, has been challenged, with some justification, by several studies.

1. The primary purpose of the passage is to
  - (A) argue against those scientists who maintain that animal populations tend to fluctuate
  - (B) compare and contrast the density-dependent and epideictic theories of population control
  - (C) provide example of some of the ways in which animals exercise reproductive restraint to control their own numbers
  - (D) suggests that theories of population control that concentrate on the social behavior of animals are more open to debate than are theories that do not
  - (E) summarize a number of scientific theories that attempt to explain why animal populations do not exceed certain limits
2. It can be inferred from the passage that proponents of the density-dependent theory of population control have not yet been able to
  - (A) use their theory to explain the population growth of organisms with short life cycles
  - (B) reproduce the results of the study of Christian and Davis
  - (C) explain adequately why the numbers of a population can increase as the population's rate of growth decreases
  - (D) make sufficiently accurate predictions about the effects of crowding
  - (E) demonstrate how predator populations are themselves regulated
3. Which of the following, if true, would best support the density-dependent theory of population control as it is described in the passage?
  - (A) As the number of foxes in Minnesota decrease, the growth rate of this population of foxes begins to increase.
  - (B) As the number of woodpeckers in Vermont decreases, the growth rate of this population of woodpeckers also begins to decrease.
  - (C) As the number of prairie dogs in Oklahoma increases, the growth rate of this population of prairie dogs also begins to increase.
  - (D) After the number of beavers in Tennessee decreases, the number of predators of these beavers begins to increase.
  - (E) After the number of eagles in Montana decreases, the food supply of this population of eagles also begins to decrease.
4. According to the Wynne-Edwards theory as it is described in the passage, epideictic behavior displays serve the function of
  - (A) determining roosting aggregations
  - (B) locating food
  - (C) attracting predators

- (D) regulating sexual activity  
(E) triggering hormonal changes
5. The challenge posed to the Wynne-Edwards-theory by several studies is regarded by the author with  
(A) complete indifference  
(B) qualified acceptance  
(C) skeptical amusement  
(D) perplexed astonishment  
(E) agitated dismay
6. Which of the following statements would provide the most of logical continuation of the final paragraph of the passage?  
(A) Thus Wynne-Edwards' theory raises serious questions about the constancy of animal population in a region.  
(B) Because Wynne-Edwards' theory is able to explain more kinds of animal behavior than is the density-dependent theory, epideictic explanations of population regulation are now widely accepted.  
(C) The results of one study, for instance, have suggested that group vocalizing is more often used to defend territory than to provide information about population density.  
(D) Some of these studies have, in fact, worked out a systematic and complex code of social behavior that can regulate population size.  
(E) One study, for example, has demonstrated that birds are more likely to use winter-roosting aggregations than group vocalizing in order to provide information on population size.

### Passage 57 (57/63)

In recent years, teachers of introductory courses in Asian American studies have been facing a dilemma nonexistent a few decades ago, when hardly any texts in that field were available. Today, excellent anthologies and other introductory texts exist, and books on individual Asian American nationality groups and on general issues important for Asian Americans are published almost weekly. Even professors who are experts in the field find it difficult to decide which of these to assign to students; nonexperts who teach in related areas and are looking for writings for and by Asian American to include in survey courses are in an even worse position.

A complicating factor has been the continuing lack of specialized one-volume reference works on Asian Americans, such as biographical dictionaries or desktop encyclopedias. Such works would enable students taking Asian American studies courses (and professors in related fields) to look up basic information on Asian American individuals, institutions, history, and culture without having to wade through mountains of primary source material. In addition, give such works, Asian American studies professors might feel more free to include more



challenging Asian American material in their introductory reading lists, since good reference works allow students to acquire on their own the background information necessary to interpret difficult or unfamiliar material.

1. The author of the passage is primarily concerned with doing which of the following?
  - (A) Recommending a methodology
  - (B) Describing a course of study
  - (C) Discussing a problem
  - (D) Evaluating a past course of action
  - (E) Responding to a criticism
2. The “dilemma” mentioned in line 2 can best be characterized as being caused by the necessity to make a choice when faced with a
  - (A) lack of acceptable alternatives
  - (B) lack of strict standards for evaluating alternatives
  - (C) preponderance of bad alternatives as compared to good
  - (D) multitude of different alternatives
  - (E) large number of alternatives that are nearly identical in content
3. The passage suggests that the factor mentioned in lines 14-17 complicates professors’ attempts to construct introductory reading lists for courses in Asian American studies in which of the following ways?
  - (A) By making it difficult for professors to identify primary source material and to obtain standard information on Asian American history and culture
  - (B) By preventing professors from identifying excellent anthologies and introductory texts in the field that are both recent and understandable to students
  - (C) By preventing professors from adequately evaluating the quality of the numerous texts currently being published in the field
  - (D) By making it more necessary for professors to select readings for their courses that are not too challenging for students unfamiliar with Asian American history and culture
  - (E) By making it more likely that the readings professors assign to students in their courses will be drawn solely from primary sources
4. The passage implies that which of the following was true of introductory courses in Asian American studies a few decades ago?
  - (A) The range of different textbooks that could be assigned for such courses was extremely limited.
  - (B) The texts assigned as readings in such courses were often not very challenging for students.
  - (C) Students often complained about the texts assigned to them in such courses.

- (D) Such courses were offered only at schools whose libraries were rich in primary sources.
  - (E) Such courses were the only means then available by which people in the United States could acquire knowledge of the field.
5. According to the passage, the existence of good one-volume reference works about Asian Americans could result in
- (A) increased agreement among professors of Asian American studies regarding the quality of the sources available in their field
  - (B) an increase in the number of students signing up for introductory courses in Asian American studies
  - (C) increased accuracy in writings that concern Asian American history and culture
  - (D) the use of introductory texts about Asian American history and culture in courses outside the field of Asian American studies
  - (E) the inclusion of a wider range of Asian American material in introductory reading lists in Asian American studies

### Passage 58 (58/63)

In an attempt to improve the overall performance of clerical workers, many companies have introduced computerized performance monitoring and control systems (CPMCS) that record and report a worker's computer-driven activities. However, at least one study has shown that such monitoring may not be having the desired effect. In the study, researchers asked monitored clerical workers and their supervisors how assessments of productivity affected supervisors' ratings of workers' performance. In contrast to unmonitored workers doing the same work, who without exception identified the most important element in their jobs as customer service, the monitored workers and their supervisors all responded that productivity was the critical factor in assigning ratings. This finding suggested that there should have been a strong correlation between a monitored worker's productivity and the overall rating the worker received. However, measures of the relationship between overall rating and individual elements of performance clearly supported the conclusion that supervisors gave considerable weight to criteria such as attendance, accuracy, and indications of customer satisfaction.

It is possible that productivity may be a "hygiene factor," that is, if it is too low, it will hurt the overall rating. But the evidence suggests that beyond the point at which productivity becomes "good enough," higher productivity per se is unlikely to improve a rating.

1. According to the passage, before the final results of the study were known, which of the following seemed likely?
- (A) That workers with the highest productivity would also be the most accurate
  - (B) That workers who initially achieved high productivity ratings would continue to do so consistently
  - (C) That the highest performance ratings would be achieved by workers with the highest productivity

- (D) That the most productive workers would be those whose supervisors claimed to value productivity
- (E) That supervisors who claimed to value productivity would place equal value on customer satisfaction
2. It can be inferred that the author of the passage discusses “unmonitored workers” (line 10) primarily in order to
- (A) compare the ratings of these workers with the ratings of monitored workers
- (B) provide an example of a case in which monitoring might be effective
- (C) provide evidence of an inappropriate use of CPMCS
- (D) emphasize the effect that CPMCS may have on workers’ perceptions of their jobs
- (E) illustrate the effect that CPMCS may have on workers’ ratings
3. Which of the following, if true, would most clearly have supported the conclusion referred to in lines 19-21?
- (A) Ratings of productivity correlated highly with ratings of both accuracy and attendance.
- (B) Electronic monitoring greatly increased productivity.
- (C) Most supervisors based overall ratings of performance on measures of productivity alone.
- (D) Overall ratings of performance correlated more highly with measures of productivity than the researchers expected.
- (E) Overall ratings of performance correlated more highly with measures of accuracy than with measures of productivity.
4. According to the passage, a “hygiene factor” (lines 22-23) is an aspect of a worker’s performance that
- (A) has no effect on the rating of a worker’s performance
- (B) is so basic to performance that it is assumed to be adequate for all workers
- (C) is given less importance than it deserves in rating a worker’s performance
- (D) is not likely to affect a worker’s rating unless it is judged to be inadequate
- (E) is important primarily because of the effect it has on a worker’s rating
5. The primary purpose of the passage is to
- (A) explain the need for the introduction of an innovative strategy
- (B) discuss a study of the use of a particular method
- (C) recommend a course of action
- (D) resolve a difference of opinion
- (E) suggest an alternative approach

Schools expect textbooks to be a valuable source of information for students. My research suggests, however, that textbooks that address the place of Native Americans within the history of the United States distort history to suit a particular cultural value system. In some textbooks, for example, settlers are pictured as more humane, complex, skillful, and wise than Native American. In essence, textbooks stereotype and deprecate the numerous Native American cultures while reinforcing the attitude that the European conquest of the New World denotes the superiority of European cultures. Although textbooks evaluate Native American architecture, political systems, and homemaking, I contend that they do it from an ethnocentric, European perspective without recognizing that other perspectives are possible.

One argument against my contention asserts that, by nature, textbooks are culturally biased and that I am simply underestimating children's ability to see through these biases. Some researchers even claim that by the time students are in high school, they know they cannot take textbooks literally. Yet substantial evidence exists to the contrary. Two researchers, for example, have conducted studies that suggest that children's attitudes about particular culture are strongly influenced by the textbooks used in schools. Given this, an ongoing, careful review of how school textbooks depict Native American is certainly warranted.

1. Which of the following would most logically be the topic of the paragraph immediately following the passage?
  - (A) Specific ways to evaluate the biases of United States history textbooks
  - (B) The centrality of the teacher's role in United States history courses
  - (C) Nontraditional methods of teaching United States history
  - (D) The contributions of European immigrants to the development of the United States
  - (E) Ways in which parents influence children's political attitudes
2. The primary purpose of the passage is to
  - (A) describe in detail one research study regarding the impact of history textbooks on children's attitudes and beliefs about certain cultures
  - (B) describe revisions that should be made to United States history textbooks
  - (C) discuss the difficulty of presenting an accurate history of the United States
  - (D) argue that textbooks used in schools stereotype Native Americans and influence children's attitudes
  - (E) summarize ways in which some textbooks give distorted pictures of the political systems developed by various Native American groups
3. The author mentions two researchers' studies (lines 22-25) most likely in order to
  - (A) suggest that children's political attitudes are formed primarily through textbooks
  - (B) counter the claim that children are able to see through stereotypes in textbooks
  - (C) suggest that younger children tend to interpret the messages in textbooks more literally than do older children

- (D) demonstrate that textbooks carry political messages meant to influence their readers
- (E) prove that textbooks are not biased in terms of their political presentations
4. The author's attitude toward the content of the history textbooks discussed in the passage is best described as one of
- (A) indifference
- (B) hesitation
- (C) neutrality
- (D) amusement
- (E) disapproval
5. It can be inferred from the passage that the researchers mentioned in line 19 would be most likely to agree with which of the following statements?
- (A) Students form attitudes about cultures other than their own primarily inside the school environment.
- (B) For the most part, seniors in high school know that textbooks can be biased.
- (C) Textbooks play a crucial role in shaping the attitudes and beliefs of students.
- (D) Elementary school students are as likely to recognize biases in textbooks as are high school students.
- (E) Students are less likely to give credence to history textbooks than to mathematics textbooks.
6. The author implies that which of the following will occur if textbooks are not carefully reviewed?
- (A) Children will remain ignorant of the European settlers' conquest of the New World.
- (B) Children will lose their ability to recognize biases in textbooks.
- (C) Children will form negative stereotypes of Native Americans.
- (D) Children will develop an understanding of ethnocentrism.
- (E) Children will stop taking textbooks seriously.

### Passage 60 (60/63)

Until recently, scientists did not know of a close vertebrate analogue to the extreme form of altruism observed in eusocial insects like ants and bees, whereby individuals cooperate, sometimes even sacrificing their own opportunities to survive and reproduce, for the good of others. However, such a vertebrate society may exist among underground colonies of the highly social rodent *Heterocephalus glaber*, the naked mole rat.

A naked mole rat colony, like a beehive, wasp's nest, or termite mound, is ruled by its queen, or reproducing female. Other adult female mole rats neither ovulate nor breed. The queen is the largest member of the colony, and she maintains her breeding status through a mixture of behavioral and, presumably, chemical control. Queens have been long-lived in

captivity, and when they die or are removed from a colony one sees violent fighting for breeding status among the larger remaining females, leading to a takeover by a new queen.

Eusocial insect societies have rigid caste systems, each insect's role being defined by its behavior, body shape, and physiology. In naked mole rat societies, on the other hand, differences in behavior are related primarily to reproductive status (reproduction being limited to the queen and a few males), body size, and perhaps age. Smaller non-breeding members, both male and female, seem to participate primarily in gathering food, transporting nest material, and tunneling. Larger nonbreeders are active in defending the colony and perhaps in removing dirt from the tunnels. Jarvis' work has suggested that differences in growth rates may influence the length of time that an individual performs a task, regardless of its age.

Cooperative breeding has evolved many times in vertebrates, but unlike naked mole rats, most cooperatively breeding vertebrates (except the wild dog, *Lycaon pictus*) are dominated by a pair of breeders rather than by a single breeding female. The division of labor within social groups is less pronounced among other vertebrates than among naked mole rats, colony size is much smaller, and mating by subordinate females may not be totally suppressed, whereas in naked mole rat colonies subordinate females are not sexually active, and many never breed.

1. Which of the following most accurately states the main idea of the passage?
  - (A) Naked mole rat colonies are the only known examples of cooperatively breeding vertebrate societies.
  - (B) Naked mole rat colonies exhibit social organization based on a rigid caste system.
  - (C) Behavior in naked mole rat colonies may well be a close vertebrate analogue to behavior in eusocial insect societies.
  - (D) The mating habits of naked mole rats differ from those of any other vertebrate species.
  - (E) The basis for the division of labor among naked mole rats is the same as that among eusocial insects.
2. The passage suggests that Jarvis' work has called into question which of the following explanatory variables for naked mole rat behavior?
  - (A) Size
  - (B) Age
  - (C) Reproductive status
  - (D) Rate of growth
  - (E) Previously exhibited behavior
3. It can be inferred from the passage that the performance of tasks in naked mole rat colonies differs from task performance in eusocial insect societies in which of the following ways?
  - (A) In naked mole rat colonies, all tasks are performed cooperatively.
  - (B) In naked mole rat colonies, the performance of tasks is less rigidly determined by body shape.



- (C) In naked mole rat colonies, breeding is limited to the largest animals.
- (D) In eusocial insect societies, reproduction is limited to a single female.
- (E) In eusocial insect societies, the distribution of tasks is based on body size.
4. According to the passage, which of the following is a supposition rather than a fact concerning the queen in a naked mole rat colony?
- (A) She is the largest member of the colony.
- (B) She exerts chemical control over the colony.
- (C) She mates with more than one male.
- (D) She attains her status through aggression.
- (E) She is the only breeding female.
5. The passage supports which of the following inferences about breeding among *Lycaon pictus*?
- (A) The largest female in the social group does not maintain reproductive status by means of behavioral control.
- (B) An individual's ability to breed is related primarily to its rate of growth.
- (C) Breeding is the only task performed by the breeding female.
- (D) Breeding in the social group is not cooperative.
- (E) Breeding is not dominated by a single pair of dogs.
6. According to the passage, naked mole rat colonies may differ from all other known vertebrate groups in which of the following ways?
- (A) Naked mole rats exhibit an extreme form of altruism.
- (B) Naked mole rats are cooperative breeders.
- (C) Among naked mole rats, many males are permitted to breed with a single dominant female.
- (D) Among naked mole rats, different tasks are performed at different times in an individual's life.
- (E) Among naked mole rats, fighting results in the selection of a breeding female.
7. One function of the third paragraph of the passage is to
- (A) state a conclusion about facts presented in an earlier paragraph
- (B) introduce information that is contradicted by information in the fourth paragraph
- (C) qualify the extent to which two previously mentioned groups might be similar
- (D) show the chain of reasoning that led to the conclusions of a specific study
- (E) demonstrate that of three explanatory factors offered, two may be of equal significance

Coral reefs are one of the most fragile, biologically complex, and diverse marine ecosystems on Earth. This ecosystem is one of the fascinating paradoxes of the biosphere: how do clear, and thus nutrient-poor, waters support such prolific and productive communities? Part of the answer lies within the tissues of the corals themselves. Symbiotic cells of algae known as zooxanthellae carry out photosynthesis using the metabolic wastes of the coral thereby producing food for themselves, for their corals, hosts, and even for other members of the reef community. This symbiotic process allows organisms in the reef community to use sparse nutrient resources efficiently.

Unfortunately for coral reefs, however, a variety of human activities are causing worldwide degradation of shallow marine habitats by adding nutrients to the water. Agriculture, slash-and-burn land clearing, sewage disposal and manufacturing that creates waste by-products all increase nutrient loads in these waters. Typical symptoms of reef decline are destabilized herbivore populations and an increasing abundance of algae and filter-feeding animals. Declines in reef communities are consistent with observations that nutrient input is increasing in direct proportion to growing human populations, thereby threatening reef communities sensitive to subtle changes in nutrient input to their waters.

1. The passage is primarily concerned with
  - (A) describing the effects of human activities on algae in coral reefs
  - (B) explaining how human activities are posing a threat to coral reef communities
  - (C) discussing the process by which coral reefs deteriorate in nutrient-poor waters
  - (D) explaining how coral reefs produce food for themselves
  - (E) describing the abundance of algae and filter-feeding animals in coral reef areas
2. The passage suggests which of the following about coral reef communities?
  - (A) Coral reef communities may actually be more likely to thrive in waters that are relatively low in nutrients.
  - (B) The nutrients on which coral reef communities thrive are only found in shallow waters.
  - (C) Human population growth has led to changing ocean temperatures, which threatens coral reef communities.
  - (D) The growth of coral reef communities tends to destabilize underwater herbivore populations.
  - (E) Coral reef communities are more complex and diverse than most ecosystems located on dry land.
3. The author refers to “filter-feeding animals” (line 20) in order to
  - (A) provide an example of a characteristic sign of reef deterioration
  - (B) explain how reef communities acquire sustenance for survival
  - (C) identify a factor that helps herbivore populations thrive
  - (D) indicate a cause of decreasing nutrient input in waters that reefs inhabit
  - (E) identify members of coral reef communities that rely on coral reefs for

nutrients

4. According to the passage, which of the following is a factor that is threatening the survival of coral reef communities?
- (A) The waters they inhabit contain few nutrient resources.
  - (B) A decline in nutrient input is disrupting their symbiotic relationship with zooxanthellae.
  - (C) The degraded waters of their marine habitats have reduced their ability to carry out photosynthesis.
  - (D) They are too biologically complex to survive in habitats with minimal nutrient input.
  - (E) Waste by-products result in an increase in nutrient input to reef communities.
5. It can be inferred from the passage that the author describes coral reef communities as paradoxical most likely for which of the following reasons?
- (A) They are thriving even though human activities have depleted the nutrients in their environment.
  - (B) They are able to survive in spite of an overabundance of algae inhabiting their waters.
  - (C) They are able to survive in an environment with limited food resources.
  - (D) Their metabolic wastes contribute to the degradation of the waters that they inhabit.
  - (E) They are declining even when the water surrounding them remains clear.

### Passage 62 (62/63)

Two divergent definitions have dominated sociologists' discussions of the nature of **ethnicity**. The first emphasizes the primordial and unchanging character of ethnicity. In this view, people have an essential need for belonging that is satisfied by membership in groups based on shared ancestry and culture. A different conception of ethnicity de-emphasizes the cultural component and defines ethnic groups as interest groups. In this view, ethnicity serves as a way of mobilizing a certain population behind issues relating to its economic position. While both of these definitions are useful, neither fully captures the dynamic and changing aspects of ethnicity in the United States. Rather, ethnicity is more satisfactorily conceived of as a process in which preexisting communal bonds and common cultural attributes are adapted for instrumental purposes according to changing real-life situations.

One example of this process is the rise of participation by Native American people in the broader United States political system since the Civil Rights movement of the 1960's. Besides leading Native Americans to participate more actively in politics (the number of Native American legislative officeholders more than doubled), this movement also evoked increased interest in tribal history and traditional culture. Cultural and instrumental components of ethnicity are not mutually exclusive, but rather reinforce one another.

The Civil Rights movement also brought changes in the uses to which ethnicity was put by

Mexican American people. In the 1960's, Mexican Americans formed community-based political groups that emphasized ancestral heritage as a way of mobilizing constituents. Such emerging issues as immigration and voting rights gave Mexican American advocacy groups the means by which to promote ethnic solidarity. Like European ethnic groups in the nineteenth-century United States, late-twentieth-century Mexican American leaders combined ethnic with contemporary civic symbols. In 1968 Henry Cisneros, then mayor of San Antonio, Texas, cited Mexican leader Benito Juarez as a model for Mexican Americans in their fight for contemporary civil rights. And every year, Mexican Americans celebrate *Cinco de Mayo* as fervently as many Irish American people embrace St. Patrick's Day (both are major holidays in the countries of origin), with both holidays having been reinvented in the context of the United States and linked to ideals, symbols, and heroes of the United States.

1. Which of the following best states the main idea of the passage?
  - (A) In their definitions of the nature of ethnicity, sociologists have underestimated the power of the primordial human need to belong.
  - (B) Ethnicity is best defined as a dynamic process that combines cultural components with shared political and economic interests.
  - (C) In the United States in the twentieth century, ethnic groups have begun to organize in order to further their political and economic interests.
  - (D) Ethnicity in the United States has been significantly changed by the Civil Rights movement.
  - (E) The two definitions of ethnicity that have dominated sociologists discussions are incompatible and should be replaced by an entirely new approach.
2. Which of the following statements about the first two definitions of ethnicity discussed in the first paragraph is supported by the passage?
  - (A) One is supported primarily by sociologists, and the other is favored by members of ethnic groups.
  - (B) One emphasizes the political aspects of ethnicity, and the other focuses on the economic aspects.
  - (C) One is the result of analysis of United States populations, and the other is the result of analysis of European populations.
  - (D) One focuses more on the ancestral components of ethnicity than does the other.
  - (E) One focuses more on immigrant groups than does the other.
3. The author of the passage refers to Native American people in the second paragraph in order to provide an example of
  - (A) the ability of membership in groups based on shared ancestry and culture to satisfy an essential human need
  - (B) how ethnic feelings have both motivated and been strengthened by political activity
  - (C) how the Civil Rights movement can help promote solidarity among United

States ethnic groups

- (D) how participation in the political system has helped to improve a group's economic situation
  - (E) the benefits gained from renewed study of ethnic history and culture
4. The passage supports which of the following statements about the Mexican American community?
- (A) In the 1960's the Mexican American community began to incorporate the customs of another ethnic group in the United States into the observation of its own ethnic holidays.
  - (B) In the 1960's Mexican American community groups promoted ethnic solidarity primarily in order to effect economic change.
  - (C) In the 1960's leader of the Mexican American community concentrated their efforts on promoting a renaissance of ethnic history and culture.
  - (D) In the 1960's members of the Mexican American community were becoming increasingly concerned about the issue of voting rights.
  - (E) In the 1960's the Mexican American community had greater success in mobilizing constituents than did other ethnic groups in the United States.
5. Which of the following types of ethnic cultural expression is discussed in the passage?
- (A) The retelling of traditional narratives
  - (B) The wearing of traditional clothing
  - (C) The playing of traditional music
  - (D) The celebration of traditional holidays
  - (E) The preparation of traditional cuisine
6. Information in the passage supports which of the following statements about many European ethnic groups in the nineteenth-century United States?
- (A) They emphasized economic interests as a way of mobilizing constituents behind certain issues.
  - (B) They conceived of their own ethnicity as being primordial in nature.
  - (C) They created cultural traditions that fused United States symbols with those of their countries of origin.
  - (D) They de-emphasized the cultural components of their communities in favor of political interests.
  - (E) They organized formal community groups designed to promote a renaissance of ethnic history and culture.
7. The passage suggests that in 1968 Henry Cisneros most likely believed that
- (A) many Mexican American would respond positively to the example of Benito Juarez
  - (B) many Mexican American were insufficiently educated in Mexican history

- (C) the fight for civil rights in the United States had many strong parallels in both Mexican and Irish history
- (D) the quickest way of organizing community-based groups was to emulate the tactics of Benito Juarez
- (E) Mexican Americans should emulate the strategies of Native American political leaders

### Passage 63 (63/63)

The fact that superior service can generate a competitive advantage for a company does not mean that every attempt at improving service will create such an advantage. Investments in service, like those in production and distribution, must be balanced against other types of investments on the basis of direct, tangible benefits such as cost reduction and increased revenues. If a company is already effectively *on a par* with its competitors because it provides service that avoids a damaging reputation and keeps customers from leaving at an unacceptable rate, then investment in higher service levels may be wasted, since service is a deciding factor for customers only in extreme situations.

This truth was not apparent to managers of one *regional bank*, which failed to improve its competitive position despite its investment in reducing the time a customer had to wait for a teller. The bank managers did not recognize the level of customer inertia in the consumer banking industry that arises from the inconvenience of switching banks. Nor did they analyze their service improvement to determine whether it would attract new customers by producing a new standard of service that would excite customers or by proving difficult for competitors to copy. The only merit of the improvement was that it could easily be described to customers.

1. The primary purpose of the passage is to
  - (A) contrast possible outcomes of a type of business investment
  - (B) suggest more careful evaluation of a type of business investment
  - (C) illustrate various ways in which a type of business investment could fail to enhance revenues
  - (D) trace the general problems of a company to a certain type of business investment
  - (E) criticize the way in which managers tend to analyze the costs and benefits of business investments
2. According to the passage, investments in service are comparable to investments in production and distribution in terms of the
  - (A) tangibility of the benefits that they tend to confer
  - (B) increased revenues that they ultimately produce
  - (C) basis on which they need to be weighed
  - (D) insufficient analysis that managers devote to them
  - (E) degree of competitive advantage that they are likely to provide



3. The passage suggests which of the following about service provided by the regional bank prior to its investment in enhancing that service?
- (A) It enabled the bank to retain customers at an acceptable rate.
  - (B) It threatened to weaken the bank's competitive position with respect to other regional banks.
  - (C) It had already been improved after having caused damage to the bank's reputation in the past.
  - (D) It was slightly superior to that of the bank's regional competitors.
  - (E) It needed to be improved to attain parity with the service provided by competing banks.
4. The passage suggests that bank managers failed to consider whether or not the service improvement mentioned in line 19
- (A) was too complicated to be easily described to prospective customers
  - (B) made a measurable change in the experiences of customers in the bank's offices
  - (C) could be sustained if the number of customers increased significantly
  - (D) was an innovation that competing banks could have imitated
  - (E) was adequate to bring the bank's general level of service to a level that was comparable with that of its competitors
5. The discussion of the regional bank (line 13-24) serves which of the following functions within the passage as a whole?
- (A) It describes an exceptional case in which investment in service actually failed to produce a competitive advantage.
  - (B) It illustrates the pitfalls of choosing to invest in service at a time when investment is needed more urgently in another area.
  - (C) It demonstrates the kind of analysis that managers apply when they choose one kind of service investment over another.
  - (D) It supports the argument that investments in certain aspects of service are more advantageous than investments in other aspects of service.
  - (E) It provides an example of the point about investment in service made in the first paragraph.
6. The author uses the word "only" in line 23 most likely in order to
- (A) highlight the oddity of the service improvement
  - (B) emphasize the relatively low value of the investment in service improvement
  - (C) distinguish the primary attribute of the service improvement from secondary attributes
  - (D) single out a certain merit of the service improvement from other merits
  - (E) point out the limited duration of the actual service improvement

## 二、GMAT 补充 22Passages

### Passage 64 (1/22)

The antigen-antibody immunological reaction used to be regarded as typical of immunological responses. Antibodies are proteins synthesized by specialized cells called plasma cells, which are formed by lymphocytes (cells from the lymph system) when an antigen, a substance foreign to the organism's body, comes in contact with lymphocytes. Two important manifestations of antigen-antibody immunity are lysis, the rapid physical rupture of antigenic cells and the liberation of their contents into the surrounding medium, and phagocytosis, a process in which antigenic particles are engulfed by and very often digested by macrophages and polymorphs. The process of lysis is executed by a complex and unstable blood constituent known as complement, which will not work unless it is activated by a specific antibody; the process of phagocytosis is greatly facilitated when the particles to be engulfed are coated by a specific antibody directed against them.

The reluctance to—abandon this hypothesis, however well it explains specific processes, impeded new research, and for many years antigens and antibodies dominated the thoughts of immunologists so completely that those immunologists overlooked certain difficulties. Perhaps the primary difficulty with the antigen-antibody explanation is the informational problem of how an antigen is recognized and how a structure exactly complementary to it is then synthesized. When molecular biologists discovered, moreover, that such information cannot flow from protein to protein, but only from nucleic acid to protein, the theory that an antigen itself provided the mold that directed the synthesis of an antibody had to be seriously qualified. The attempts at qualification and the information provided by research in molecular biology led scientists to realize that a second immunological reaction is mediated through the lymphocytes that are hostile to and bring about the destruction of the antigen. This type of immunological response is called cell-mediated immunity.

Recent research in cell-mediated immunity has been concerned not only with the development of new and better vaccines, but also with the problem of transplanting tissues and organs from one organism to another, for although circulating antibodies play a part in the rejection of transplanted tissues, the primary role is played by cell-mediated reactions. During cell-mediated responses, receptor sites on specific lymphocytes and surface antigens on the foreign tissue cells form a complex that binds the lymphocytes to the tissue. Such lymphocytes do not give rise to antibody-producing plasma cells but themselves bring about the death of the foreign-tissue cells, probably by secreting a variety of substances, some of which are toxic to the tissue cells and some of which stimulate increased phagocytic activity by white blood cells of the macrophage type. Cell-mediated immunity also accounts for the destruction of intracellular parasites.

1. The author is primarily concerned with
  - (A) proving that immunological reactions do not involve antibodies
  - (B) establishing that most immunological reactions involve antigens
  - (C) criticizing scientists who will not change their theories regarding immunology
  - (D) analyzing the importance of cells in fighting disease

- (E) explaining two different kinds of immunological reactions
2. The author argues that the antigen-antibody explanation of immunity “had to seriously qualified” (line 37) because
- (A) antibodies were found to activate unstable components in the blood
  - (B) antigens are not exactly complementary to antibodies
  - (C) lymphocytes have the ability to bind to the surface of antigens
  - (D) antibodies are synthesized from protein whereas antigens are made from nucleic acid
  - (E) antigens have no apparent mechanism to direct the formation of an antibody
3. The author most probably believes that the antigen-antibody theory of immunological reaction.
- (A) is wrong
  - (B) was accepted without evidence
  - (C) is unverifiable
  - (D) is a partial explanation
  - (E) has been a divisive issue among scientists
4. The author mentions all of the following as being involved in antigen-antibody immunological reactions EXCEPT the
- (A) synthesis of a protein
  - (B) activation of complement in the bloodstream
  - (C) destruction of antibodies
  - (D) entrapment of antigens by macrophages
  - (E) formation of a substance with a structure complementary to that of an antigen
5. The passage contains information that would answer which of the following questions about cell-mediated immunological reactions?
- I. Do lymphocytes form antibodies during cell-mediated immunological reactions?
  - II. Why are lymphocytes more hostile to antigens during cell-mediated immunological reactions than are other cell groups?
  - III. Are cell-mediated reactions more pronounced after transplants than they are after parasites have invaded the organism?
- (A) I only
  - (B) I and II only
  - (C) I and III only
  - (D) II and III only
  - (E) I, II, and III
6. The passage suggests that scientists might not have developed the theory of

- cell-mediated immunological reactions if
- (A) proteins existed in specific group types
  - (B) proteins could have been shown to direct the synthesis of other proteins
  - (C) antigens were always destroyed by proteins
  - (D) antibodies were composed only of protein
  - (E) antibodies were the body's primary means of resisting disease
7. According to the passage, antibody-antigen and cell-mediated immunological reactions both involve which of the following processes?
- I. The destruction of antigens
  - II. The creation of antibodies
  - III. The destruction of intracellular parasites
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) II and III only
8. The author supports the theory of cell-mediated reactions primarily by
- (A) pointing out a contradiction in the assumption leading to the antigen-antibody theory
  - (B) explaining how cell mediation accounts for phenomena that the antigen-antibody theory cannot account for
  - (C) revealing new data that scientists arguing for the antigen-antibody theory have continued to ignore
  - (D) showing that the antigen-antibody theory fails to account for the breakup of antigens
  - (E) demonstrating that cell mediation explains lysis and phagocytosis more fully than the antigen-antibody theory does

### Passage 65 (2/22)

The founders of the Republic viewed their revolution primarily in political rather than economic or social terms. And they talked about education as essential to the public good—a goal that took precedence over knowledge as occupational training or as a means to self-fulfillment or self-improvement. **Over and over again** the Revolutionary generation, both liberal and conservative in outlook, asserted its conviction that the welfare of the Republic rested upon an educated citizenry and that schools, especially free public schools, would be the best means of educating the citizenry in civic values and the obligations required of everyone in a democratic republican society. All agreed that the principal ingredients of a **civic education** were literacy and the inculcation of patriotic and moral virtues, some others adding the study of history and the study of principles of the republican government itself.

The founders, as was the case of almost all their successors, were long on exhortation and rhetoric regarding the value of civic education, but they left it to the textbook writers to distill the essence of those values for school children. Texts in American history and government appeared as early as the 1790s. The textbook writers turned out to be very largely of conservative persuasion, more likely Federalist in outlook than Jeffersonian, and almost universally agreed that political virtue must rest upon moral and religious precepts. Since most textbook writers were New Englander, this meant that the texts were infused with Protestant and, above all, Puritan outlooks.

In the first half of the Republic, civic education in the schools emphasized the inculcation of civic values and made little attempt to develop participatory political skills. That was a task left to incipient political parties, town meetings, churches and the coffee or ale houses where men gathered for conversation. Additionally as a reading of certain Federalist papers of the period would demonstrate, the press probably did more to disseminate realistic as well as partisan knowledge of government than the schools. The goal of education, however, was to achieve a higher form of *unum* for the new Republic. In the middle half of the nineteenth century, the political values taught in the public and private schools did not change substantially from those celebrated in the first fifty years of the Republic. In the textbooks of the day their rosy hues if anything became golden. To the resplendent values of liberty, equality, and a benevolent Christian morality were now added the middle-class virtues-especially of New England-of hard work, honesty and integrity, the rewards of individual effort, and obedience to parents and legitimate authority. But of all the political values taught in school, patriotism was preeminent; and whenever teachers explained to school children why they should love their country above all else, the idea of liberty assumed pride of place.

1. The passage deals primarily with the
  - (A) content of early textbooks on American history and government
  - (B) role of education in late eighteenth-and early to mid-nineteenth-century America
  - (C) influence of New England Puritanism on early American values
  - (D) origin and development of the Protestant work ethic in modern America
  - (E) establishment of universal free public education in America
2. According to the passage, the founders of the Republic regarded education primarily as
  - (A) a religious obligation
  - (B) a private matter
  - (C) an unnecessary luxury
  - (D) a matter of individual choice
  - (E) a political necessity
3. The author states that textbooks written in the middle part of the nineteenth century
  - (A) departed radically in tone and style from earlier textbooks

- (B) mentioned for the first time the value of liberty
  - (C) treated traditional civic virtues with even greater reverence
  - (D) were commissioned by government agencies
  - (E) contained no reference to conservative ideas
4. Which of the following would LEAST likely have been the subject of an early American textbook?
- (A) basic rules of English grammar
  - (B) the American Revolution
  - (C) patriotism and other civic virtues
  - (D) vocational education
  - (E) principles of American government
5. The author's attitude toward the educational system she discusses can best be described as
- (A) cynical and unpatriotic
  - (B) realistic and analytical
  - (C) pragmatic and frustrated
  - (D) disenchanted and bitter
  - (E) idealistic and naive
6. The passage provides information that would be helpful in answering which of the following questions?
- (A) Why were a disproportionate share of early American textbooks written by New England authors?
  - (B) Was the Federalist party primarily a liberal or conservative force in early American politics?
  - (C) How many years of education did the founders believe were sufficient to instruct young citizens in civic virtue?
  - (D) What were the names of some of the Puritan authors who wrote early American textbooks?
  - (E) Did most citizens of the early Republic agree with the founders that public education was essential to the welfare of the Republic?
7. The author implies that an early American Puritan would likely insist that
- (A) moral and religious values are the foundation of civic virtue
  - (B) textbooks should instruct students in political issues of vital concern to the community
  - (C) textbooks should give greater emphasis to the value of individual liberty than to the duties of patriotism
  - (D) private schools with a particular religious focus are preferable to public schools with no religious instruction



- (E) government and religion are separate institutions and the church should not interfere in political affairs
8. According to the passage citizens of the early Republic learned about practical political matters in all of the following ways EXCEPT
- (A) reading newspapers
  - (B) attending town meetings
  - (C) conversing about political matters
  - (D) reading textbooks
  - (E) attending church

### Passage 66 (3/22)

The health-care economy is replete with unusual and even unique economic relationships. One of the least understood involves the peculiar roles of producer or “provider” and purchaser or “consumer” in the typical doctor-patient relationship. In most sectors of the economy, it is the seller who attempts to attract a potential buyer with various inducements of price, quality, and utility, and it is the buyer who makes the decision. Where circumstances permit the buyer no choice because there is **effectively** only one seller and the product is relatively essential, government usually asserts monopoly and places the industry under price and other regulations. Neither of these conditions prevails in most of the health-care industry.

In the health-care industry, the doctor-patient relationship is the **mirror image** of the ordinary relationship between producer and consumer. Once an individual has chosen to see a physician—and even then there may be no real choice—it is the physician who usually makes all significant purchasing decisions: whether the patient should return “next Wednesday,” whether X-rays are needed, whether drugs should be prescribed, etc. It is a rare and sophisticated patient who will challenge such professional decisions or raise **in advance** questions about price, especially when the ailment is regarded as serious.

This is particularly significant **in relation to** hospital care. The physician must certify the need for hospitalization, determine what procedures will be performed, and announce when the patient may be discharged. The patient may be consulted about some of these decisions, but **in the main** it is the doctor’s judgments that are final. Little wonder then that **in the eyes of** the hospital it is the physician who is the real “consumer.” As a consequence, the medical staff represents the “power center” in hospital policy and decision-making, not the administration.

Although usually there are in this situation four identifiable participants—the physician, the hospital, the patient, and the payer (generally an insurance carrier or government)—the physician makes the essential decisions for all of them. The hospital becomes an extension of the physician; the payer generally meets most of the **bona fide** bills generated by the physician/hospital; and **for the most part** the patient plays a passive role. In routine or minor illnesses, or just plain worries, the patient’s options are, of course, much greater **with respect to** use and price. In illnesses that are of some significance, however, such choices tend to **evaporate**, and it is for these illnesses that the bulk of the health-care dollar is spent. We estimate that about 75-80 percent of health-care expenditures are determined by physicians,

not patients. For this reason, economy measures directed at patients or the general public are relatively ineffective.

1. The author's primary purpose is to
  - (A) speculate about the relationship between a patient's ability to pay and the treatment received
  - (B) criticize doctors for exercising too much control over patients
  - (C) analyze some important economic factors in health care
  - (D) urge hospitals to reclaim their decision-making authority
  - (E) inform potential patients of their health-care rights
2. It can be inferred that doctors are able to determine hospital policies because
  - (A) it is doctors who generate income for the hospital
  - (B) most of a patient's bills are paid by his health insurance
  - (C) hospital administrators lack the expertise to question medical decisions
  - (D) a doctor is ultimately responsible for a patient's health
  - (E) some patients might refuse to accept their physician's advice
3. According to the author, when a doctor tells a patient to "return next Wednesday," the doctor is in effect
  - (A) taking advantage of the patient's concern for his health
  - (B) instructing the patient to buy more medical services
  - (C) warning the patient that a hospital stay might be necessary
  - (D) advising the patient to seek a second opinion
  - (E) admitting that the initial visit was ineffective
4. The author is most probably leading up to
  - (A) a proposal to control medical costs
  - (B) a discussion of a new medical treatment
  - (C) an analysis of the causes of inflation in the United States
  - (D) a study of lawsuits against doctors for malpractice
  - (E) a comparison of hospitals and factories
5. The tone of the passage can best be described as
  - (A) whimsical
  - (B) cautious
  - (C) analytical
  - (D) inquisitive
  - (E) defiant
6. With which of the following statements would the author be likely to agree?
  - I. Most patients are reluctant to object to the course of treatment prescribed by

- a doctor or to question the cost of the services.
- II. The more serious the illness of a patient, the less likely it is that the patient will object to the course of treatment prescribed or to question the cost of services.
- III. The payer, whether insurance carrier or the government, is less likely to acquiesce to demands for payment when the illness of the patient is regarded as serious.
- (A) I only  
(B) II only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III
7. The author's primary concern is to  
(A) define a term  
(B) clarify a misunderstanding  
(C) refute a theory  
(D) discuss a problem  
(E) announce a new discovery
8. The most important feature of a "consumer" as that term is used in [line 33](#) of the passage is that the "consumer" is the party that  
(A) pays for goods or services  
(B) delivers goods or services  
(C) orders goods or services  
(D) reimburses a third party for goods or services  
(E) supplies goods and services to a third party

Passage 67 (4/22)

About twice every century, one of the massive stars in our galaxy blows itself apart in a supernova explosion that sends massive quantities of radiation and matter into space and generates shock waves that sweep through the **arms** of the galaxy. The shock waves heat the interstellar gas, evaporate small clouds, and compress larger ones to the point at which they collapse under their own gravity to form new stars. The general picture that has been developed for the supernova explosion and its aftermath goes something like this. Throughout its evolution, a star is much like a leaky balloon. It keeps its equilibrium figure through a balance of internal pressure against the tendency to collapse under its own weight. The pressure is generated by nuclear reactions in the core of the star which must continually supply energy to balance the energy that **leaks out** in the form of radiation. Eventually the nuclear fuel is exhausted, and the pressure drops in the core. With nothing to hold it up, the matter in the center of the star collapses inward, creating higher and higher densities and temperatures, until

the nuclei and electrons are fused into a super-dense lump of matter known as a neutron star.

As the overlying layers **rain down** on the surface of the neutron star, the temperature rises, until with a blinding flash of radiation, the collapse is reversed. A **thermonuclear** shock wave runs through the now expanding stellar envelope, fusing lighter elements into heavier ones and producing a brilliant visual outburst that can be as intense as the light of 10 billion suns. The shell of matter thrown off by the explosion plows through the surrounding gas, producing an expanding bubble of hot gas, with gas temperatures in the millions of degrees. This gas will emit most of its energy at X-ray wavelengths, so it is not surprising that X-ray observatories have provided some of the most useful insights into the nature of the supernova phenomenon. More than twenty supernova remnants have now been detected in X-ray studies.

Recent discoveries of meteorites with anomalous concentrations of certain isotopes indicate that a supernova might have precipitated the birth of our solar system more than four and a half billion years ago. Although the cloud that collapsed to form the Sun and the planets was composed primarily of hydrogen and helium, it also contained carbon, nitrogen, and oxygen, elements essential for life as we know it. Elements heavier than helium are manufactured deep in the interior of stars and would, **for the most part**, remain there if it were not for the cataclysmic supernova explosions that blow giant stars apart. Additionally, supernovas produce clouds of high-energy particles called **cosmic rays**. These high-energy particles continually bombard the Earth and are responsible for many of the genetic mutations that are the driving force of the evolution of species.

1. Which of the following titles best describes the content of the passage?
  - (A) The Origins and Effects of Supernovas
  - (B) The Life and Death of Stars
  - (C) The Origins and Evolution of Life on Earth
  - (D) The Aftermath of a Supernova
  - (E) Violent Change in the Universe
2. According to the passage, we can expect a supernova to occur in our galaxy
  - (A) about twice each year
  - (B) hundreds of times each century
  - (C) about once every fifty years
  - (D) about once every other century
  - (E) about once every four to five billion years
3. According to the passage all of the following are true of supernovas EXCEPT that they
  - (A) are extremely bright
  - (B) are an explosion of some sort
  - (C) emit large quantities of X-rays
  - (D) result in the destruction of a neutron star
  - (E) are caused by the collision of large galaxies

4. The author employs which of the following to develop the first paragraph?
  - (A) Analogy
  - (B) Deduction
  - (C) Generalization
  - (D) Example
  - (E) Refutation
5. It can be inferred from the passage that the meteorites mentioned by the author at line 39
  - (A) contain dangerous concentrations of radioactive materials
  - (B) give off large quantities of X-rays
  - (C) include material not created in the normal development of our solar system
  - (D) are larger than the meteors normally found in a solar system like ours
  - (E) contain pieces of a supernova that occurred several billion years ago
6. The author implies that
  - (A) it is sometimes easier to detect supernovas by observation of the X-ray spectrum than by observation of visible wavelengths of light
  - (B) life on Earth is endangered by its constant exposure to radiation forces that are released by a supernova
  - (C) recently discovered meteorites indicate that the Earth and other planets of our solar system survived the explosion of a supernova several billion years ago
  - (D) lighter elements are formed from heavier elements during a supernova as the heavier elements are torn apart
  - (E) the core of a neutron star is composed largely of heavier elements such as carbon, nitrogen, and oxygen
7. According to the passage what is the first event in the sequence that leads to the occurrence of a supernova?
  - (A) An ordinary star begins to emit tremendous quantities of X-rays.
  - (B) A neutron star is enveloped by a superheated cloud of gas.
  - (C) An imbalance between light and heavy elements causes an ordinary star to collapse.
  - (D) A cloud of interstellar gas rich in carbon, nitrogen, and oxygen, collapses to form a neutron star.
  - (E) An ordinary star exhausts its supply of nuclear fuel and begins to collapse.
8. According to the passage a neutron star is
  - (A) a gaseous cloud containing heavy elements
  - (B) an intermediate stage between an ordinary star and a supernova
  - (C) the residue that is left by a supernova
  - (D) the core of an ordinary star that houses the thermonuclear reactions

- (E) one of billions of meteors that are scattered across the galaxy by a supernova
9. The author is primarily concerned with
- (A) speculating about the origins of our solar system
  - (B) presenting evidence proving the existence of supernovas
  - (C) discussing the nuclear reaction that occurs in the core of a star
  - (D) describing the sequence of scientific events
  - (E) disproving a theory about the causes of supernovas

### Passage 68 (5/22)

The uniqueness of the Japanese character is the result of two seemingly contradictory forces: the strength of traditions and selective receptivity to foreign achievements and inventions. As early as the 1860s, there were counter movements to the traditional orientation. Yukichi Fukuzawa, the most eloquent spokesman of Japan's "Enlightenment," claimed: "The Confucian civilization of the East seems to me to lack two things possessed by Western civilization: science in the material sphere and a sense of independence in the spiritual sphere." Fukuzawa's great influence is found in the free and individualistic philosophy of the *Education Code* of 1872, but he was not able to prevent the government from turning back to the canons of Confucian thought in the *Imperial Rescript* of 1890. Another interlude of relative liberalism followed World War I, when the democratic idealism of President Woodrow Wilson had an important impact on Japanese intellectuals and, especially students: but more important was the Leninist ideology of the 1917 Bolshevik Revolution. Again in the early 1930s, nationalism and militarism became dominant, largely as a result of failing economic conditions.

Following the end of World War II, substantial changes were undertaken in Japan to liberate the individual from authoritarian restraints. The new democratic value system was accepted by many teachers, students, intellectuals, and old liberals, but it was not immediately embraced by the society as a whole. Japanese traditions were dominated by group values, and notions of personal freedom and individual rights were unfamiliar.

Today, democratic processes are clearly evident in the widespread participation of the Japanese people in social and political life: yet, there is no universally accepted and stable value system. Values are constantly modified by strong infusions of Western ideas, both democratic and Marxist. School textbooks expound democratic principles, emphasizing equality over hierarchy and rationalism over tradition; but in practice these values are often misinterpreted and distorted, particularly by the youth who translate the individualistic and humanistic goals of democracy into egoistic and materialistic ones.

Most Japanese people have consciously rejected Confucianism, but vestiges of the old order remain. An important feature of relationships in many institutions such as political parties, large corporations, and university faculties is the *oyabun-kobun* or parent-child relation. A party leader, supervisor, or professor, in return for loyalty, protects those subordinate to him and takes general responsibility for their interests throughout their entire lives, an obligation that sometimes even extends to arranging marriages. The corresponding loyalty of the individual to his patron reinforces his allegiance to the group to which they both belong. A willingness to



cooperate with other members of the group and to support without qualification the interests of the group in all its external relations is still a widely respected virtue. The *oyabun-kobun* creates ladders of mobility which an individual can ascend, rising as far as abilities permit, so long as he maintains successful personal ties with a superior in the vertical channel, the latter requirement usually taking precedence over a need for exceptional competence. As a consequence, there is little horizontal relationship between people even within the same profession.

1. The author is mainly concerned with
  - (A) explaining the influence of Confucianism on modern Japan
  - (B) analyzing the reasons for Japan's postwar economic success
  - (C) discussing some important determinants of Japanese values
  - (D) describing managerial practices in Japanese industry
  - (E) contrasting modern with prewar Japanese society
2. Which of the following is most like the relationship of the *oyabun-kobun* described in the passage?
  - (A) A political candidate and the voting public
  - (B) A gifted scientist and his protégé
  - (C) Two brothers who are partners in a business
  - (D) A judge presiding at the trial of a criminal defendant
  - (E) A leader of a musical ensemble who is also a musician in the group
3. According to the passage, Japanese attitudes are influenced by which of the following?
  - I. Democratic ideals
  - II. Elements of modern Western culture
  - III. Remnants of an earlier social structure
  - (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
4. The author implies that
  - (A) decisions about promotions are often based on personal feelings
  - (B) students and intellectuals do not understand the basic tenets of Western democracy
  - (C) Western values have completely overwhelmed traditional Japanese attitudes
  - (D) respect for authority was introduced into Japan following World War II
  - (E) most Japanese workers are members of a single political party
5. In developing the passage, the author does which of the following?

- (A) Introduce an analogy
  - (B) Define a term
  - (C) Present statistics
  - (D) Cite an authority
  - (E) Issue a challenge
6. It can be inferred that the Imperial Rescript of 1890
- (A) was a protest by liberals against the lack of individual liberty in Japan
  - (B) marked a return in government policies to conservative values
  - (C) implemented the ideals set forth in the *Education Code* of 1872
  - (D) was influenced by the Leninist ideology of the Bolshevik Revolution
  - (E) prohibited the teaching of Western ideas in Japanese schools
7. Which of the following is the most accurate description of the organization of the passage?
- (A) A sequence of inferences in which the conclusion of each successive step becomes a premise in the next argument
  - (B) A list of generalizations, most of which are supported by only a single example
  - (C) A chronological analysis of historical events leading up to a description of the current situation
  - (D) A statement of a commonly accepted theory that is then subjected to a critical analysis
  - (E) An introduction of a key term that is then defined by giving examples
8. Which of the following best states the central thesis of the passage?
- (A) The value system of Japan is based upon traditional and conservative values that have, in modern times, been modified by Western and other liberal values.
  - (B) Students and radicals in Japan have Leninist ideology to distort the meaning of democratic, Western values.
  - (C) The notions of personal freedom and individual liberty did not find immediate acceptance in Japan because of the predominance of traditional group values.
  - (D) Modern Japanese society is characterized by hierarchical relationships in which a personal tie to a superior is often more important than merit.
  - (E) The influence on Japanese values of the American ideals of personal freedom and individual rights is less important than the influence of Leninist ideology.
9. The tone of the passage can best be described as
- (A) neutral and objective

- (B) disparaging and flippant
- (C) critical and demanding
- (D) enthusiastic and supportive
- (E) skeptical and questioning

### Passage 69 (6/22)

Public general hospitals originated in the almshouse infirmaries established as early as colonial times by local governments to care for the poor. Later, in the late eighteenth and early nineteenth centuries, the infirmary separated from the almshouse and became an independent institution supported by local tax money. At the same time, private charity hospitals began to develop. Both private and public hospitals provided mainly food and shelter for the impoverished sick, since there was little that medicine could actually do to cure illness, and the middle class was treated at home by private physicians.

Late in the nineteenth century, the private charity hospital began trying to attract middle-class patients. Although the depression of 1890 stimulated the growth of charitable institutions and an expanding urban population became dependent on assistance, there was a decline in private contributions to these organizations which forced them to look to local government for financial support. Since private institutions had also lost benefactors; they began to charge patients. In order to attract middle-class patients, private institutions provided services and amenities that distinguished between paying and non-paying patients and made the hospital a desirable place for private physicians to treat their own patients. As paying patients became more necessary to the survival of the private hospital, the public hospitals slowly became the only place for the poor to get treatment. By the end of the nineteenth century, cities were reimbursing private hospitals for their care of indigent patients and the public hospitals remained dependent on the tax dollars.

The advent of private hospital health insurance, which provided middle-class patients with the purchasing power to pay for private hospital services, guaranteed the private hospital a regular source of income. Private hospitals restricted themselves to revenue-generating patients, leaving the public hospitals to care for the poor. Although public hospitals continued to provide services for patients with communicable diseases and outpatient and emergency services, the Blue Cross plans developed around the needs of the private hospitals and the inpatients they served. Thus, reimbursement for ambulatory care has been minimal under most Blue Cross plans, and provision of outpatient care has not been a major function of the private hospital, in part because private patients can afford to pay for the services of private physicians. Additionally, since World War II, there has been a tremendous influx of federal money into private medical schools and the hospitals associated with them. Further, large private medical centers with expensive research equipment and programs have attracted the best administrators, physicians, and researchers. As a result of the greater resources available to the private medical centers, public hospitals have increasing problems attracting highly qualified research and medical personnel. With the mainstream of health care firmly established in the private medical sector, the public hospital has become a "dumping ground."

1. According to the passage, the very first private hospitals

- (A) developed from almshouse infirmaries
  - (B) provided better care than public infirmaries
  - (C) were established mainly to service the poor
  - (D) were supported by government revenues
  - (E) catered primarily to the middle-class patients
2. It can be inferred that the author believes the differences that currently exist between public and private hospitals are primarily the result of
- (A) political considerations
  - (B) economic factors
  - (C) ethical concerns
  - (D) legislative requirements
  - (E) technological developments
3. It can be inferred that the growth of private health insurance
- (A) relieved local governments of the need to fund public hospitals
  - (B) guaranteed that the poor would have access to medical care
  - (C) forced middle-class patients to use public hospitals
  - (D) prompted the closing of many charitable institutions
  - (E) reinforced the distinction between public and private hospitals
4. Which of the following would be the most logical topic for the author to introduce in the next paragraph?
- (A) A plan to improve the quality of public hospitals
  - (B) An analysis of the profit structure of health insurance companies
  - (C) A proposal to raise taxes on the middle class
  - (D) A discussion of recent developments in medical technology
  - (E) A list of the subjects studied by students in medical school
5. The author's primary concern is to
- (A) describe the financial structure of the healthcare industry
  - (B) demonstrate the importance of government support for health-care institutions
  - (C) criticize wealthy institutions for refusing to provide services to the poor
  - (D) identify the historical causes of the division between private and public hospitals
  - (E) praise public hospitals for their willingness to provide health care for the poor
6. The author cites all of the following as factors contributing to the decline of public hospitals EXCEPT.
- (A) Government money was used to subsidize private medical schools and hospitals to the detriment of public hospitals.
  - (B) Public hospitals are not able to compete with private institutions for top flight

- managers and doctors.
- (C) Large private medical centers have better research facilities and more extensive research programs than public hospitals.
- (D) Public hospitals accepted the responsibility for treating patients with certain diseases.
- (E) Blue Cross insurance coverage does not reimburse subscribers for medical expenses incurred in a public hospital.
7. The author's attitude toward public hospitals can best be described as
- (A) contemptuous and prejudiced
- (B) apprehensive and distrustful
- (C) concerned and understanding
- (D) enthusiastic and supportive
- (E) unsympathetic and annoyed
8. The author implies that any outpatient care provided by a hospital is
- (A) paid for by private insurance
- (B) provided **in lieu of** treatment by a private physician
- (C) supplied primarily by private hospitals
- (D) a source of revenue for public hospitals
- (E) no longer provided by hospitals, public or private
9. Which of the following titles best describes the content of the passage?
- (A) Public versus Private Hospitals: A Competitive Mismatch
- (B) Historical and Economic Factors in the Decline of the Public Hospital
- (C) A Comparison of the Quality of Care Provided in Public and Private Hospitals
- (D) A Proposal for Revamping the Health Delivery Services Sector of the Economy
- (E) Economic Factors That Contribute to the Inability of the Poor to Get Adequate Care

### Passage 70 (7/22)

The *National Security Act* of 1947 created a national military **establishment** headed by a single Secretary of Defense. The legislation had been a year-and-a-half in the making—beginning when President Truman first recommended that the armed services be reorganized into a single department. During that period the President's concept of a unified armed service was torn apart and put back together several times, the final measure to **emerge from** Congress being a compromise. Most of the opposition to the bill came from the Navy and its numerous civilian spokesmen, including Secretary of the Navy James Forrestal. In support of unification (and a separate air force that was part of the unification package) were the Army air forces, the Army, and, most importantly, the President of the United States.

Passage of the bill did not bring an end to the bitter interservice disputes. Rather than unify, the act served only to **federate** the military services. It neither halted the rapid demobilization of the armed forces that followed World War II nor brought to the new national military establishment the loyalties of officers steeped in the traditions of the separate services. At a time when the balance of power in Europe and Asia was rapidly shifting, the services lacked any precise statement of United States foreign policy from the National Security Council on which to base future programs. The services bickered unceasingly over their respective roles and missions, already complicated by the Soviet nuclear capability that for the first time made the United States subject to devastating attack. Not even the appointment of Forrestal as First Secretary of Defense allayed the suspicions of naval officers and their supporters that the role of the U.S. Navy was threatened with permanent eclipse. Before the war of words died down, Forrestal himself was driven to resignation and then suicide.

By 1948, the United States military establishment was forced to make do with a budget approximately 10 percent of what it had been at its wartime peak. Meanwhile, the cost of weapons procurement was rising geometrically as the nation came to put more and more reliance on the atomic bomb and its delivery systems. These two factors inevitably made adversaries of the Navy and the Air Force as the battle between advocates of the B-36 and the supercarrier so amply demonstrates. Given severe fiscal restraints on the one hand, and on the other the nation's increasing reliance on strategic nuclear deterrence, the conflict between these two services over roles and missions was essentially a contest over slices of an ever-diminishing pie.

Yet if in the end neither service was the obvious victor, the principle of civilian dominance over the military clearly was. If there had ever been any danger that the United States military establishment might exploit, to the detriment of civilian control, the goodwill it enjoyed as a result of its victories in World War II, that danger disappeared in the interservice animosities engendered by the battle over unification.

1. The author makes all of the following points about the National Security Act of 1947 EXCEPT
  - (A) It provided for a single Secretary of Defense.
  - (B) The legislation that came out of Congress was a compromise measure.
  - (C) The legislation was initially proposed by President Truman.
  - (D) The Navy opposed the bill that eventually became law.
  - (E) The bill was passed to help the nation's demobilization effort.
2. Which of the following best describes the tone of the selection?
  - (A) Analytical and confident
  - (B) Resentful and defensive
  - (C) Objective and speculative
  - (D) Tentative and skeptical
  - (E) Persuasive and cynical
3. According to the passage, the interservice strife that followed unification



- occurred primarily between the
- (A) Army and Army air forces
  - (B) Army and Navy
  - (C) Army air forces and Navy
  - (D) Navy and Army
  - (E) Air Force and Navy
4. It can be inferred from the passage that Forrestal's appointment as Secretary of Defense was expected to
- (A) placate members of the Navy
  - (B) result in decreased levels of defense spending
  - (C) outrage advocates of the Army air forces
  - (D) win Congressional approval of the unification plan
  - (E) make Forrestal a Presidential candidate against Truman
5. According to the passage, President Truman supported which of the following??
- I. Elimination of the Navy
  - II. A unified military service
  - III. Establishment of a separate air force
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
6. With which of the following statements about defense unification would the author most likely agree?
- (A) Unification ultimately undermined United States military capability by inciting interservice rivalry.
  - (B) The unification legislation was necessitated by the drastic decline in appropriations for the military services.
  - (C) Although the unification was not entirely successful, it had the unexpected result of ensuring civilian control of the military.
  - (D) In spite of the attempted unification, each service was still able to pursue its own objectives without interference from the other branches.
  - (E) Unification was in the first place unwarranted and in the second place ineffective.
7. According to the selection, the political situation following the passage of the National Security Act of 1947 was characterized by all of the following EXCEPT
- (A) a shifting balance of power in Europe and in Asia

- (B) fierce interservice rivalries
  - (C) lack of strong leadership by the National Security Council
  - (D) shrinking postwar military budgets
  - (E) a lame-duck President who was unable to unify the legislature
8. The author cites the resignation and suicide of Forrestal in order to
- (A) underscore the bitterness of the interservice rivalry surrounding the passage of the *National Security Act* of 1947
  - (B) demonstrate that the Navy eventually emerged as the dominant branch of service after the passage of the *National Security Act* of 1947
  - (C) suggest that the nation would be better served by a unified armed service under a single command
  - (D) provide an example of a military leader who preferred to serve his country in war rather than in peace
  - (E) persuade the reader that Forrestal was a victim of political opportunists and an unscrupulous press
9. The author is primarily concerned with
- (A) discussing the influence of personalities on political events
  - (B) describing the administration of a powerful leader
  - (C) criticizing a piece of legislation
  - (D) analyzing a political development
  - (E) suggesting methods for controlling the military

### Passage 71 (8/22)

Behavior is one of two general responses available to **endothermic** (warm-blooded) species for the regulation of body temperature, the other being innate (reflexive) mechanisms of heat production and heat loss. Human beings rely primarily on the first to provide a hospitable thermal **microclimate** for themselves, in which the transfer of heat between the body and the environment is accomplished with minimal involvement of innate mechanisms of heat production and loss. **Thermoregulatory** behavior anticipates hyperthermia, and the organism adjusts its behavior to avoid becoming hyperthermic: it removes layers of clothing, it goes for a cool swim, etc. The organism can also respond to changes in the temperature of the body core, as is the case during exercise; but such responses result from the direct stimulation of thermoreceptors distributed widely within the **central nervous system**, and the ability of these mechanisms to help the organism adjust to gross changes in its environment is limited.

Until recently it was assumed that organisms respond to microwave radiation in the same way that they respond to temperature changes caused by other forms of radiation. After all, the argument runs, microwaves are radiation and heat body tissues. This theory ignores the fact that the stimulus to a behavioral response is normally a temperature change that occurs at the surface of the organism. The thermoreceptors that prompt behavioral changes are located within the first millimeter of the skin's surface, but the energy of a **microwave field** may be

selectively deposited in deep tissues, effectively bypassing these thermoreceptors, particularly if the field is at near-resonant frequencies. The resulting **temperature profile** may well be a kind of reverse thermal gradient in which the deep tissues are warmed more than those of the surface. Since the heat is not conducted outward to the surface to stimulate the appropriate receptors, the organism does not “appreciate” this stimulation in the same way that it “appreciates” heating and cooling of the skin. **In theory**, the internal organs of a human being or an animal could be quite literally cooked **well-done** before the animal even realizes that the balance of its thermomicroclimate has been disturbed.

Until a few years ago, microwave irradiations at equivalent plane-wave power densities of about 100 mW/cm<sup>2</sup> were considered unequivocally to produce “thermal” effects; irradiations within the range of 10 to 100 mW/cm<sup>2</sup> might or might not produce “thermal” effects; while effects observed at power densities below 10 mW/cm<sup>2</sup> were assumed to be “nonthermal” in nature. Experiments have shown this to be an oversimplification, and a recent report suggests that fields as weak as 1 mW/cm<sup>2</sup> can be thermogenic. When the heat generated in the tissues by an imposed **radio frequency** (plus the heat generated by metabolism) exceeds the heat-loss capabilities of the organism, the thermoregulatory system has been compromised. Yet surprisingly, **not long ago**, an increase in the internal body temperature was regarded merely as “evidence” of a thermal effect.

1. The author is primarily concerned with
  - (A) showing that behavior is a more effective way of controlling bodily temperature than innate mechanisms
  - (B) criticizing researchers who will not discard their theories about the effects of microwave radiation on organisms
  - (C) demonstrating that effects of microwave radiation are different from those of other forms of radiation
  - (D) analyzing the mechanism by which an organism maintains its bodily temperature in a changing thermal environment
  - (E) discussing the importance of thermoreceptors in the control of the internal temperature of an organism
2. The author makes which of the following points about innate mechanisms for heat production?
  - I. They are governed by thermoreceptors inside the body of the organism rather than at the surface.
  - II. They are a less effective means of compensating for gross changes in temperature than behavioral strategies.
  - III. They are not affected by microwave radiation.
  - (A) I only
  - (B) I and II only
  - (C) I and III only
  - (D) II and III only
  - (E) I, II, and III

3. Which of the following would be the most logical topic for the author to **take up** in the paragraph following the final paragraph of the selection?
- (A) A suggestion for new research to be done on the effects of microwaves on animals and human beings
  - (B) An analysis of the differences between microwave radiation
  - (C) A proposal that the use of microwave radiation be prohibited because it is dangerous
  - (D) A survey of the literature on the effects of microwave radiation on human beings
  - (E) A discussion of the strategies used by various species to control hyperthermia
4. The author's strategy in lines 39-42 is to
- (A) introduce a hypothetical example to dramatize a point
  - (B) propose an experiment to test a scientific hypothesis
  - (C) cite a case study to illustrate a general contention
  - (D) produce a counterexample to disprove an opponent's theory
  - (E) speculate about the probable consequences of a scientific phenomenon
5. The author implies that the proponents of the theory that microwave radiation acts on organisms in the same way as other forms of radiation based their conclusions primarily on
- (A) laboratory research
  - (B) unfounded assumption
  - (C) control group surveys
  - (D) deductive reasoning
  - (E) causal investigation
6. The tone of the passage can best be described as
- (A) genial and conversational
  - (B) alarmed and disparaging
  - (C) facetious and cynical
  - (D) scholarly and **noncommittal**
  - (E) scholarly and concerned
7. The author is primarily concerned with
- (A) pointing out weaknesses in a popular scientific theory
  - (B) developing a hypothesis to explain a scientific phenomenon
  - (C) reporting on new research on the effects of microwave radiation
  - (D) criticizing the research methods of earlier investigators
  - (E) clarifying ambiguities in the terminology used to describe a phenomenon

## Passage 72 (9/22)

Since World War II considerable advances have been made in the area of health-care services. These include better access to health care (particularly for the poor and minorities), improvements in physical plants, and increased numbers of physicians and other health personnel. All have played a part in the recent improvement in **life expectancy**. But there is mounting criticism of the large remaining gaps in access, unbridled cost inflation, the further fragmentation of service, excessive indulgence in wasteful high-technology “gadgeteering,” and a breakdown in doctor-patient relationships. **In recent years** proposed panaceas and new programs, small and large, have proliferated at a feverish pace and disappointments multiply at almost the same rate. This has led to an increased pessimism—“everything has been tried and nothing works”—which sometimes borders on cynicism or even nihilism.

It is true that the automatic “pass through” of rapidly **spiraling costs** to government and insurance carriers, which was set in a publicized environment of “the richest nation in the world,” produced **for a time** a sense of unlimited resources and allowed to develop a mood whereby every practitioner and institution could “do his own thing” without undue concern for the “Medical Commons.” The practice of full-cost reimbursement encouraged capital investment and now the industry is overcapitalized. Many cities have hundreds of excess hospital beds; hospitals have proliferated a superabundance of high-technology equipment; and structural ostentation and luxury were the **order of the day**. In any given day, one-fourth of all community beds are vacant; expensive equipment is underused or, worse, used unnecessarily. Capital investment brings rapidly rising **operating costs**.

Yet, in part, this pessimism derives from expecting too much of health care. It must be realized that care is, for most people, a painful experience, often accompanied by fear and unwelcome results. Although there is vast room for improvement, health care will always retain some unpleasantness and frustration. Moreover, the capacities of medical science are limited. **Humpty Dumpty** cannot always be put back together again. Too many physicians are reluctant to admit their limitations to patients; too many patients and families are unwilling to accept such realities. Nor is it true that everything has been tried and nothing works, as shown by the prepaid group practice plans of the Kaiser Foundation and at Puget Sound. **In the main**, however, such undertakings have been drowned by a veritable flood of public and private moneys which have supported and encouraged the continuation of conventional practices and subsidized their shortcomings on a massive, almost unrestricted scale. Except for the most idealistic and dedicated, there were no incentives to seek change or to practice self-restraint or frugality. In this atmosphere, it is not fair to condemn as failures all attempted experiments; it may be more accurate to say many never had a fair trial.

1. The author implies that the Kaiser Foundation and Puget Sound plans (lines 47-48) differed from other plans by
  - (A) encouraging capital investment
  - (B) requiring physicians to treat the poor
  - (C) providing incentives for cost control
  - (D) employing only dedicated and idealistic doctors

- (E) relying primarily on public funding
2. The author mentions all of the following as consequences of full-cost reimbursement EXCEPT
- (A) rising operating costs
  - (B) underused hospital facilities
  - (C) overcapitalization
  - (D) overreliance on expensive equipment
  - (E) lack of services for minorities
3. The tone of the passage can best be described as
- (A) light-hearted and amused
  - (B) objective but concerned
  - (C) detached and unconcerned
  - (D) cautious but sincere
  - (E) enthusiastic and enlightened
4. According to the author, the “pessimism” mentioned at line 35 is partly attributable to the fact that
- (A) there has been little real improvement in health-care services
  - (B) expectations about health-care services are sometimes unrealistic
  - (C) large segments of the population find it impossible to get access to health-care services
  - (D) advances in technology have made health care service unaffordable
  - (E) doctors are now less concerned with patient care
5. The author cites the prepaid plans in lines 46-48 as
- (A) counterexamples to the claim that nothing has worked
  - (B) examples of health-care plans that were over-funded
  - (C) evidence that health-care services are fragmented
  - (D) proof of the theory that no plan has been successful
  - (E) experiments that yielded disappointing results
6. It can be inferred that the sentence “Humpty Dumpty cannot always be put back together again” means that
- (A) the cost of health-care services will not decline
  - (B) some people should not become doctors
  - (C) medical care is not really essential to good health
  - (D) illness is often unpleasant and even painful
  - (E) medical science cannot cure every ill
7. With which of the following descriptions of the system for the delivery of



- health-care services would the author most likely agree?
- (A) It is biased in favor of doctors and against patients.
  - (B) It is highly fragmented and completely ineffective
  - (C) It has not embraced new technology rapidly enough
  - (D) It is generally effective but can be improved
  - (E) It discourages people from seeking medical care
8. Which of the following best describes the logical structure of the selection?
- (A) The third paragraph is intended as a refutation of the first and second paragraphs.
  - (B) The second and third paragraphs explain and put into perspective the points made in the first paragraph.
  - (C) The second and third paragraphs explain and put into perspective the points made in the first paragraph.
  - (D) The first paragraph describes a problem, and the second and third paragraphs present two horns of a dilemma.
  - (E) The first paragraph describes a problem, the second its causes, and the third a possible solution.
9. The author's primary concern is to
- (A) criticize physicians and health-care administrators for investing in technologically advanced equipment
  - (B) examine some problems affecting delivery of health-care services and assess their severity
  - (C) defend the medical community from charges that health-care has not improved since World War II
  - (D) analyze the reasons for the health-care industry's inability to provide quality care to all segments of the population
  - (E) describe the peculiar economic features of the health-care industry that are the causes of spiraling medical costs

### Passage 73 (10/22)

During the Victorian period, women writers were measured against a social rather than a literary ideal. Hence, it was widely thought that novels by women should be modest, religious, sensitive, guileless, and chaste, like their authors. Many Victorian women writers **took exception to** this belief, however, resisting the imposition of nonliterary restrictions on their work. Publishers soon discovered that the gentlest and most idyllic female novelists were tough-minded and relentless when their professional **integrity** was **at stake**. Keenly aware of their artistic responsibilities, these women writers would not make concessions to secure commercial success.

The Brontës, George Eliot, Elizabeth Barrett Browning, and their lesser-known

contemporaries repudiated, in their professional lives, the courtesy that Victorian ladies might exact from Victorian gentlemen. Desiring rigorous and impartial criticism, most women writers did not wish reviewers to be kind to them if kindness meant overlooking their literary weaknesses or flattering them on their accomplishments simply because of their sex. They had expected derisive reviews; instead, they found themselves confronted with generous criticism, which they considered condescending. Elizabeth Barrett Browning labeled it “the comparative respect which means... absolute scorn.”

For their part, Victorian critics were virtually obsessed with finding the place of the woman writer so as to judge her appropriately. Many bluntly admitted that they thought *Jane Eyre* a masterpiece if written by a man, shocking or disgusting if written by a woman. Moreover, reactionary reviewers were quick to associate an independent heroine with carefully concealed revolutionary doctrine; several considered *Jane Eyre* a radical feminist document, as indeed it was. To Charlotte Bronte, who had demanded dignity and independence without any revolutionary intent and who considered herself politically conservative, their criticism was an affront. Such criticism bunched all women writers together rather than treating them as individual artists.

Charlotte Bronte’s experience served as a warning to other women writers about the prejudices that immediately associated them with feminists and others thought to be political radicals. Irritated, and anxious to detach themselves from a group stereotype, many expressed relatively conservative views on the emancipation of women (except on the subject of women’s education) and stressed their own domestic accomplishments. However, in identifying themselves with women who had chosen the traditional career path of marriage and motherhood, these writers encountered still another threat to their creativity. Victorian prudery rendered virtually all experience that was uniquely feminine unprintable. No nineteenth-century woman dared to describe childbirth, much less her sexual passion. Men could not write about their sexual experiences either, but they could write about sport, business, crime, and war—all activities from which women were barred. Small wonder no woman produced a novel like *War and Peace*. What is amazing is the sheer volume of first-rate prose and poetry that Victorian women did write.

1. The primary purpose of the passage is to
  - (A) refute the contention that no Victorian woman writer produced a novel like *War and Peace*
  - (B) trace the historical relationship between radical feminist politics and the Victorian novels written by women
  - (C) show how three Victorian women writers responded to criticism of their novels
  - (D) resolve the apparent contradiction between Victorian women writers’ literary innovativeness and their rather conservative social views
  - (E) describe the discrepancy between Victorian society’s expectations of women writers and the expectations of the women writers themselves
2. According to the passage, Victorian women writers “would not make concessions” (line 13) to publishers primarily because they felt that such

- concessions would
- (A) require them to limit descriptions of uniquely feminine experiences
  - (B) compromise their artistic integrity
  - (C) make them vulnerable to stereotyping by critics
  - (D) provide no guarantee that their works would enjoy commercial success
  - (E) go against the traditions of English letters
3. The passage suggests that Victorian criticism of works by women writers was
- (A) indulgent
  - (B) perfunctory
  - (C) resourceful
  - (D) timely
  - (E) apolitical
4. The author of the passage quotes Elizabeth Barrett Browning (lines 28-29) in order to demonstrate that Victorian women writers
- (A) possessed both talent and literary creativity
  - (B) felt that their works were misunderstood
  - (C) refused to make artistic concessions
  - (D) feared derisive criticism
  - (E) resented condescending criticism
5. It can be inferred from the passage that Charlotte Bronte considered the criticisms leveled at *Jane Eyre* by reactionary reviewers “an affront” (line 43) primarily because such criticism
- (A) exposed her carefully concealed revolutionary doctrine to public scrutiny
  - (B) assessed the literary merit of the novel on the basis of its author’s sex
  - (C) assumed that her portrayal of an independent woman represented revolutionary ideas
  - (D) labeled the novel shocking and disgusting without just cause
  - (E) denied that the novel was a literary masterpiece
6. Which of the following statements best describes the “threat” mentioned in line 57 of the passage?
- (A) Critics demanded to know the sex of the author before passing judgment on the literary quality of a novel.
  - (B) Women writers were prevented from describing in print experiences about which they had special knowledge.
  - (C) The reading public tended to prefer historical novels to novels describing contemporary London society.
  - (D) Publishers were urging Victorian women writers to publish under their own names rather than under pseudonyms.

- (E) Women writers' domestic responsibilities tended to take time away from their writing.
7. The passage suggests that the attitude of Victorian women writers toward being grouped together by critics was most probably one of
- (A) relief
  - (B) indifference
  - (C) amusement
  - (D) annoyance
  - (E) ambivalence
8. It can be inferred from the passage that a Victorian woman writer who did not consider herself a feminist would most probably have approved of women's
- (A) entering the noncombat military
  - (B) entering the publishing business
  - (C) entering a university
  - (D) joining the stock exchange
  - (E) joining a tennis club
9. The passage suggests that the literary creativity of Victorian women writers could have been enhanced if
- (A) women had been allowed to write about a broader range of subjects
  - (B) novels of the period had been characterized by greater stylistic and structural ingenuity
  - (C) a reserved and decorous style had been a more highly valued literary ideal
  - (D) publishers had sponsored more new women novelists
  - (E) critics had been kinder in reviewing the works of women novelists

### Passage 74 (11/22)

Agricultural progress provided the stimulus necessary to **set off** economic expansion in medieval France. As long as those who worked the land were barely able to ensure their own **subsistence** and that of their landlords, all other activities had to be minimal, but when food surpluses increased, it became possible to release more people for governmental, commercial, religious and cultural pursuits.

However, not all the funds from the agricultural surplus were actually available for commercial investment. Much of the surplus, in the form of food increases, probably went to raise the subsistence level; an additional amount, in the form of currency gained from the sale of food, went into the royal treasury to be used in waging war. Although Louis VII of France levied a less crushing tax burden on his subjects than did England's Henry II, Louis VII did spend great sums on an unsuccessful crusade, and his vassals—both lay and ecclesiastic—took over spending where their sovereign stopped. Surplus funds were claimed both by the Church and by feudal landholders, **whereupon** cathedrals and castles mushroomed throughout France.

The simultaneous progress of cathedral building and, for instance, vineyard expansion in **Bordeaux** illustrates the very real competition for available capital between the Church and commercial interests; the former produced inestimable moral and artistic riches, but the latter had a stronger immediate impact upon gross national product. Moreover, though all wars by definition are defensive, the frequent crossings of armies that **lived off** the land and impartially burned all the huts and barns on their path consumed considerable resources.

Since demands on the agricultural surplus would have varied **from year to year**, we cannot precisely calculate their impact on the commercial growth of medieval France. But we must bear that impact in mind when estimating the assets that were likely to have been available for investment. No doubt castle and cathedral building was not totally barren of profit (for the builders, that is), and it produced intangible dividends of material and moral satisfaction for the community. Even wars **handed back** a fragment of what they took, at least to a few. Still, we cannot place on the same plane a primarily destructive activity and a constructive one, nor expect the same results from a new bell tower as from a new **water mill**. Above all, medieval France had little room for investment over and above the preservation of life. Granted that war cost much less than it does today, that the Church rendered all sorts of educational and recreational services that were unobtainable elsewhere, and that government was far less demanding than is the modern state—nevertheless, for medieval men and women, supporting commercial development required considerable economic sacrifice.

1. According to the passage, agricultural revenues in excess of the amount needed for subsistence were used by medieval kings to
  - (A) patronize the arts
  - (B) sponsor public recreation
  - (C) wage war
  - (D) build cathedrals
  - (E) fund public education
2. According to the passage, which of the following was an important source of revenue in medieval France?
  - (A) Cheese
  - (B) Wine
  - (C) Wool
  - (D) Olive oil
  - (E) Veal
3. The passage suggests that which of the following would have reduced the assets immediately available for commercial investment in medieval France?
  - I. Renovation of a large cathedral
  - II. A sharp increase in the birth rate
  - III. An invasion of France by Henry II
  - (A) III only
  - (B) I and II only

- (C) I and III only
  - (D) II and III only
  - (E) I, II, and III
4. It can be inferred from the passage that more people could enter government and the Church in medieval France because
- (A) the number of individual landholdings in heavily agricultural areas was beginning to increase
  - (B) an increase in the volume of international trade had brought an increase in the population of cities
  - (C) a decrease in warfare had allowed the king to decrease the size of the army
  - (D) food producers could grow more food than they and their families needed to survive
  - (E) landlords were prospering and thus were demanding a smaller percentage of tenants' annual yields
5. The author implies that the reason we cannot expect the same results from a new bell tower as from a new water mill is that
- (A) bell towers yield an intangible dividend
  - (B) bell towers provide material satisfaction
  - (C) water mills cost more to build than bell towers
  - (D) water mills divert funds from commerce
  - (E) water mills might well be destroyed by war
6. The author of the passage most probably bases his central argument on which of the following theoretical assumptions often made by economists?
- (A) Different people should be taxed in proportion to the benefit they can expect to receive from public activity.
  - (B) Perfect competition exists only in the case where no farmer, merchant, or laborer controls a large enough share of the total market to influence market price.
  - (C) A population wealthy enough to cut back its rate of consumption can funnel the resulting savings into the creation of capital.
  - (D) A full-employment economy must always, to produce one good, give up producing another good.
  - (E) There is a universal tendency for population, unless checked by food supply, to increase in a geometric progression.
7. The author suggests that commercial expansion in medieval France "required considerable economic sacrifice" (lines 59-60) primarily for which of the following reasons?
- (A) Cathedrals cost more to build and rebuild than did castles.
  - (B) The numerous wars fought during the period left the royal treasury bankrupt.



- (C) Louis VII levied a more crushing tax burden on his subjects than did Henry II.
- (D) Although much of the available surplus had been diverted into vineyard expansion, the vineyards had not yet begun to produce.
- (E) Although more food was being produced, the subsistence level was not very far above the minimum required to sustain life.
8. The passage implies that which of the following yielded the lowest dividend to medieval men and women relative to its cost?
- (A) Warfare
- (B) Vineyard expansion
- (C) Water mill construction
- (D) Castle building
- (E) Cathedral building
9. Which of the following statements best expresses the central idea of the passage?
- (A) Commercial growth in medieval France may be accurately computed by calculating the number of castles and cathedrals built during the period.
- (B) Competition between the Church and the feudal aristocracy for funds created by agricultural surplus demonstrably slowed the economic growth of medieval France.
- (C) Despite such burdens as war and capital expansion by landholders, commerce in medieval France expanded steadily as the agricultural surplus increased.
- (D) Funds actually available for commerce in medieval France varied with the demands placed on the agricultural surplus.
- (E) The simultaneous progress of vineyard expansion and building in medieval France gives evidence of a rapidly expanding economy.

### Passage 75 (12/22)

For years scholars have contrasted slavery in the United States and in Brazil, stimulated by the fact that racial patterns assumed such different aspects in the two countries after emancipation. Brazil never developed a system of rigid segregation **of the sort** that replaced slavery in the United States, and its racial system was fluid because its definition of race was based as much on characteristics such as economic status as on skin color. Until recently, the most persuasive explanation for these differences was that Portuguese institutions especially the Roman Catholic church and Roman **civil law**, promoted recognition of the slave's humanity. The English colonists, on the other hand, constructed their system of slavery **out of whole cloth**. There were simply no precedents in English **common law**, and separation of church and state barred Protestant clergy from the role that priests assumed in Brazil.

But the assumption that institutions alone could so powerfully affect the history of two raw and malleable **frontier** countries seems, on reexamination, untenable. Recent studies focus instead on a particular set of contrasting economic circumstances and demographic profiles at

significant periods in the histories of the two countries. Persons of mixed race quickly appeared in both countries. In the United States they were considered to be Black, a social definition that was feasible because they were in the minority. In Brazil, it was not feasible. Though intermarriage was illegal in both countries, the laws were unenforceable in Brazil since Whites formed a small minority in an overwhelmingly Black population. Manumission for persons of mixed race was also easier in Brazil, particularly in the nineteenth century when in the United States it was hedged about with difficulties. Furthermore, a shortage of skilled workers in Brazil provided persons of mixed race with the opportunity to learn crafts and trades, even before general emancipation, whereas in the United States entry into these occupations was blocked by Whites sufficiently numerous to fill the posts. The consequence was the development in Brazil of a large class of persons of mixed race, proficient in skilled trades and crafts, who stood waiting as a community for freed slaves to join.

There should be no illusion that Brazilian society after emancipation was color-blind. Rather, the large population of persons of mixed race produced a racial system that included a third status, a bridge between the Black caste and the White, which could be traversed by means of economic or intellectual achievement, marriage, or racial heritage. The strict and sharp line between the races so characteristic of the United States in the years immediately after emancipation was simply absent. With the possible exception of New Orleans, no special "place" developed in the United States for persons of mixed race. Sad to say, every pressure of society worked to prevent their attaining anything approximating the economic and social position available to their counterparts in Brazil.

1. In the passage, the author is primarily concerned with
  - (A) contrasting the systems of slavery that were established in Brazil and in the United States
  - (B) criticizing the arguments of those scholars who considered religion and law to be the determinants of the systems of slavery in Brazil and in the United States
  - (C) describing the factors currently thought to be responsible for the differences in the racial patterns that evolved in Brazil and in the United States
  - (D) advocating further study of the differences between the racial systems that developed in Brazil and in the United States
  - (E) pointing out the factors that made the status of Blacks in the United States lower than that of Blacks in Brazil
2. According to the passage, early scholars explained the differences between the racial systems that developed in the United States and in Brazil as the result of which of the following factors?
  - (A) Institutional
  - (B) Demographic
  - (C) Economic
  - (D) Geographical
  - (E) Historical

3. In the context in which it is found, the phrase “constructed their system of slavery out of whole cloth” (lines 15-16) implies that the system of slavery established by the English settlers was
  - (A) based on fabrications and lies
  - (B) tailored to the settlers’ particular circumstances
  - (C) intended to serve the needs of a frontier economy
  - (D) developed without direct influence from the settlers’ religion or legal system
  - (E) evolved without giving recognition to the slave’s humanity
4. The author implies that the explanation proposed by early scholars for the differences between the systems of slavery in the United States and in Brazil is
  - (A) stimulating to historians and legal scholars
  - (B) more powerful than more recent explanations
  - (C) persuasive in spite of minor deficiencies
  - (D) excessively legalistic in its approach
  - (E) questionable in light of current scholarly work
5. The author mentions intermarriage, manumission, and the shortage of skilled workers in Brazil primarily in order to establish which of the following?
  - (A) The environment in which Brazil’s racial system developed
  - (B) The influence of different legal and economic conditions in Brazil and the United States on the life-style of persons of mixed race
  - (C) The origins of Brazil’s large class of free skilled persons of mixed race
  - (D) The differences between treatment of slaves in Brazil and in the United States
  - (E) The difficulties faced by persons of mixed race in the United States, as compared to those in Brazil
6. According to the passage, Brazilian laws prohibiting intermarriage were ineffective because Brazil had a
  - (A) Portuguese Catholic heritage
  - (B) Small minority of whites
  - (C) Liberal set of laws concerning manumission
  - (D) Large number of freed slaves
  - (E) Shortage of people in the skilled crafts and trades
7. The use of quotation marks around the word “place” ([line 59](#)) suggests that the author intended to convey which of the following?
  - (A) An ambivalent attitude toward the city of New Orleans
  - (B) A negative attitude toward the role of race in determining status in the United States
  - (C) A critical comment about the maltreatment of persons of mixed race in the United States

- (D) A double meaning, indicating both a social status and a physical location
- (E) An ambiguity, referring to either the role persons of mixed race actually played, or the role they were assigned by the society
8. With which of the following statements regarding human behavior would the author of the passage be most likely to agree?
- (A) Only a fool or a political candidate would sing very loudly the glories of the institutions of Western culture.
- (B) Contact sports—displacements of our abiding impulses to kill—speak of essential human behavior more truthfully than all the theories of psychologists and historians.
- (C) Family, church, political party: these are the strong foundations of history and human behavior.
- (D) Money and its pursuit: an exploration of that theme will chart accurately the development of civilizations and the determinants of human behavior.
- (E) The circumstances in which humans find themselves—more than treasured beliefs or legal prescriptions—mold human behavior.

### Passage 76 (13/22)

Desertification, the creation of desert-like conditions where none had existed before, is the result of the vagaries of weather and climate or the mismanagement of the land or, in most cases, some combination of both. Such ecological deterioration in the **Sahel** has been linked in several ways to the increased size of livestock herds. During the fifteen years preceding 1968, a period of extremely favorable rainfall, the **pastoralists** moved into the marginal regions in the north with relatively large herds. However, with the onset of a series of dry years beginning at the end of the rainy season in 1967, the pastoral populations found themselves overtaxing very marginal rangelands, with the result that the nomads viewed themselves as victims of a natural disaster. The mistaken idea that drought is an unexpected event has often been used to excuse the fact that long-range planning has failed to take rainfall variability into account. People blame the climate for agricultural failures in semiarid regions and make it a scapegoat for faulty population and agricultural policies.

Deterioration and ultimately desertification in the Sahel and in other ecosystems can be combated only if an ecologically realistic carrying capacity for the rangelands is determined. Although there appears to be widespread agreement that such a determination would be significant, there has been little agreement on how to make operational the concept of carrying capacity, defined as the amount of grazing stock that the pasture can support without deterioration of either the pasture or the stock. Should the **carrying capacity** be geared to the best, the average, or the poorest years? Which combination of statistical measures would be most meaningful for the planning of long-term development of rangelands? On which variables should such an assessment be based, vegetation, rainfall, soil, ground and surface water, or managerial capabilities? Such inconclusiveness within the scientific community, while understandable, creates confusion for the land managers, who often decide to take no action or who decide that all scientific suggestions are of equal weight and, therefore, indiscriminately

choose any one of those suggested. Given the downward spiral of land deterioration, it becomes essential that an ecologically acceptable carrying capacity be established and enforced.

It will also be crucial that land managers know what statistical and quasi-statistical measures actually mean: no single number can adequately describe the climate regime of an arid or semiarid region. Land managers must supplement such terms as the "mean" with more informative statistical measures to characterize adequately the variability of the climate. The understanding of this high degree of variability will serve to remove one of the major obstacles to resolving the perennial problems of the Sahel and of other arid or semiarid regions.

1. The author is primarily concerned with
  - (A) criticizing a social attitude
  - (B) suggesting an approach to solving a problem
  - (C) explaining the mechanics of a process
  - (D) defending the theories of ecological scientists
  - (E) establishing criteria for an experiment
2. According to the passage, which of the following contributed to the desertification of the Sahel?
  - I. The size of the livestock herds grazing on the land
  - II. The quality of the land in the Sahel
  - III. The amount of rainfall after 1967
  - (A) I only
  - (B) II only
  - (C) III only
  - (D) I and III only
  - (E) I, II, and III
3. It can be inferred from the passage that the nomadic tribes who moved into the marginal regions of the Sahel did NOT
  - (A) enlarge the size of their livestock herds
  - (B) conserve water after the drought began
  - (C) live in the Sahel after 1968
  - (D) expect a drastic change in weather conditions
  - (E) seek governmental aid in overcoming drought conditions
4. It can be inferred from the passage that the concept of the carrying capacity of land is
  - (A) still hypothetical rather than practical
  - (B) basically political rather than ecological
  - (C) independent of climatic conditions
  - (D) relatively unknown among ecologists

- (E) generally misrepresented by ecologists
5. Which of the following best states the author's view concerning the relationship between the ecological scientist and the land manager?
- (A) The scientist has not provided the manager with clear guidelines that can be used in regulating the productivity of land.
- (B) The scientist has provided theories that are too detailed for the manager to use successfully.
- (C) The scientist and the manager, in attempting to regulate the use of semiarid land, have ignored the traditional behavior patterns of pastoral communities.
- (D) The manager has misunderstood and hence misapplied the suggestions of the scientist.
- (E) The manager has chosen from among the scientist's suggestions those that are economically rather than ecologically safe.
6. With which of the following statements concerning desertification would the author be most likely to agree?
- (A) It is the result of factors beyond the control of science.
- (B) It is a problem largely affecting arid regions.
- (C) It could be prevented if land managers understood statistics.
- (D) It is not always the result of drastic climate changes alone.
- (E) It is not attributable to faulty agricultural policies.
7. According to the passage, a statistical description of the climate regime of an arid or semiarid region would probably be
- (A) misleading
- (B) impossible
- (C) complex
- (D) meaningless
- (E) abstract
8. The tone of the passage can best be described as
- (A) flippant
- (B) objective
- (C) aggressive
- (D) apologetic
- (E) unconcerned

### Passage 77 (14/22)

The promise of finding long-term technological solutions to the problem of world food shortages seems difficult to fulfill. Many innovations that were once heavily supported and publicized, such as fish-protein concentrate and protein from algae grown on petroleum



substrates, have since fallen by the wayside. The proposals themselves were technically feasible, but they proved to be economically unviable and to yield food products culturally unacceptable to their consumers. Recent innovations such as opaque-2 maize, Antarctic krill, and the wheat-rye hybrid **triticale** seem more promising, but it is too early to predict their ultimate fate.

One characteristic common to unsuccessful food innovations has been that, even with extensive government support, they often have not been technologically adapted or culturally acceptable to the people for whom they had been developed. A successful new technology, therefore, must fit the entire sociocultural system in which it is to find a place. Security of crop yield, practicality of storage, palatability, and costs are much more significant than had previously been realized by the advocates of new technologies. For example, the better protein quality in **tortillas** made from opaque-2 maize will be of only limited benefit to a family on the margin of subsistence if the new maize is not culturally acceptable or is more vulnerable to insects.

The adoption of new food technologies depends on more than these technical and cultural considerations; economic factors and governmental policies also strongly influence the ultimate success of any innovation. Economists in the Anglo-American tradition have taken the lead in investigating the economics of technological innovation. Although they exaggerate in claiming that profitability is the key factor guiding technical change—they completely disregard the substantial effects of culture—they are correct in stressing the importance of profits. Most technological innovations in agriculture can be fully used only by large landowners and are only adopted if these profit-oriented business people believe that the innovation will increase their incomes. Thus, innovations that carry high rewards for big agribusiness groups will be adopted even if they harm segments of the population and reduce the availability of food in a country. Further, should a new technology promise to alter substantially the profits and losses associated with any production system, those with economic power will strive to maintain and improve their own positions. Since large segments of the populations of many developing countries are close to the subsistence margin and essentially powerless, they tend to be the losers in this system unless they are aided by a government policy that takes into account the needs of all sectors of the economy. Therefore, although technical advances in food production and processing will perhaps be needed to ensure food availability, meeting food needs will depend much more on equalizing economic power among the various segments of the populations within the developing countries themselves.

1. Which of the following best describes the organization of the first paragraph?
  - (A) A suggestion is made and arguments in its favor are provided.
  - (B) A criticism is levied and an alternative proposal is suggested.
  - (C) A generalization is advanced and supporting evidence is provided.
  - (D) An example is analyzed and general conclusions are derived from it.
  - (E) A position is stated and evidence qualifying it is provided.
2. It can be inferred from the passage that the author was unable to assess the truth of which of the following statements about opaque-2 maize?
  - (A) It is a more recent innovation than the use of fish-protein concentrate.

- (B) It can be stored as easily as other varieties of maize.
  - (C) It is more popular than the wheat-rye hybrid triticale.
  - (D) It produces tortillas of greater protein content than do other varieties of maize.
  - (E) It is more susceptible to insects than are other varieties of maize.
3. The passage mentions all of the following as factors important to the success of a new food crop EXCEPT the
- (A) practicality of storage of the crop
  - (B) security of the crop yield
  - (C) quality of the crop's protein
  - (D) cultural acceptability of the crop
  - (E) costs of production of the crop
4. According to the passage, the use of Antarctic krill as a food is an innovation whose future is
- (A) basically gloomy but still uncertain
  - (B) somewhat promising but very tentative
  - (C) generally bright and virtually assured
  - (D) tied to the success of opaque-2 maize
  - (E) endangered by certain technical problems
5. The author suggests that, in most developing countries, extensive government intervention accompanying the introduction of a food innovation will
- (A) usually be sufficient to guarantee the financial success of the innovation
  - (B) be necessary to ensure that the benefits of the innovation will be spread throughout the society
  - (C) provide the incentive necessary to convince landowners to try the innovation
  - (D) generally cost the country more than will be earned by the innovation
  - (E) normally occur only when the innovation favors large landowners
6. It can be inferred from the passage that the author would be most likely to agree with which of the following statements concerning the solution to food shortages in developing countries?
- (A) The introduction of technological innovations to reap profits might alleviate food shortages to some degree, but any permanent solution can come only from effective governmental intervention in the socioeconomic system.
  - (B) Innovations in agricultural technology will be of little help, and perhaps even harmful, in combating food shortages, no matter how well designed they are to suit local circumstances.
  - (C) Long-lasting solutions will not be found until large landowners adopt improvements that will make production more efficient and thus more

- profitable.
- (D) In order to achieve a meaningful solution to the problem of food shortages, the tastes of the general population must be educated to accept the new food products of modern agricultural technology.
- (E) Although a short-term solution to food shortages can be achieved by importing food from other countries, a long-term solution requires a restructuring of the countries' socioeconomic system.
7. The first paragraph of the passage best supports which of the following statements?
- (A) Too much publicity can harm the chances for the success of a new food innovation.
- (B) Innovations that produce culturally acceptable crops will generally be successful.
- (C) A food-product innovation can be technically feasible and still not be economically viable.
- (D) It is difficult to decide whether a food-product innovation has actually been a success.
- (E) Triticale will not be a success as a food source for most developing countries.
8. The author provides a sustained argument to support which of the following assertions?
- (A) Profitability is neither necessary nor sufficient for a new technology to be adopted.
- (B) Profitability is the key factor guiding technological change.
- (C) Economic factors and governmental policies strongly influence the ultimate success of any innovation.
- (D) Opaque-2 maize is of limited benefit to poor families in developing countries.
- (E) Innovations carrying high rewards for big agribusiness groups harm the poor.
9. The primary purpose of the passage is to discuss the
- (A) means of assessing the extent of the world food shortage
- (B) difficulties of applying technological solutions to the problem of food shortages
- (C) costs of introducing a new food technology into a developing country
- (D) Anglo-American bias of those trying to alleviate world food problems
- (E) nature of the new technological innovations in the area of food production

### Passage 78 (15/22)

In Roman times, defeated enemies were generally **put to death** as criminals for having offended the emperor of Rome. In the Middle Ages, however, the practice of ransoming, or returning prisoners **in exchange for** money, became common. Though some saw this custom as

a step towards a more humane society, the primary reasons behind it were economic rather than humanitarian.

In those times, rulers had only a limited ability to raise taxes. They could neither force their subjects to fight nor pay them to do so. The promise of material compensation in the form of goods and ransom was therefore the only way of inducing combatants to participate in a war. In the **Middle Ages**, the predominant incentive for the individual soldier to participate in a war was the expectation of spoils. Although collecting ransom clearly brought financial gain, keeping a prisoner and arranging for his exchange had its costs. Consequently, several procedures were devised to reduce transaction costs.

One such device was a rule asserting that the prisoner had to assess his own value. This compelled the prisoner to establish a value without much distortion; indicating too low a value would increase the captive's chances of being killed, while indicating too high a value would either ruin him financially or create a prohibitively expensive ransom that would also result in death.

A second means of reducing costs was the practice of releasing a prisoner **on his word of honor**. This procedure was advantageous to both parties since the captor was relieved of the expense of keeping the prisoner while the captive had freedom of movement. The captor also benefited financially by having his captive raise the ransom himself. This "parole" was a viable practice since the released prisoner risked recapture or retaliation against his family. Moreover, in medieval society, **breaking one's word** had serious consequences. When, for example, King Francois I broke his word to the Emperor Charles V in 1525, his reputation suffered immensely.

A third method of reducing costs was the use of specialized institutions to establish contact between the two parties. Two types of institutions emerged: professional dealers who acted as brokers, and members of religious **orders** who acted as neutral intermediaries. Dealers advanced money for the ransom and charged interest on the loan. Two of the religious orders that became intermediaries were the Mercedarians and the Trinitarians, who between them arranged the ransom of nearly one million prisoners.

1. The primary purpose of the passage is to
  - (A) discuss the economic basis of the medieval practice of exchanging prisoners for ransom
  - (B) examine the history of the treatment of prisoners of war
  - (C) emphasize the importance of a warrior's "word of honor" during the Middle Ages
  - (D) explore three ways of reducing the costs of ransom
  - (E) demonstrate why warriors of the Middle Ages looked forward to battles
2. It can be inferred from the passage that a medieval soldier
  - (A) was less likely to kill captured members of opposing armies than was a soldier of the Roman Empire
  - (B) was similar to a 20th-century terrorist in that he operated on a basically independent level and was motivated solely by economic incentives
  - (C) had few economic options and chose to fight because it was the only way to

- earn an adequate living
- (D) was motivated to spare prisoners' lives by humanitarian rather than economic ideals
- (E) had no respect for his captured enemies since captives were typically regarded as weak
3. Which of the following best describes the change in policy from executing prisoners in Roman times to ransoming prisoners in the Middle Ages?
- (A) The emperors of Rome demanded more respect than did medieval rulers and thus Roman subjects went to greater lengths to defend their nation.
- (B) It was a reflection of the lesser degree of direct control medieval rulers had over their subjects.
- (C) It became a show of strength and honor for warriors of the Middle Ages to be able to capture and return their enemies.
- (D) Medieval soldiers were not as humanitarian as their ransoming practices might have indicated.
- (E) Medieval soldiers demonstrated more concern about economic policy than did their Roman counterparts.
4. The author uses the phrase "without much distortion" (line 26) in order
- (A) to indicate that prisoners would fairly assess their worth
- (B) to emphasize the important role medieval prisoners played in determining whether they should be ransomed
- (C) to explain how prisoners often paid more than an appropriate ransom in order to increase their chances for survival
- (D) suggest that captors and captives often had understanding relationships
- (E) to show that when in prison a soldier's view could become distorted
5. All of the following are mentioned in the passage as actions that were taken to ensure that ransoming prisoners was a profitable operation EXCEPT
- (A) each prisoner was made to designate the amount of ransom to be paid for his return
- (B) prisoners were released on the condition that they guaranteed that their ransoms would be paid
- (C) professional intermediaries were employed to facilitate the smooth exchange of prisoner and ransom at a price to the prisoner
- (D) religious orders acted as impartial mediators by arranging the trade-off of ransom and prisoner
- (E) medieval rulers promised to aid soldiers in their efforts to collect ransom
6. In the author's opinion, a soldier's decision to spare an adversary's life be linked historically to
- (A) the economic relationship of the warring states

- (B) the case with which a soldier could capture and subsequently imprison his enemy
  - (C) the economic gain from taking an enemy prisoner rather than killing him in combat
  - (D) technological advances in weaponry
  - (E) the desire for soldiers to uphold their word of honor
7. It can be inferred from the passage that the process of arranging ransoms during medieval times was
- (A) more lucrative for medieval soldiers and kings than the winning of spoils
  - (B) a procedure so costly that it was not economically worthwhile for the captors
  - (C) futile for the captive since he risked recapture even after his ransom was paid
  - (D) a potential source of income for others aside from the captors of the prisoners
  - (E) handled only through Mercedarian or Trinitarian intermediaries
8. Which of the following best describes the organization of the passage?
- (A) An assertion is made, briefly explained, and then several examples that refute the assertion are given.
  - (B) A hypothesis is offered, carefully qualified, and then supporting data is analyzed.
  - (C) A generally accepted historical viewpoint is presented in order to introduce discussion of its strengths and limitations.
  - (D) A historical analysis is made of a phenomenon and supporting details are offered.
  - (E) A historical dispute is introduced, and the case for one side is examined in detail.

### Passage 79 (16/22)

In most earthquakes the Earth's crust cracks like porcelain. Stress **builds up** until a fracture forms at a depth of a few kilometers and the crust slips to relieve the stress. Some earthquakes, however, take place hundreds of kilometers down in the Earth's mantle, where high pressure makes rock so ductile that it flows instead of cracking, even under stress severe enough to deform it like putty. How can there be earthquakes at such depths?

That such deep events do occur has been accepted only since 1927, when the seismologist Kiyoo Wadati convincingly demonstrated their existence. Instead of comparing the arrival times of seismic waves at different locations, as earlier researchers had done, Wadati relied on a time difference between the arrival of primary (P) waves and the slower secondary (S) waves. Because P and S waves travel at different but fairly constant speeds, the interval between their arrivals increases **in proportion to** the distance from the **earthquake focus**, or rupture point.

For most earthquakes, Wadati discovered, the interval was quite short near the **epicenter**, the point on the surface where shaking is strongest. For a few events, however, the delay was long even at the epicenter. Wadati saw a similar pattern when he analyzed data on the intensity



of shaking. Most earthquakes had a small area of intense shaking, which weakened rapidly with increasing distance from the epicenter, but others were characterized by a lower peak intensity, felt over a broader area. Both the P-S intervals and the intensity patterns suggested two kinds of earthquakes: the more common shallow events, in which the focus lay just under the epicenter, and deep events, with a focus several hundred kilometers down.

The question remained: how can such quakes occur, **given** that mantle rock at a depth of more than 50 kilometers is too ductile to store enough stress to fracture? Wadati's work suggested that deep events occur in areas (now called Wadati-Benioff zones) where one crustal plate is forced under another and descends into the mantle. The descending rock is substantially cooler than the surrounding mantle and hence is less ductile and much more liable to fracture.

1. The passage is primarily concerned with
  - (A) demonstrating why the methods of early seismologists were flawed
  - (B) arguing that deep events are poorly understood and deserve further study
  - (C) defending a revolutionary theory about the causes of earthquakes and methods of predicting them
  - (D) discussing evidence for the existence of deep events and the conditions that allow them to occur
  - (E) comparing the effects of shallow events with those of deep events
2. The author uses the comparisons to porcelain and putty (lines 2 and 8) in order to
  - (A) explain why the Earth's mantle is under great pressure
  - (B) distinguish the earthquake's epicenter from its focus
  - (C) demonstrate the conditions under which a Wadati-Benioff zone forms
  - (D) explain why S waves are slower than P waves
  - (E) illustrate why the crust will fracture but the mantle will not
3. It can be inferred from the passage that if the S waves from an earthquake arrive at a given location long after the P waves, which of the following must be true?
  - (A) The earthquake was a deep event.
  - (B) The earthquake was a shallow event.
  - (C) The earthquake focus was distant.
  - (D) The earthquake focus was nearby.
  - (E) The earthquake had a low peak intensity.
4. The method used by Wadati to determine the depths of earthquakes is most like which of the following?
  - (A) Determining the depth of a well by dropping stones into the well and timing how long they take to reach the bottom
  - (B) Determining the height of a mountain by measuring the shadow it casts at different times of the day

- (C) Determining the distance from a thunderstorm by timing the interval between the flash of a lightning bolt and the thunder it produces
  - (D) Determining the distance between two points by counting the number of paces it takes to cover the distance and measuring a single pace
  - (E) Determining the speed at which a car is traveling by timing how long it takes to travel a known distance
5. The passage supports which of the following statements about the relationship between the epicenter and the focus of an earthquake?
- (A) P waves originate at the focus and S waves originate at the epicenter.
  - (B) In deep events the epicenter and the focus are reversed.
  - (C) In shallow events the epicenter and the focus coincide.
  - (D) In both deep and shallow events the focus lies beneath the epicenter.
  - (E) The epicenter is in the crust, whereas the focus is in the mantle.
6. The passage suggests that which of the following must take place in order for any earthquake to occur?
- I. Stress must build up.
  - II. Cool rock must descend into the mantle.
  - III. A fracture must occur.
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and III only
  - (E) I, II, and III
7. Information presented in the passage suggests that, compared with seismic activity at the epicenter of a shallow event, seismic activity at the epicenter of a deep event is characterized by
- (A) shorter P-S intervals and higher peak intensity
  - (B) shorter P-S intervals and lower peak intensity
  - (C) longer P-S intervals and similar peak intensity
  - (D) longer P-S intervals and higher peak intensity
  - (E) longer P-S intervals and lower peak intensity
8. The passage suggests which of the following about the views held by researchers before 1927?
- (A) Some researchers did not believe that deep events could actually occur.
  - (B) Many researchers rejected the use of P-S intervals for determining the depths of earthquakes.
  - (C) Some researchers doubted that the mantle was too ductile to store the stress needed for an earthquake.

- (D) Most researchers expected P waves to be slower than S waves.
- (E) Few researchers accepted the current model of how shallow events occur.
9. The author's explanation of how deep events occur would be most weakened if which of the following were discovered to be true?
- (A) Deep events are far less common than shallow events.
- (B) Deep events occur in places other than where crustal plates meet.
- (C) Mantle rock is more ductile at a depth of several hundred kilometers than it is at 50 kilometers.
- (D) The speeds of both P and S waves are slightly greater than previously thought.
- (E) Below 650 kilometers earthquakes cease to occur.

### Passage 80 (17/22)

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

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

1. In the passage, the author is primarily concerned with doing which of the following?
- (A) Comparing two different approaches to a problem

- (B) Describing a problem and proposing a solution
  - (C) Defending an established method
  - (D) Presenting data and drawing conclusions from the data
  - (E) Comparing two different analyses of a current situation
2. It can be inferred from the passage that which of the following is true of majority shareholders in a corporation?
- (A) They make the corporation's operational management decisions.
  - (B) They are not allowed to own more than fifty percent of the corporation's stock.
  - (C) They cannot make quick profits by selling their stock in the corporation.
  - (D) They are more interested in profits than in productivity.
  - (E) They cannot sell any of their stock in the corporation without giving the public advance notice.
3. According to the passage, the purpose of the requirement suggested in lines 30-33 would be which of the following?
- (A) To encourage institutional stockholders to sell stock that they believe will decrease in value
  - (B) To discourage institutional stockholders from intervening in the operation of a company whose stock they own
  - (C) To discourage short-term profit-taking by institutional stockholders
  - (D) To encourage a company's employees to take an active role in the ownership of stock in the company
  - (E) To encourage investors to diversify their stock holdings
4. Which of the following best explains the author's statement that "A minority shareholder is necessarily a short-term trader" (lines 15-16)?
- (A) The only way a minority shareholder can make money from stocks is to buy and sell stocks as prices fluctuate over short periods of time.
  - (B) Only a shareholder who owns a majority of a company's stock can influence the trading price of the stock over a long period of time.
  - (C) A minority shareholder is prohibited by law from buying stock and holding it for long-term profits.
  - (D) Large institutions like pension funds cannot legally own a majority of any corporation's stock.
  - (E) A minority shareholder rarely takes an interest in the decisions of a corporation's board of directors.
5. The author suggests that which of the following is a true statement about people who typify the "old style capitalist" referred to in line 23?
- (A) They now rely on outdated management techniques.

- (B) They seldom engaged in short-term trading of the stock they owned.
- (C) They did not influence the investment policies of the corporations in which they invested.
- (D) They now play a much smaller role in the stock market as a result of antitrust legislation.
- (E) They were primarily concerned with maximizing the short-term profitability of the corporations in which they owned stock.

### Passage 81 (18/22)

For over 300 years, one of the most enduring beliefs among historians of England has been that the character of English society has been shaped by the unique openness of its ruling elite to entry by self-made entrepreneurs (especially newly wealthy merchants) able to buy their way into the ranks of elite society. This upward mobility, historians have argued, allowed England to escape the clash between those with social/political power and those with economic power, a conflict that beset the rest of Europe during the eighteenth and nineteenth centuries. Upward mobility was also used to explain England's exceptional stability since the late seventeenth century (no revolutions, for example), as well as such major events as the development of the most efficient agricultural system in Europe, the making of the first industrial revolution, and the onset of severe economic decline.

But is the thesis true? Recent work on the supposed consequences of an open elite has already produced some doubts. Little credence, for example, is now accorded the idea that England's late nineteenth-century economic decline resulted from absentee business owners too distracted by the demands of elite life to manage their firms properly. But, although the importance of an open elite to other major events has been severely questioned, it is only with a new work by Lawrence and Jeanne Stone that the openness itself has been confronted. Eschewing the tack of tracing the careers of successful entrepreneurs to gauge the openness of the elite, the Stones chose the alternative approach of analyzing the elite itself, and proceeded via the ingenious route of investigating country-house ownership.

Arguing that ownership of a country house was seen as essential for membership in the ruling elite, the Stones analyze the nature of country-house ownership in three counties for the period 1540-1880. Their critical findings are provocative: there was strikingly little change in the ownership of such houses throughout the period. Instead, even in the face of a demographic crisis (fewer marriages, declining fertility, rising infant mortality), the old elite was able to maintain itself, and its estates, intact for centuries through recourse to various marriage and inheritance strategies. The popular picture of venerable elite families overcome by debt and selling out to merchants is simply not borne out by the Stones' findings. Rather, the opportunities for entrepreneurs to buy their way into the elite, the Stones show, were extremely limited. If further studies of country-house ownership attest to the representativeness and accuracy of their data, then the Stones' conclusion that the open elite thesis cannot be maintained may, indeed, prove true.

1. According to the passage, one of the traditional explanations of England's late nineteenth-century economic decline has been that it resulted from the

- (A) tendency of the ruling elite to pursue conservative rather than innovative economic policies
  - (B) failure of business entrepreneurs to reduce the power of the ruling elite in English society
  - (C) investment of large amounts of capital in the purchase and maintenance of country houses
  - (D) tendency of business owners to attempt to retain control of their firms within their families
  - (E) failure of leading business entrepreneurs to pay close attention to their firms
2. The author suggests that which of the following was true of most European elites during the eighteenth and nineteenth centuries?
- (A) The ranks of these elites were generally closed to most business entrepreneurs.
  - (B) The elites generally dominated industrial development.
  - (C) Status within these elites was generally determined by the amount of land owned.
  - (D) These elites generally were able to maintain their power unchallenged.
  - (E) The power of these elites generally forestalled the development of a large class of self-made entrepreneurs.
3. Traditional historians of England, as they are described in the passage, would be most likely to agree with which of the following statements regarding open elites?
- (A) They develop more easily in agricultural rather than industrial societies.
  - (B) They develop in response to particular sets of economic conditions.
  - (C) They tend to unite some of the powerful groups in a society.
  - (D) They tend to reduce class distinctions based on income in a society.
  - (E) They tend to insure adequate distribution of material goods in a society.
4. The tone of the passage suggests that the author regards the Stones' methodological approach as
- (A) problematic
  - (B) difficult
  - (C) controversial
  - (D) rigorous
  - (E) clever
5. Which of the following best states the main idea of the passage?
- (A) Assumptions about the nature of England's ruling elite can no longer be used with certitude to explain many major economic developments.
  - (B) The concept of the open elite is of paramount importance in explaining major



- English political, social, and economic events.
- (C) The long-standing belief that England possessed a remarkably open ruling elite has recently been subjected to important and potentially lethal criticism.
- (D) Although many possibilities are available, the most reliable means of testing the truth of the 'open elite' hypothesis is to analyze changes in the composition of the elite.
- (E) An analysis of English country-house ownership in England indicates that there were few opportunities for merchants to buy the estates of old members of the landed elite.
6. Which of the following can be inferred from the Stones' findings about English country-house ownership in the three counties during the period 1540-1880?
- (A) Little change in the number or size of English country houses occurred during this period.
- (B) Wealthy business owners constituted a growing percentage of English country-house owners during this period.
- (C) Most of the families that owned country houses at the beginning of this period continued to own them at the end.
- (D) The most significant changes in English country-house ownership occurred during the second half of this period.
- (E) Self-made entrepreneurs were able to enter the ranks of the English country-house owners during this period only through marriage.
7. The primary purpose of the passage is to
- (A) resolve a debate between two schools of thought.
- (B) Present research that questions an established view.
- (C) Describe and criticize a new approach.
- (D) Defend a traditional interpretation against recent criticisms.
- (E) Analyze possible approaches to resolving a long-standing controversy.
8. The Stones suggest that major problems facing the English elite during the period 1540-1880 included which of the following?
- I. A reduction in the number of their offspring
- II. An increase in the amount of their indebtedness
- III. A decline in their political and social power
- (A) I only
- (B) III only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III
9. The author suggests that the Stones' conclusions about the openness of the

- English elite would be strengthened by future studies that
- (A) pay more attention to other recent historical works
  - (B) include more data on factors other than country-house ownership
  - (C) concentrate more on the eighteenth and nineteenth centuries
  - (D) expand the area of research to include more counties
  - (E) focus more on successful business entrepreneurs

### Passage 82 (19/22)

Comparable worth is a concept that rejects the premise of a separate and lower wage hierarchy for jobs that are done primarily by women, arguing instead that earnings should reflect only the worth of the work performed. This worth should be determined by an evaluation system that rates jobs according to their social importance and skill requirements. Because comparable worth does not attack all forms of inequality, it can have only a modest direct effect on the overall degree of inequality in society, but in attacking gender inequality in the job classification system it attacks a major component of gender inequality in the United States. The likelihood that other forms of inequality will become more manifest with the lessening of gender inequality is not a valid argument against comparable worth. Indeed, struggles for comparable worth may help launch campaigns against similar forms of inequity. Still, while conservatives have battled hard against comparable worth, radicals have been reluctant to fight for it because they see the narrow presentations in comparable worth litigation as the limits of the concept. But in addition to helping redress particular inequities, comparable worth could open a discussion of the entire wage system. Its theoretical and political impact will reach far beyond the framework in which it was conceived and force a rethinking of assumptions underlying current employment practices and the market itself.

How comparable worth will affect the hierarchy of wages is more difficult to foresee. It does not directly challenge the concept of a hierarchy; in fact, its insistence that jobs must be evaluated implies a hierarchy. However, its rejection of the market as an adequate basis for determining wages initiates a discussion of how value should be assigned to jobs. Advocates of comparable worth have challenged prevailing standards of evaluation, which stem from formal job evaluations first developed in industrial settings. These evaluations, based on points awarded for different job tasks, gave considerable emphasis to such activities as strenuous lifting and the operation of expensive equipment. Consequently, the skills and knowledge more typical of work done by women are less heavily emphasized. The 'Dictionary of Occupational Titles' reveals numerous current instances of such imbalance in job ratings.

While comparable-worth advocates accept the principle of a hierarchy of wages, arguing only that they seek more objective measures of job worth, the issues they raise provoke a broader debate. This debate does not, as the opponents have claimed, concern the feasibility of setting up and applying evaluative standards. Employers have done that for centuries. Rather, the debate is about the social values and priorities underlying the wage hierarchy and, ultimately, the market where age-old conventions and political, as opposed to purely economic, forces enter the process of setting wages.

1. Which of the following summarizes a main point of the passage?

- (A) The history of comparable worth closely parallels the history of changes in the structure of the economic system.
  - (B) The ultimate success of comparable worth depends on a public discussion of the historical conditions that led to its formulation.
  - (C) Comparable worth has social implications that extend beyond specific adjustments to the wage hierarchies for men and women.
  - (D) Comparable worth is gaining adherents even though it has traditionally met with organized opposition.
  - (E) Comparable worth has been instrumental in affording women access to jobs that had been held largely by men.
2. It can be inferred that the phrase a separate and lower wage hierarchy for jobs that are done primarily by women, as used in lines 2-3 of the passage, most nearly means which of the following?
- (A) That there is a greater range of salaries for men than for women
  - (B) That women typically receive less money than men do for doing jobs of approximately the same value
  - (C) That there are fewer wage-earning women than men in the work force
  - (D) That men have traditionally been more likely than women to receive advancement on the basis of seniority
  - (E) That men and women typically do not compete for the same jobs
3. In the first paragraph of the passage, the author describes the potential role and function of comparable worth in language that most often suggests
- (A) artistic endeavors
  - (B) business transactions
  - (C) criminal investigations
  - (D) military operations
  - (E) scientific experiments
4. It can be inferred from the passage that advocates of comparable worth believe which of the following?
- (A) A given kind of work has a particular inherent value to the employer or to society.
  - (B) The market is more influenced by political and social forces now than it was in the past.
  - (C) Gender inequality in the United States is primarily a product of the current economic system.
  - (D) Conservatives and radicals have the same reasons for not supporting comparable worth.
  - (E) Those who devised job-evaluation standards were more interested in economic than political issues.

5. As used by the author in line 2 of the last paragraph, “more objective” most nearly means
- (A) more quantifiable
  - (B) more seminal
  - (C) less categorical
  - (D) less job-specific
  - (E) less sex-biased
6. Which of the following best represents the sort of question at issue in the “broader debate” referred to in line 48 above?
- (A) What political factors have affected the relationship between wages and job-evaluation ratings?
  - (B) What gains have been achieved in the struggle for comparable-worth legislation?
  - (C) Will a new standard for job evaluation be any more workable than the current one?
  - (D) How will the balance of supply and demand be affected by comparable worth?
  - (E) How soon is it reasonable to expect the passage of stronger comparable-worth legislation?
7. According to the passage, which of the following is the most likely application of the notion of comparable worth?
- (A) The detailed explanation of the various forces that guide the market
  - (B) The formulation of attitudes about the role of supply and demand in setting wages
  - (C) The establishment of a political coalition in the struggle against inequity
  - (D) The integration of the industrial work force into the job market for a service and technology economy
  - (E) The reassessment of job characteristics as a means for determining just compensation
8. It can be inferred from the passage that radicals have not supported comparable worth because they view it as being
- (A) unrelated to historic developments that have molded the current economic system
  - (B) an integral part of the same system that has institutionalized various forms of inequity
  - (C) likely to undermine the unity of a reform move-men by polarizing the different interest groups
  - (D) too limited and restricted in its uses to promote fundamental changes in the system

- (E) inherently flawed in that it has given rise to the concept of a wage hierarchy
9. The author's primary purpose in the passage is to
- (A) criticize inconsistent experiments
  - (B) suggest a new direction for research
  - (C) describe an intriguing geophysical phenomenon
  - (D) present evidence supporting a theory
  - (E) evaluate data relating to lunar geology

### Passage 83 (20/22)

Historians have long thought that America was, from the beginning, profoundly influenced by the Lockean notion of liberty, with its strong emphasis on individual rights and self-interest. Yet in his recent book, historian J. G. A. Pocock argues that early American culture was actually rooted in the writings of Machiavelli, not Locke. The implications of this substitution are important: if Pocock's argument is right, then Americans may not be as deeply individualistic and capitalistic as many believe.

Pocock argues that out of the writings of antiquity Machiavelli created a body of political thinking called "classical republicanism." This body of thought revived the ancient belief that a human being was by nature a citizen who achieved moral fulfillment by participating in a self-governing republic. Liberty was interpreted as a condition that is realized when people are virtuous and are willing to sacrifice their individual interests for the sake of the community. To be completely virtuous, people had to be independent and free of the petty interests of the marketplace. The greatest enemy of virtue was commerce. This classical republican tradition is said by Pocock to have shaped the ideology of America during the eighteenth century.

Many events in early American history can be reinterpreted in light of Pocock's analysis. Jefferson is no longer seen as a progressive reader of Locke leading America into its individualistic future; instead Jefferson is understood as a figure obsessed with virtue and corruption and fearful of new commercial developments. Influenced by Pocock, some historians have even argued that a communitarian and precapitalist mentality was pervasive among the eighteenth-century farmers of America.

Yet Pocock's thesis and the reinterpretation of the history of eighteenth-century America engendered by it are of dubious validity. If Americans did believe in the ideals of classical virtue that stressed civic duty and made the whole community greater than its discrete parts, then why did the colonists lack a sense of obligation to support the greater good of the British Empire? If indeed America has not always been the society of individual rights and self-interest that it is today, how and when did it become so? Classical republicanism is elitist, and it certainly had little to offer the important new social groups of artisans and shopkeepers that emerged in America during the eighteenth century. These middle-class radicals, for whom John Wilkes and Thomas Paine were spokesmen, had none of the independence from the market that the landed gentry had. They were less concerned with virtue and community than they were with equality and private rights. They hated political privilege and wanted freedom from an elite-dominated state. In short, the United States was created not in a mood of classical

anxiety over virtue and corruption, but in a mood of liberal optimism over individual profits and prosperity.

1. Which of the following best states the author's main point?
  - (A) Classical republicanism could not have been the ideological basis of eighteenth-century America.
  - (B) Classical republicanism is an elitist theory that was rejected by eighteenth-century artisans and shopkeepers.
  - (C) Pocock understates the importance of the contributions Machiavelli made to the formation of early American culture.
  - (D) Pocock fails to capture the great extent to which eighteenth-century Americans were committed to a sense of civic duty.
  - (E) Pocock's account of Jefferson is incompatible with Jefferson's commitment to a Lockean notion of liberty.
2. The conception of liberty that, according to Pocock, formed the basis of America's eighteenth-century ideology is most clearly exhibited by which of the following individuals?
  - (A) The merchant who rebuilds the damaged sidewalk in front of his store in order to avoid potential lawsuits by customers who might fall there
  - (B) The professor who allows her students to help her design the content and the format of the courses she teaches
  - (C) The doctor who bows to government pressure and agrees to treat a small number of low-income patients at no cost
  - (D) The lawyer who argues that a state law prohibiting smoking in public places unfairly encroaches on the rights of smokers
  - (E) The engineer whose business suffers as a result of the personal time and energy he devotes to a program to clean up city streets
3. According to the author, eighteenth-century American artisans and shopkeepers had little reason to
  - (A) support the political efforts of Thomas Jefferson
  - (B) reject the ideals of classical virtue
  - (C) embrace the principles of classical republicanism
  - (D) renounce the political objectives of the British Empire
  - (E) worry about increasing profits and maintaining general prosperity
4. The author mentions which of the following as a fact that weakens Pocock's argument about the ideology of eighteenth-century America?
  - (A) Jefferson's obsession with virtue and corruption and his fear of commercial development
  - (B) The precapitalist mentality that was pervasive among farmers in early America



- (C) The political decline of artisans and shopkeepers in eighteenth-century America
  - (D) The colonists' lack of commitment to support the general welfare of the British Empire
  - (E) The existence of political privilege in early American society
5. The passage suggests that, if classical republicanism had been the ideology of eighteenth-century America, which of the following would have resulted?
- (A) People would have been motivated to open small businesses and expand commercial activity.
  - (B) Citizens and politicians would not have been encouraged to agitate for increased individual rights.
  - (C) People would have been convinced that by pursuing their own interests they were contributing to the good of the group.
  - (D) The political and social privileges enjoyed by the landed gentry would have been destroyed.
  - (E) A mood of optimism among people over individual profits and prosperity would have been created.
6. The author implies that Pocock's argument about the ideology of eighteenth-century America would be more plausible if the argument explained which of the following?
- (A) How a society that was once committed to the ideals of classical virtue could be transformed into a society of individual rights and self-interest
  - (B) How Thomas Jefferson could have become obsessed with individual rights and with prosperity and profits
  - (C) Why classical republicanism had such wide appeal among those who were free from the demands of the marketplace
  - (D) Why many colonists who embraced classical republicanism were reluctant to place their individual interests above those of Great Britain
  - (E) Why the landed gentry in eighteenth-century America should have believed that moral fulfillment is achieved by participating in a self-governing republic
7. According to the passage, Pocock's theory suggests that many eighteenth-century Americans believed that increasing commercial activity would
- (A) force the landed gentry to relinquish their vast holdings
  - (B) enrich the nation and increase individual rights
  - (C) cause some people to forfeit their liberty and virtue
  - (D) create a mood of optimism about national prosperity
  - (E) strengthen the political appeal of middle-class radicals
8. The author is primarily concerned with

- (A) refuting a proposed thesis about eighteenth-century America
- (B) analyzing a long-established interpretation of American history
- (C) criticizing a set of deeply held beliefs about early American ideology
- (D) reconciling opposing interpretations of eighteenth-century American ideology
- (E) defending a novel reading of the ideology of eighteenth-century America

### Passage 84 (21/22)

Astrophysicists wrestling with the study of a new kind of star, the flat, “two-dimensional” configurations known as accretion disks have recently gained new insights into the behavior of these stars. Accretion disks exist in a variety of situations where matters swirl around a compact star such as a white dwarf star or a neutron star. Accretion disks are also suspected of playing a part in more exotic situations, in which the central object is imagined to be a supermassive black hole, the ultimate form of collapsed matter, rather than a compact star. The modeling of accretion disks is still in its infancy, a situation analogous to the days when ordinary stars were modeled by using elementary scaling laws without benefit of knowledge of the nuclear processes that power the stars. Similarly, the basic physics of the power by which accretion disks radiate, thought to originate in a form of turbulent friction, is known only at the crudest level.

Accretion disks were first defined in the context of Cataclysmic variables. In these systems, matter from the outer layers of an ordinary star is attracted by the gravitational influence of a nearby orbiting white dwarf star, the matter lost from the ordinary star cannot strike the surface of the tiny white dwarf directly but settles into an orbit around the star. The viscosity in the disk thus formed causes heating, radiation, and a slow spiraling of disk matter onto the surface of the white dwarf.

The rapid advances made in x-ray astronomy in the past decade have identified a second type of system in which accretion disks occur. In such a system, an accretion disk whirls about a neutron star rather than a white dwarf. The inner reaches of the accretion disk extend deeply into the gravitational potential of the neutron star where very rapid motion is the rule. The energy released by friction and the actual raining of the material from the disk onto the surface of the neutron star is so great that radiation is given off in a powerful flood of x-rays. And in at least one case, x-ray astronomers believe that the object in the center of an accretion disk is a black hole, suggesting that a third system may exist.

It had been assumed that portions of accretion disks would be unstable and that, as a result, clumping of their matter into rings would occur. There is no evidence from observation, however, that accretion disks do, in fact, suffer from these instabilities. In recent work, Abramowicz has shown that added gravitational effects due to general relativity may alter the expected Newtonian gravitational relationships in such a way that the disk remains stable, indicating that it is possible that these predicted instabilities do not occur.

Further progress toward understanding accretion disks will involve defining and proposing solutions to restricted problems just as was done in this case and was done and continues to be done for ordinary stars. Abramowicz’ work is a valuable example of the **care** that must be taken before reaching conclusions regarding accretion disks.

1. The author of the passage is primarily concerned with
  - (A) comparing Abramowicz' work to the work of earlier astrophysicists
  - (B) providing information about accretion disks and discussing significant new work
  - (C) defining the conditions under which accretion disks can be observed
  - (D) exploring the question of whether a black hole can ever be the central object of an accretion disk
  - (E) describing the phenomenon of accretion disks and reviewing several conflicting theories of their origins
2. It can be inferred from the passage that predictions of the instability of accretion disks were based on which of the following?
  - (A) A calculation of the probable effects of standard Newtonian gravitational relationships
  - (B) A calculation of the probable relationship between general relativity and standard Newtonian gravitational relationships
  - (C) A calculation of the energy released by friction within a compact star
  - (D) Observation of the x-rays radiated by compact stars
  - (E) Observation of the clumping of accretion disk matter into rings around compact stars
3. The author's attitude toward Abramowicz' work can best be described as one of
  - (A) uncertain approval
  - (B) unqualified respect
  - (C) mild interest
  - (D) careful dismissal
  - (E) hostile skepticism
4. The passage suggests which of the following about current scientific knowledge of the nuclear processes of ordinary stars?
  - (A) Its pattern of development has been analogous to that of developments in x-ray astronomy.
  - (B) Its role in the explanation of turbulent friction has been significant.
  - (C) It has contributed to a more accurate modeling of ordinary stars.
  - (D) It lags behind knowledge of scaling laws.
  - (E) It explains the behavior of accretion disks as well as that of ordinary stars.
5. The passage suggests that Abramowicz' work was motivated by which of the following assumptions?
  - (A) The quantity of energy released by accretion disks can be as large as it is only if the disks are stable.
  - (B) Improved techniques in x-ray astronomy would reveal any instabilities

- occurring in accretion disks.
- (C) The lack of observational evidence of instabilities in accretion disks suggests that predictions of their occurrence might be wrong.
- (D) Known methods of observing accretion disk surrounding compact stars and black holes do not permit the observation of the matter in accretion disks.
- (E) The gravitational potential of compact stars does not vary from star to star.
6. The passage implies which of the following about the progress of knowledge in astrophysics?
- (A) Adherence to outdated theories has, in the past, limited the activities of astrophysicists and restricted progress.
- (B) Progress has, in the past, occurred only as a result of significant breakthroughs in basic physics and chemistry.
- (C) Progress has, in the past, occurred as a result of a process of defining and solving restricted problems.
- (D) Given the recent acquisition of knowledge about the nuclear processes of stars, further progress is likely to be limited to the refinement of what is already known.
- (E) Conclusions in astrophysics have, in the past, been seriously flawed, thus limiting progress, although there have recently been signs of change.
7. The passage suggests that, compared to the study of ordinary stars, the study of accretion disks is
- (A) derivative
- (B) more sophisticated
- (C) less clearly focused
- (D) at an earlier stage of development
- (E) more dependent on technological advances
8. According to the passage, some accretion disks originated in
- (A) an increase in heat and radiation around an ordinary star
- (B) a powerful flood of x-rays emitted by a neutron star
- (C) a collision between two stars
- (D) the turbulent friction on the surface of a compact star
- (E) the accumulation of matter removed from an ordinary star
9. It can be inferred from the passage that the significance of Abramowicz' work is that it
- (A) provides a means of measuring the gravitational potential of neutron stars
- (B) opens a new area for exploration in the field of x-ray astronomy
- (C) proves that scaling laws cannot be applied to accretion disks
- (D) proposes a new system of classification of stars

- (E) suggests a resolution of a discrepancy between a theoretical prediction and actual observation

### Passage 85 (22/22)

It is an unfortunate fact that most North Americans know little about American Indian culture and history. Scholars have studied such matters, but they have not succeeded in broadcasting their conclusions widely. Thus, it is still not widely known that American Indians have epics, that they performed plays long before Europeans arrived, and that they practiced politics and carried on trade.

One way to gain a fuller appreciation of this rich culture is to examine American Indian poetry, for poetry is in all cultures the most central and articulate of the arts. It is especially important that we study American Indian poetry as this poetry can create a context that gives cohesive expression to the crafts, the artifacts, and the isolated facts that many Americans have managed to notice *willy-nilly*. Even a survey of American Indian poetry reveals a range of poetic thought and technique that defies easy generalization. Jarold Ramsey hazards a summary, however, which serves at least to give the uninitiated reader some sense of what American Indian poetry is like. Overall, he writes, it represents "an oral, formulaic, traditional, and anonymous art form," whose approach is to emphasize the "mythic and sacred" components of reality. It "flourished through public performances... by skilled recitalists whose audiences already knew the individual stories" and valued the performers for their "ability to exploit their material dramatically and to combine them [their stories] in longer cycles" rather than for their "plot invention." Because this poetry belongs to highly ethnocentric tribal peoples, whose cultures "we still do not know much about," it "is likely to seem all the more terse, even cryptic."

American Indian poetry has another feature that Ramsey ignores: it is always functional. Whether sung, chanted, or recited; whether performed ceremonially, as entertainment, or as part of a task such as curing a patient or grinding corn; or whether recited individually or by a group, it is always fully woven into the fabric of ordinary life.

For complicated reasons, American Indian poetry has basically been ignored by non-Indian cultures. Kenneth Lincoln writes that failure to hear American Indian voices results "partly...from the tragedies of tribal dislocation, partly from mistranslation, partly from misconceptions about literature, partly from cultural indifference." Brian Swann suggests an additional explanation: tribal poetry is oral, whereas Europeans arrived in the New World with a deeply ingrained belief in the primacy of the written word. As a result, European settlers found it hard to imagine that poetry could exist without written texts and thus that the American Indians had achieved something parallel to what Europeans called literature long before Europeans arrived. As a consequence, Europeans did not fully respond to the rich vitality of American Indian poetry.

1. According to the passage, American Indian cultures have produced all of the following forms of artistic expression EXCEPT
  - (A) crafts
  - (B) dramas
  - (C) songs

- (D) written poems
  - (E) oral epics
2. According to Jarold Ramsey, American Indian poetry is an art form characterized by its
- (A) unusual depictions of landscapes
  - (B) integration with everyday affairs
  - (C) universal accessibility
  - (D) highly original plots
  - (E) adaptability to public performance
3. According to Kenneth Lincoln, one of the reasons that non-Indians have had little knowledge of American Indian poetry is that American Indian poems
- (A) have been poorly translated
  - (B) have not yet attracted the scholarly attention they deserve
  - (C) can be appreciated only when presented orally
  - (D) are difficult to understand without a background in comparative mythology
  - (E) are too stylistically complex
4. According to the passage, it would be unusual for American Indian poetry to be
- (A) attributed to specific authors
  - (B) sung by a group of performers
  - (C) chanted while working
  - (D) sung during a sacred ceremony
  - (E) performed in a dramatic manner
5. It can be inferred from the passage that Brian Swann believes which of the following about the European settlers of America?
- (A) They probably were more literate, on the average, than the general European population they left behind.
  - (B) They probably thought it necessary to understand American Indian politics before studying American Indian literature.
  - (C) They probably did not recognize evidence of an oral poetic tradition in the American Indian cultures they encountered.
  - (D) They probably could not appreciate American Indian poetry because it was composed in long narrative cycles.
  - (E) They probably did not study American Indian poetry because its subject matter was too practically oriented.
6. The tone of lines 12-16 suggests that the author believes that most Americans' knowledge of American Indian culture can best be characterized as
- (A) spotty and contradictory



- (B) stereotyped and limited
  - (C) confused and inaccurate
  - (D) unsystematic and superficial
  - (E) vague and biased
7. Which of the following best describes the organization of the last paragraph of the passage?
- (A) An observation is made and qualifications of it are provided.
  - (B) A phenomenon is noted and explanations for it are presented.
  - (C) A hypothesis is presented and arguments against it are cited.
  - (D) A prognosis is made and evidence supporting it is discussed.
  - (E) A criticism is presented and information expanding it is provided.

### 三、GMAT 考古题 15Passages

#### Passage 86 (1/15)

Early models of the geography of the metropolis were unicellular: that is, they assumed that the entire urban district would normally be dominated by a single central district, around which the various economic functions of the community would be focused. This central business district (CBD) is the source of so-called high-order goods and services, which can most efficiently be provided from a central location rather than from numerous widely dispersed locations. Thus, retailers of infrequently and irregularly purchased goods, such as fur coats, jewelry, and antique furniture, and specialized service outlets, such as theaters, advertising agencies, law firms, and government agencies, will generally be found in the CBD. By contrast, less costly, more frequently demanded goods, such as groceries and housewares, and low-order services, such as shoe repair and hairdressing, will be available at many small, widely scattered outlets throughout the metropolis.

Both the concentric-ring model of the metropolis, first developed in Chicago in the late nineteenth century, and the sector model, closely associated with the work of Homer Hoyt in the 1930s, make the CBD the focal point of the metropolis. The concentric-ring model assumes that the varying degrees of need for accessibility to the CBD of various kinds of economic entities will be the main determinant of their location. Thus, wholesale and manufacturing firms, which need easy accessibility to the specialized legal, financial, and governmental services provided in the CBD, will normally be located just outside the CBD itself. Residential areas will occupy the outer rings of the model, with low-income groups residing in the relatively crowded older housing close to the business zone and high-income groups occupying the outermost ring, in the more spacious, newer residential areas built up through urban expansion.

Homer Hoyt's sector model is a modified version of the concentric-ring model. Recognizing the influence of early established patterns of geographic distribution on the later growth of the city, Hoyt developed the concept of *directional inertia*. According to Hoyt, custom and social pressures tend to perpetuate locational patterns within the city. Thus, if a particular part of the city (say, the east side) becomes a common residential area for higher-income families, perhaps

because of a particular topographical advantage such as a lake or other desirable feature, future expansion of the high-income segment of the population is likely to proceed in the same direction. In our example, as the metropolis expands, a wedge-shaped sector would develop on the east side of the city in which the higher-income residence would be clustered. Lower-income residences, along with manufacturing facilities, would be confined, therefore, to the western margins of the CBD.

Although Hoyt's model undoubtedly represented an advance in sophistication over the simpler concentric-ring model, neither model fully accounts for the increasing importance of focal points other than the traditional CBD. Recent years have witnessed the establishment around older cities of secondary nuclei centered on suburban business districts. In other cases, particular kinds of goods, services, and manufacturing facilities have clustered in specialized centers away from the CBD, encouraging the development of particular housing patterns in the adjacent areas. A new multicellular model of metropolitan geography is needed to express these and other emerging trends of urban growth.

1. The primary purpose of the passage is to
  - (A) explain the significance of Hoyt's concept of directional inertia and its effect on patterns of urban growth
  - (B) emphasize the inadequacy of past attempts to explain patterns of urban geography
  - (C) analyze two varying theories concerning the distribution of residential areas within and around the metropolis
  - (D) describe two models of metropolitan geography and suggest their limitations
  - (E) show the importance of the central business district as a focus for urban growth
2. It can be inferred from the passage that according to a unicellular urban model, law firms are commonly located near the center of a city mainly because
  - (A) law firms benefit from the proximity to financial and governmental services that a center city location provides
  - (B) the demand for legal services is too irregular to support many small law firms in the outer districts of the city
  - (C) law firms require accessibility to the wholesale and retail businesses that provide a major share of their clientele
  - (D) the high-income groups that make up the primary users of legal services demand easy access to the firms' offices
  - (E) the specialized service personnel required by a law firm are often interested in residing as close as possible to the city center
3. According to the concentric-ring model, in which of the following orders (from the center of the city outward) would the areas of the typical city be arranged?
  - (A) central business district, low-income housing, wholesale and manufacturing businesses, high-income housing

- (B) central business district, wholesale and manufacturing businesses, low-income housing, high-income housing
  - (C) wholesale and manufacturing businesses, central business district, low-income housing, high-income housing
  - (D) central business district, high-income housing, wholesale and manufacturing businesses, low-income housing
  - (E) wholesale and manufacturing businesses, low-income housing, central business district, high-income housing
4. According to the passage, the sector model differs from the concentric-ring model primarily in that it
- (A) stresses the role of topographic features in determining patterns of urban development
  - (B) emphasizes the continuing expansion of the city as an influence on urban development
  - (C) recognizes the importance of focal points of urban growth other than the traditional central business district
  - (D) assumes that the need for access to the central business district is the main determinant of urban developmental patterns
  - (E) takes into account the influence of certain social factors on urban geographical patterns
5. The passage states that both the concentric-ring model and the sector model
- (A) inadequately represent the forms of urban development emerging in today's cities
  - (B) need to be considerably refined to be of real use to students of urban growth
  - (C) have been superseded by more recently developed models of urban growth
  - (D) represent older cities more accurately than they do newly founded metropolitan areas
  - (E) fail to explain the rapid outward growth of cities that has occurred in recent years
6. According to the passage, an updated model of urban geography would indicate the
- (A) phenomenal growth in population and area of suburban residential districts beyond the limits of the city itself
  - (B) recent decline in the influence of business and industry over the geographical patterns of urban growth
  - (C) growing importance of urban business and service centers located away from the central business district
  - (D) clustering of business facilities in recently built areas, while older districts are turned into residential areas

- (E) gradual displacement of older urban centers by new, more highly specialized cities in geographically dispersed locations
7. All of the following are examples of the emerging trends of urban growth described in the last paragraph of the passage EXCEPT
- (A) the construction in a suburban community of a large shopping mall where many of the local residents do most of their buying
  - (B) the opening of an industrial park on the outskirts of a declining older city
  - (C) the construction of hospital-medical school complex near a highway fifteen miles from a downtown business district
  - (D) the building of a residential development near a suburban tool factory to house the factory workers and their families
  - (E) the creation of a luxury housing development in a rural setting thirty miles from the center of a city
8. Which of the following best describes the organization of the last paragraph of the passage?
- (A) It summarizes the information presented in the first three paragraphs and draws some conclusions.
  - (B) It outlines a new model, applies it to recent phenomena, and argues in favor of its adoption.
  - (C) It introduces no evidence in support of an existing model.
  - (D) It evaluates two models in the light of recent evidence and advocates the development of a third model.
  - (E) It compares one model unfavorably with another and develops the comparison by citing examples.

### Passage 87 (2/15)

There is widespread belief that the emergence of giant industries has been accompanied by an equivalent surge in industrial research. A recent study of important inventions made since the turn of the century reveals that more than half were the product of individual inventors working alone, independent of organized industrial research. While industrial laboratories contributed such important products as nylon and transistors, independent inventors developed air conditioning, the automatic transmission, the jet engine, the helicopter, insulin, and streptomycin. Still other inventions, such as stainless steel, television, silicones, and Plexiglas were developed through the combined efforts of individuals and laboratory teams.

Despite these finding, we are urged to support monopolistic power on the grounds that such power creates an environment supportive of innovation. We are told that the independent inventor, along with the small firm, cannot afford to undertake the important research needed to improve our standard of living while protecting our diminishing resources; that only the giant corporation or conglomerate, with its prodigious assets, can afford the kind of expenditures that produce the technological advances vital to economic progress. But when we examine

expenditures for research, we find that of the more than \$35 billion spent each year in this country, almost two-thirds is spent by the federal government. More than half of this government expenditure is funneled into military research and product development, accounting for the enormous increase in spending in such industries as nuclear energy, aircraft, missiles, and electronics. There are those who consider it questionable that these defense-linked research projects will either improve our standard of living or do much to protect our diminishing resources.

Recent history has demonstrated that we may have to alter our longstanding conception of the process actuated by competition. The price variable, once perceived as the dominant aspect of the process, is now subordinate to the competition of the new product, the new business structure, and the new technology. While it can be assumed that in a highly competitive industry not dominated by single corporation, investment in innovation—a risky and expensive budget item—might meet resistance from management and stockholders concerned about cost-cutting, efficient organization, and large advertising budgets, it would be an egregious error to equate the monopolistic producer with bountiful expenditures on research. Large-scale enterprises tend to operate more comfortably in stable and secure circumstances, and their managerial bureaucracies tend to promote the status quo and resist the threat implicit in change. Moreover, in some cases, industrial giants faced with little or no competition seek to avoid the capital loss resulting from obsolescence by deliberately obstructing technological progress. By contrast, small firms undeterred by large investments in plant and capital equipment often aggressively pursue new techniques and new products, investing in innovation in order to expand their market shares.

The conglomerates are not, however, completely except from strong competitive pressures. There are instances in which they too must compete with another industrial Goliath, and then their weapons may include large expenditures for innovation.

1. The primary purpose of the passage is to
  - (A) advocate an increase in government support of organized industrial research
  - (B) point out a common misconception about the relationship between the extent of industrial research and the growth of monopolistic power in industry
  - (C) describe the inadequacies of small firms in dealing with the important matter of research and innovation
  - (D) show that America's strength depends upon individual ingenuity and resourcefulness
  - (E) encourage free-market competition among industrial giants
2. According to the passage, important inventions of the twentieth century
  - (A) were produced largely as a result of governmental support for military weapons research and development
  - (B) came primarily from the huge laboratories of monopolistic industries
  - (C) were produced at least as frequently by independent inventors as by research teams
  - (D) have greater impact on smaller firms than on conglomerates

- (E) sometimes adversely affect our standard of living and diminish our natural resources
3. Which of the following best describes the organization of the second paragraph of the passage?
- (A) Expenditures for various aspects of research are listed.  
(B) Reasons for supporting monopolistic power are given and then questioned.  
(C) Arguments are presented for minimizing competitive bidding for research.  
(D) Resources necessary for research are defined.  
(E) Costs for varied aspects of military research are questioned.
4. It can be inferred from the passage that the author
- (A) has little confidence in the ability of monopolistic industry to produce the important inventions of the future  
(B) would rather see the federal government spend money on social services than on the defense establishment  
(C) favors a conservative approach to innovation and places trust in conglomerates to provide efficient production  
(D) feels that price should still be the dominant variable in the competitive process  
(E) believes that excessive competition is a deterrent to innovation
5. The passage contains information that answers which of the following questions?
- I. What portion of the research dollar in this country is spent each year by the federal government?  
II. Under what circumstances is an industrial giant likely to invest heavily in innovation?  
III. Why might a monopolistic producer want to suppress an innovation?
- (A) I only  
(B) II only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III
6. With which of the following statements would the author of the passage be most likely to agree?
- (A) Monopolistic power creates an environment supportive of innovation.  
(B) Governmental expenditure for military research will do much to protect our dwindling resources.  
(C) Industrial giants, with their managerial bureaucracies, respond more quickly to technological change than smaller firms do.  
(D) Firms with a small share of the market aggressively pursue innovations



- because they are not locked into old capital equipment.
- (E) The independent inventor cannot afford to undertake the research needed to improve our standard of living.
7. Which of the following proposals best responds to the issues raised by the author?
- (A) Governmental restraints on monopolies should be lifted, and government funding should be made available to large corporations wishing to engage in research.
- (B) Governmental restraints on monopolies should be tightened, and government funding should be made available to small corporations and independent individuals wishing to engage in research.
- (C) Governmental restraints on monopolies should be tightened, and no government funding should be provided to any corporations or individuals wishing to engage in research.
- (D) The amount the government spends on military research should be decreased, and the amount it spends to improve the standard of living should be increased.
- (E) Governmental restraints on monopolies should be lifted, and no government funding should be provided to any corporations or individuals wishing to engage in research.
8. Which of the following, if true, would most weaken the author's main point?
- (A) In the last decade, conglomerates have significantly increased their research budgets for defense technology.
- (B) Tax restructuring permits smaller firms to write off a larger percentage of profits against research.
- (C) A ten-year study of the extent of resources devoted to research by smaller enterprises reveals a steady decline.
- (D) Military research is being directed more extensively to space technology than to short-range missiles.
- (E) Competition from foreign industries has increased the cost of labor and materials.

### Passage 88 (3/15)

Shaw's defense of a theater of ideas brought him up against both his great bugbears—commercialized art on the one hand and Art for Art's Sake on the other. His teaching is that beauty is a by-product of other activity; that the artist writes out of moral passion (in forms varying from political conviction to religious zeal), not out of love of art; that the pursuit of art for its own sake is a form of self-indulgence as bad as any other sort of sensuality. In the end, the errors of "pure" art and of commercialized art are identical: they both appeal primarily

to the senses. True art, on the other hand, is not merely a matter of pleasure. It may be unpleasant. A favorite Shavian metaphor for the function of the arts is that of tooth-pulling. Even if the patient is under laughing gas, the tooth is still pulled.

The history of aesthetics affords more examples of a didactic than of a hedonist view. But Shaw's didacticism takes an unusual turn in its application to the history of arts. If, as Shaw holds, ideas are a most important part of a work of art, and if, as he also holds, ideas go out of date, it follows that even the best works of art go out of date in some important respects and that the generally held view that great works are in all respects eternal is not shared by Shaw. In the preface to *Three Plays for Puritans*, he maintains that renewal in the arts means renewal in philosophy, that the first great artist who comes along after a renewal gives to the new philosophy full and final form, that subsequent artists, though even more gifted, can do nothing but refine upon the master without matching him. Shaw, whose essential modesty is as disarming as his pose of vanity is disconcerting, assigns to himself the role, not of the master, but of the pioneer, the role of a Marlowe rather than of a Shakespeare. "The whirligig of time will soon bring my audiences to my own point of view," he writes, "and then the next Shakespeare that comes along will turn these petty tentatives of mine into masterpieces final for their epoch."

"Final for their epoch"—even Shakespearean masterpieces are not final beyond that. No one, says Shaw, will ever write a better tragedy than *Lear* or a better opera than *Don Giovanni* or a better music drama than *Der Ring des Nibelungen*; but just as essential to a play as this aesthetic merit is moral relevance which, if we take a naturalistic and historical view of morals, it loses, or partly loses, in time. Shaw, who has the courage of his historicism, consistently withstands the view that moral problems do not change, and argues therefore that for us modern literature and music form a Bible surpassing in significance the Hebrew Bible. That is Shaw's anticipatory challenge to the neo-orthodoxy of today.

1. The primary purpose of the passage is to discuss
  - (A) the unorthodoxy of Shaw's views on the Bible
  - (B) the aesthetic merit of Shaw's plays
  - (C) Shaw's theory of art
  - (D) Shavian examples of the theater of ideas
  - (E) Shaw's naturalistic and historical view of morals
2. The author sets off the word "pure" (line 9) with quotation marks in order to
  - (A) contrast it with the word "true," which appears later (line 10)
  - (B) suggest that, in this context, it is synonymous with "commercialized" (line 9)
  - (C) underscore its importance
  - (D) strip away its negative connotations
  - (E) emphasize its positive connotations
3. According to the author, Shaw compares art to tooth-pulling (lines 12-14) in order to show that
  - (A) the moral relevance of a work of art must be extracted from the epoch in

- which it was created
- (B) true art is painful to the senses
  - (C) even the best works of art go out of date
  - (D) pleasure is not the sole purpose of art
  - (E) all art has a lasting effect on its audience
4. According to the author, Shaw's didacticism was unusual in that it was characterized by
- (A) idealism
  - (B) historicism
  - (C) hedonism
  - (D) moralism
  - (E) religious zeal
5. It can be inferred from the passage that Shaw would probably agree with all of the following statements about Shakespeare EXCEPT:
- (A) He wrote out of a moral passion.
  - (B) All of his plays are out of date in some important respect.
  - (C) He was the most profound and original thinker of his epoch.
  - (D) He was a greater artist than Marlowe.
  - (E) His *Lear* gives full and final form to the philosophy of his age.
6. Which of the following does the author cite as a contradiction in Shaw?
- (A) Whereas he pretended to be vain, he was actually modest.
  - (B) He questioned the significance of the Hebrew Bible, and yet he believed that a great artist could be motivated by religious zeal.
  - (C) Although he insisted that true art springs from moral passion, he rejected the notion that morals do not change.
  - (D) He considered himself to be the pioneer of a new philosophy, but he hoped his audiences would eventually adopt his point of view.
  - (E) On the one hand, he held that ideas are a most important part of a work of art; on the other hand, he believed that ideas go out of date.
7. The ideas attributed to Shaw in the passage suggest that he would most likely agree with which of the following statements?
- (A) Every great poet digs down to a level where human nature is always and everywhere alike.
  - (B) A play cannot be comprehended fully without some knowledge and imaginative understanding of its context.
  - (C) A great music drama like *Der Ring des Nibelungen* springs from a love of beauty, not from a love of art.
  - (D) Morality is immutable; it is not something to be discussed and worked out.

- (E) *Don Giovanni* is a masterpiece because it is as relevant today as it was when it was created.
8. The passage contains information that answers which of the following questions?
- I. According to Shaw, what is the most important part of a work of art?
  - II. In Shaw's view, what does the Hebrew Bible have in common with *Don Giovanni*?
  - III. According to the author, what was Shaw's assessment of himself as a playwright?
- (A) I only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III
9. As it is revealed in the passage, the author's attitude toward Shaw can best be described as
- (A) condescending  
(B) completely neutral  
(C) approving  
(D) envious  
(E) adulatory

### Passage 89 (4/15)

One of the many theories about alcoholism is the learning and reinforcement theory, which explains alcoholism by considering alcohol ingestion as a reflex response to some stimulus and as a way to reduce an inner drive state such as fear or anxiety. Characterizing life situations in terms of approach and avoidance, this theory holds that persons tend to be drawn to pleasant situations and repelled by unpleasant ones. In the latter case, alcohol ingestion is said to reduce the tension or feelings of unpleasantness and to replace them with the feeling of euphoria generally observed in most persons after they have consumed one or more drinks.

Some experimental evidence tends to show that alcohol reduces fear in the approach-avoidance situation. Conger trained one group of rats to approach a food goal and, using aversion conditioning, trained another group to avoid electric shock. After an injection of alcohol the pull away from the shock was measurable weaker, while the pull toward the food was unchanged.

The obvious troubles experienced by alcoholic persons appear to contradict the learning theory in the explanation of alcoholism. The discomfort, pain, and punishment they experience should presumably serve as a deterrent to drinking. The fact that alcoholic persons continue to drink in the face of family discord, loss of employment, illness, and other sequels of repeated bouts is explained by the proximity of the drive reduction to the consumption of alcohol; that is, alcohol has the immediate effect of reducing tension while the unpleasant consequences of

drunken behavior come only later. The learning paradigm, therefore, favors the establishment and repetition of the resort to alcohol.

In fact, the anxieties and feelings of guilt induced by the consequences of excessive alcohol ingestion may themselves become the signal for another bout of alcohol abuse. The way in which the cue for another bout could be the anxiety itself is explained by the process of stimulus generalization: conditions or events occurring at the time of reinforcement tend to acquire the characteristics of state of anxiety or fear, the emotional state itself takes on the properties of a stimulus, thus triggering another drinking bout.

The role of punishment is becoming increasingly important in formulating a cause of alcoholism based on the principles of learning theory. While punishment may serve to suppress a response, experiments have shown that in some cases it can serve as a reward and reinforce the behavior. Thus if the alcoholic person has learned to drink under conditions of both reward and punishment, either type of condition may precipitate renewed drinking.

Ample experimental evidence supports the hypothesis that excessive alcohol consumption can be learned. By gradually increasing the concentration of alcohol in drinking water, psychologists have been able to induce the ingestion of larger amounts of alcohol by an animal than would be normally consumed. Other researchers have been able to achieve similar results by varying the schedule of reinforcement—that is, by requiring the animal to consume larger and larger amounts of the alcohol solutions before rewarding it. In this manner, animals learn to drink enough to become dependent on alcohol in terms of demonstrating withdrawal symptoms.

1. The primary purpose of the passage is to
  - (A) compare the learning and reinforcement theory to other theories of alcoholism
  - (B) discuss how the behavior of alcoholic persons is explained by learning theory
  - (C) argue that alcoholism is a learned behavior
  - (D) explain how fear and anxiety stimulate and reinforce drinking in alcoholic persons
  - (E) present experimental evidence in support of the learning and reinforcement theory of alcoholism
2. The passage contains information that answers which of the following questions?
  - (A) What are some of the psychosocial problems associated with alcoholism?
  - (B) Which has proven more effective in the treatment of alcoholism, aversion conditioning or reinforcement?
  - (C) Why does alcohol ingestion reduce tension and give rise to a feeling of euphoria in most people?
  - (D) According to the learning theory, in what cases does punishment reinforce rather than deter drinking in alcoholic persons?
  - (E) Are some persons genetically predisposed to alcoholism?
3. It can be inferred from the passage that aversion conditioning is based primarily

- on the principle that
- (A) electric shock stimulates a response
  - (B) behavior that is punished will be avoided
  - (C) pain is a stronger stimulus than pleasure
  - (D) alcohol reduces fear
  - (E) behavior that is rewarded will be repeated
4. According to the passage, which of the following is true of stimulus generalization?
- (A) It contradicts the learning and reinforcement theory of alcoholism.
  - (B) It is the process by which an organism learns to respond to one stimulus but not to similar stimuli.
  - (C) It supports the hypothesis that excessive alcohol consumption can be learned.
  - (D) It explains why people tend to avoid behavior that is associated with painful experiences.
  - (E) It occurs when the conditions associated with a stimulus come to evoke the same response as the stimulus itself evokes.
5. The author cites Conger's experiment with two groups of rats in order to
- (A) show that ingestion of alcohol does not affect appetite
  - (B) corroborate the findings of other academic researchers
  - (C) show that alcohol decreases fear
  - (D) disprove the learning and reinforcement theory
  - (E) convince the reader of the usefulness of behavioral research
6. According to the passage, which of the following could induce an alcoholic to drink?
- I. The need to relieve tension
  - II. Anxieties resulting from guilt feelings about previous drinking bouts
  - III. Punishment for alcoholic behavior
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
7. The passage contains information that supports which of the following statements?
- (A) If the pleasurable taste of whisky leads to an acquired taste for brandy, then stimulus generalization has occurred.
  - (B) Slapping a child for misbehaving may over time encourage the child to repeat



- the misbehavior.
- (C) If a person has learned to drink under two sets of conditions, both must be present in order to induce that person to drink again.
- (D) Continued heavy use of alcohol usually causes severe damage to the body and nervous system.
- (E) When consumed in moderation, alcohol may benefit health.
8. According to the passage, how does the behavior of alcoholics appear to contradict learning theory?
- (A) Learning theory holds that people are drawn by pleasant situations and repelled by unpleasant ones, but in alcoholics that pattern appears to be reversed.
- (B) Contrary to learning theory, alcoholic persons do not respond to life situations in terms of approach and avoidance.
- (C) The unpleasant consequences of excessive alcoholic consumption do not deter alcoholics from drinking, as might be predicted from learning theory.
- (D) According to learning theory, drinking is a reflex response to an external stimulus, but for alcoholics it is more often a way to reduce an inner drive such as fear.
- (E) Instead of the feeling of euphoria predicted by learning theory, alcoholics frequently experience discomfort and pain after drinking.
9. It can be inferred from the passage that the author views the learning and reinforcement theory of alcoholism as
- (A) credible
- (B) unassailable
- (C) outdated
- (D) fallacious
- (E) revolutionary

### Passage 90 (5/15)

(The following passage was written in 1977.)

Changes in the volume of unemployment are governed by three fundamental forces: the growth of the labor force, the increase in output per man-hour, and the growth of total demand for goods and services. Changes in the average hours of work enter in exactly parallel fashion but have been quantitatively less significant. As productivity rises, less labor is required per dollar of national product, or more goods and services can be produced with the same number of man-hours. If output does not grow, employment will certainly fall; if production increases more rapidly than productivity (less any decline in average hours worked), employment must rise. But the labor force grows, too. Unless gross national product (total final expenditure for goods and services corrected for price changes) rises more rapidly than the sum of productivity increase and labor force growth (again modified for any change in hours of work), the increase

in employment will be inadequate to absorb the growth in the labor force. Inevitably the unemployment rate will increase. Only when total production expands faster than the rate of labor force growth plus the rate of productivity increase and minus the rate at which average annual hours fall does the unemployment rate fall. Increases in productivity were more important than growth of the labor force as sources of the wide gains in output experienced in the period from the end of World War II to the mid-sixties. These increases in potential production simply were not matched by increases in demand adequate to maintain steady full employment.

Except for the recession years of 1949, 1954, and 1958, the rate of economic growth exceeded the rate of productivity increase. However, in the late 1950s productivity and the labor force were increasing more rapidly than usual, while the growth of output was slower than usual. This accounted for the change in employment rates.

But if part of the national purpose is to reduce and contain unemployment, arithmetic is not enough. We must know which of the basic factors we can control and which we wish to control. Unemployment would have risen more slowly or fallen more rapidly if productivity had increased more slowly, or the labor force had increased more slowly, or the hours of work had fallen more steeply, or total output had grown more rapidly. These are not independent factors, however, and a change in any of them might have caused changes in the others.

A society can choose to reduce the growth of productivity, and it can probably find ways to frustrate its own creativity. However, while a reduction in the growth of productivity at the expense of potential output might result in higher employment in the short run, the long-run effect on the national interest would be disastrous.

We must also give consideration to the fact that hidden beneath national averages is continuous movement into, out of, between, and within labor markets. For example, 15 years ago, the average number of persons in the labor force was 73.4 million, with about 66.7 million employed and 3.9 million unemployed. Yet 14 million experienced some term of unemployment in that year. Some were new entrants to the labor force; others were laid off temporarily. The remainder were those who were permanently or indefinitely severed from their jobs. Thus, the average number unemployed during a year understates the actual volume of involuntary displacement that occurs.

High unemployment is not an inevitable result of the pace of technological change but the consequence of passive public policy. We can anticipate a moderate increase in the labor force accompanied by a slow and irregular decline in hours of work. It follows that the output of the economy—and the aggregate demand to buy it—must grow by more than 4 percent a year just to prevent the unemployment rate from rising, and by even more if the unemployment rate is to fall further. Yet our economy has seldom, if ever, grown at a rate greater than 3.5 percent for any extended length of time. We have no cause of complacency. Positive fiscal, monetary, and manpower policies will be needed in the future.

1. The primary purpose of the passage is to
  - (A) define the economic terms used in the discussion of employment
  - (B) criticize the decisions of past administrations during recession years
  - (C) call for the application of positive economic control policies in the years that

lie ahead

- (D) allay current fears about increasing unemployment
- (E) document the rise of American productivity since World War II
2. According to the passage, if the labor force does not grow and there is no decline in the average number of hours worked, under which of the following conditions will the employment rate inevitably rise?
- (A) Total production expands faster than the total demand for goods and services.
- (B) The total demand for goods and services and productivity both rise.
- (C) Output per man-hour and gross national product both rise.
- (D) Productivity increases more rapidly than production.
- (E) Production increases more rapidly than output per man-hour.
3. It can be inferred from the passage that in the late 1950s, which of the following occurred?
- I. The growth in output was less than 3.5 percent.
- II. The average number of hours worked declined.
- III. The increase in output per man-hour was greater than usual.
- (A) I only
- (B) II only
- (C) III only
- (D) I and III only
- (E) I, II, and III
4. It can be inferred from the passage that during the recession years of 1949, 1954, and 1958, which of the following most likely occurred?
- (A) The labor force increased more rapidly than it did in any other year between 1945 and 1965.
- (B) More labor was required per dollar of national product than in any other year between 1945 and 1965.
- (C) The average number of hours worked rose.
- (D) Full employment was attained.
- (E) The rate of unemployment increased.
5. It can be inferred from the passage that if a policy to increase employment by reducing the growth of productivity at the expense of potential output were adopted, the author most likely would regard it as
- (A) sound but inadequate
- (B) overly aggressive
- (C) frivolous
- (D) insidious

- (E) unobjectionable
6. It can be inferred from the passage that, according to the author, the actual number of people who experience some term of unemployment during any given year
- (A) is the difference between the number of persons in the labor force and the number of persons employed that year
  - (B) does not reflect movement into, out of, between, and within labor markets
  - (C) exceeds the average number unemployed during that year
  - (D) overstate the volume of involuntary displacement that occurs during the year
  - (E) is impossible to calculate
7. The passage contains information that answers all of the following questions EXCEPT:
- (A) What is gross national product?
  - (B) What effect does a change in productivity invariably have on gross national product?
  - (C) Under what conditions might employment rise in the short run?
  - (D) What effect does an increase in output and a decrease in number of hours worked have on productivity?
  - (E) What was the average number of people unemployed in 1962?
8. Which of the following best describes the organization of the fifth paragraph of the passage?
- (A) An assertion is made, data are provided to support it, and the assertion is reiterated in different words.
  - (B) Several figures are given and hypothesis is formulated to explain them.
  - (C) An example is given to support the conclusion drawn in the preceding paragraph.
  - (D) A statement is made, data are provided to illustrate and amplify the statement, and a conclusion is drawn.
  - (E) A generalization is made and an example is given to refute it.
9. Which of the following proposals best responds to the author's concerns?
- (A) The government should manipulate the size of the labor force to prevent future recessions.
  - (B) The government should maintain some controls over the economy, but it should allow the employment rate to rise and fall with the gross national product, as a check on labor costs.
  - (C) People should accept that unemployment is undesirable but unavoidable.
  - (D) The government should manage the economy carefully.
  - (E) The government should not interfere in the interplay among the three forces

affecting unemployment.

10. Which of the following best summarizes the main idea of the passage?
- (A) We can and must take steps to ensure that the unemployment rate does not continue to rise as our population and our use of technology increase.
  - (B) Increases in potential production must be matched by increases in demand in order to maintain steady full employment.
  - (C) High unemployment is not an inevitable result of the pace of technological change but the consequence of passive public policy.
  - (D) If part of the national purpose is to reduce and contain unemployment, arithmetic is not enough.
  - (E) Full employment, regardless of fluctuations in the economy, is within the realm of possibility.

### Passage 91 (6/15)

A majority taken collectively may be regarded as a being whose opinions and, most frequently, whose interests are opposed to those of another being, which is styled a minority. If it is admitted that a man possessing absolute power may misuse that power by wronging his adversaries, why should a majority not be liable to the same reproach? Men are not apt to change their characters by agglomeration; nor does their patience in the presence of obstacles increase with the consciousness of their strength. For these reasons we should not willingly invest any group of our fellows with that unlimited authority which we should refuse to any individual.

One social power must always predominate over others, but liberty is endangered when this power is checked by no obstacles which may retard its course and force it to moderate its own vehemence. Unlimited power is in itself a bad and dangerous thing, and no power on earth is so worthy of honor for itself or of reverential obedience to the rights which it represents that we should admit its uncontrolled and all-predominant authority. When the right and means of absolute command are conferred on a people or a king, on an aristocracy or a democracy, a monarchy or a republic, there has been implanted the germ of tyranny.

The main evil of the present democratic institutions of the United States does not arise, as is often asserted in Europe, from their weakness, but from their overpowering strength; the excessive liberty which reigns in that country is not so alarming as is the very inadequate security which exists against tyranny.

When an individual or a party is wronged in the United States, to whom can he apply for redress? If to the public opinion, public opinion constitutes the majority; if to the legislature, it represents the majority and implicitly obeys its injunctions; if to the executive power, it is appointed by the majority and remains a passive tool in its hands; the public troops consist of the majority under arms; the jury is the majority invested with the right of hearing judicial cases, and in certain states even the judges are elected by the majority. However iniquitous or absurd the evil complained about, no sure barrier is established to defend against it.

1. Which of the following would be the most appropriate title for the passage?
  - (A) The Tyranny of the Majority
  - (B) Democracy: Triumph of the People
  - (C) Abuses of Power
  - (D) The Failure of Democracy in the United States
  - (E) Minority Rights
2. Which of the following best paraphrases the author's statement in the third sentence of paragraph 1 (lines 7-11)?
  - (A) Individuals do not change their behavior when they act in concert with others who are likeminded, and, knowing they are acting as part of the group, they are not likely to show greater restraint when opposed than they would if they were acting individually.
  - (B) Groups are not different from one another, they all show strong impatience when thwarted.
  - (C) The character of men is formed by the accumulation of their traits, and patience is not a common trait among men of strength.
  - (D) The leopard does not change its spots no matter how long it lives, and it is, and remains, patient in the presence of obstacles.
  - (E) Men change their behavior when they act in groups; they are more patient when they are in the company of their fellows than they are when they are alone.
3. With which of the following statements would the author of the passage be most likely to agree?
  - (A) Democracy is no greater defense against tyranny than is monarchy or aristocracy.
  - (B) Minority rule would probably be more responsive to the needs of all people than majority rule.
  - (C) No government should be trusted since all governments are equally tyrannical.
  - (D) Since one social power must always predominate over others, it is futile to provide checks and balances in government.
  - (E) To render itself immune to the germ of tyranny, the United States should strengthen its political institutions.
4. Which of the following, assuming that each is true, would most weaken the point that the author is making in the last two paragraphs of the passage?
  - (A) The framers of the U.S. Constitution deliberately separated the three branches of the government to prevent tyranny.
  - (B) There is not a single majority in the United States; there are many majorities, each composed of a different collection of individuals and each acting as a



- restraint on the others.
- (C) The First Amendment to the U.S. Constitution specifically guarantees the right of each citizen to petition the government for redress of grievances.
- (D) Even though the United States is not a direct democracy, all U.S. citizens have an equal opportunity to participate in political life and to hold public office.
- (E) The framers of the U.S. Constitution had two primary concerns: to prevent the government from exercising tyranny over the people and to prevent the majority from exercising tyranny over the minority.
5. The author's treatment of the topic of the passage can best be described as
- (A) ironic
- (B) neutral
- (C) logical
- (D) irreverent
- (E) diffident
6. In the passage, the author is primarily concerned with
- (A) challenging a commonly held belief
- (B) contrasting two opposing views
- (C) advocating a course of action
- (D) reconciling an apparent conflict
- (E) proposing a solution to an unrecognized problem

### Passage 92 (7/15)

Although much has been written about the theological conflicts with Darwinian theory, little is known of the powerful scientific objections that modified Darwin's beliefs.

During Darwin's lifetime, the accepted theory of heredity was not Mendel's theory of particulate inheritance, which, though published, was unrecognized, but the theory of blending inheritance, which holds that forms intermediate between those of the parents result from mating. Jenkin pointed out that if a rare and favorable mutation occurred, it would soon be blended out by repeated crossings from the wild-type form. Disputing Darwin's conception of evolution as proceeding through the natural selection of those with slightly better characteristics that arose randomly, Jenkin concluded that natural selection could not account for the tremendous diversity of life, hypothesizing that large numbers of organisms mutated simultaneously in the same direction—a controlled orthogenetic process resembling a series of "special creations."

Since "special creationism" was an ideological target of his, Darwin found himself in a quandary. Although he did not abandon his theory, he admitted that natural selection played a much smaller part in evolution than he had previously claimed. He also embraced the

Lamarckian concept that acquired traits in parents are transmitted to their offspring, thus providing a mechanism by which an entire population could change in the same direction at once.

Another potent objection came from the physicists led by Lord Kelvin, who contested the assumption of previous geologists and biologists that life had existed for billions of years, if not infinitely. How, they asked, could evolution proceed by slow steps in millions of years, and how could advanced forms recently evolved show such great differences? The Kelvinists, basing their conclusion on the assumption that the sun was an incandescent liquid mass rapidly radiating heat, calculated that the age of the earth was between 20 and 40 million years.

Admitting that their calculations were correct and their premises rational, Darwin was forced to adjust this theory. He proposed that change had occurred much more rapidly in the past than in the present, where species seemed static, and that more advanced forms varied more rapidly than lower forms. This provided further reason to advocate Lamarck's theory of inheritance, because that could account for the rapid change.

Interestingly, both these retreats of Darwin were later shown to be faulty. The discovery that the sun runs on a nearly infinite amount of atomic fuel totally invalidated Kelvin's argument, Mendel was "rediscovered" in the twentieth century, when it was pointed out that the particulate nature of inheritance meant that favorable mutation not only could persist, but could rapidly become prevalent.

1. The primary purpose of the passage is to
  - (A) outline the process by which Darwin formulated and modified his theory of natural selection
  - (B) propose a new interpretation of Darwin's theory of evolution
  - (C) explain how other scientists of the time helped Darwin modify and perfect his theories
  - (D) defend Darwinian theory against the objections raised by Darwin's contemporaries in the scientific community
  - (E) discuss some of the scientific controversy that Darwin sparked and describe his response to it
2. It can be inferred from the passage that the theory of blending inheritance would predict that the offspring of
  - (A) two strains of snapdragons, one with abnormal, radically symmetrical flowers and the other with normal, bilaterally symmetrical flowers, would always have normal, bilaterally symmetrical flowers
  - (B) a white horse and a black horse would always be gray
  - (C) a man with type A blood and a woman with type B blood would always have type A, type B, or type AB blood
  - (D) a fly with large eyes and a fly with small eyes would always have one large eye and one small eye
  - (E) two pink-flowered plants would always be red or white

3. It can be inferred from the passage that “wild-type” (line 12) means
- (A) nonmutant
  - (B) rare
  - (C) abnormal
  - (D) random
  - (E) favorable
4. Which of the following, if it could be demonstrated, would tend to support the Lamarckian concept that Darwin embraced?
- (A) Human beings evolved from now-extinct animals much like chimpanzees as a result of an erratic accumulation of changes in the gene pool through thousands of generations.
  - (B) Some parental traits disappear in offspring and reappear in the following generation.
  - (C) All species of organisms were immutably created in their present forms.
  - (D) Rats who have had their tails cut off produce tailless offspring.
  - (E) Those hereditary traits that make their owners more likely to grow up and reproduce become increasingly common in a population from one generation to the next.
5. The author’s attitude toward Jenkin and Kelvin can best be described as
- (A) respectful
  - (B) contemptuous
  - (C) ambivalent
  - (D) denunciatory
  - (E) adulatory
6. According to the passage, Darwin modified his beliefs in order to
- (A) bring them into line with the theory of particulate inheritance
  - (B) disprove Lord Kelvin’s view on the age of the earth
  - (C) meet the objections of Jenkin and Lamarck
  - (D) resolve theological conflicts about evolution
  - (E) dissociate himself from those who believed in “special creationism” (line 21)
7. The author sets off the word “rediscovered” (line 51) in quotation marks in order to
- (A) emphasize that major scientific theories are rarely acknowledged or accepted when they are first promulgated
  - (B) indicate that the term is somewhat ironic, since Mendel’s work was virtually ignored when it was published
  - (C) rebuke the scientific community for deliberately suppressing Mendel’s work until long after his death

- (D) underscore the similarity between Mendel's theory of particulate inheritance and the theory of blending inheritance that was accepted during his lifetime
- (E) suggest that a scientist of Darwin's stature should have read Mendel's work when it was first published and immediately recognized its importance
8. It can be inferred from the passage that if Mendel's work had been recognized and accepted during Darwin's lifetime, it would have had which of the following effect?
- I. It would have refuted Jenkin's objections to Darwin's theories.
  - II. It would have supported Darwin's theory that evolution proceeds by very slow steps over millions of years.
  - III. It would have clarified and supported Darwin's theory of natural selection.
- (A) I only
- (B) III only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III
9. All of the following can be reasonably inferred from the passage EXCEPT:
- (A) The idea that evolution occurs by means of natural selection was not widely accepted until the twentieth century.
  - (B) Darwin's theories were originally predicated on the assumption that the earth is more than 40 million years old.
  - (C) Many of Darwin's ideas about heredity were later shown to be incorrect.
  - (D) Other scientists of Darwin's time, including both Jenkin and Lamarck, believed in evolution.
  - (E) Darwin was the only scientist of his day who believed in natural selection.

### Passage 93 (8/15)

In terms of its prevalence, obesity is the leading disease in the United States. There is no universally accepted standard for obesity, defined generally as an excess of adipose tissue, but a common rule of thumb classifies people who are more than 20 percent above their desirable weight as obese. By this measure, 30 percent of men and 40 percent of women in America are obese. Although studies show that few of these people will ever recover fully and permanently from the disease, the incidence of obesity in future generations can be reduced.

Adipose tissue is a triumph of evolution. Fat yields 9 calories per gram, while protein, like carbohydrates, yields only 4 calories per gram. Fat also contains much less water than protein does. Therefore, fat is much more efficient for storing excess energy than is protein. Primitive humans, with uncertain food sources, had a great need for excess fat, and their bodies adapted accordingly. Modern humans, with a predictable food supply and a sedentary life-style, are burdened by this vestige of evolution. Although they need some adipose tissue to provide insulation and protect internal organs from injury, modern humans need much less than their

primitive ancestors did.

In an attempt to shed excess adipose tissue, many Americans turn from one fad diet to another, and a billion-dollar diet industry has grown up to aid them in their efforts. Nevertheless, the five-year cure rate for obesity is very low. In fact, by comparison, cancer is more curable. The reasons for this are psychological as well as physiological.

From a physical standpoint, losing a pound or two a week for a few weeks is not difficult because most of the loss is in the form of protein and water, and protein carries four times its weight in water. However, protein is also the only source of nitrogen in the body, and when the body loses too much nitrogen, it acts to correct the imbalance by excreting less nitrogen than it takes in. Hence beyond a certain point additional weight loss must come from adipose tissue, which, because of its compactness, takes longer to shed. The body's tendency to return to nitrogen balance and to protect its energy reserves can be so strong that dieters may stop losing or even gain weight while still expending more calories than they ingest. As a result, they frequently suffer not only from hunger, weakness, and a decreased metabolic rate, but also from depression and inactivity, all of which lead them to abandon their diets. Probably because of numerous psychological factors as well as physiological factors such as increased lipid synthesis, they then tend to regain weight rapidly.

While vigorous attempts to reduce obesity in America should be aimed at all affected, the most successful efforts are likely to be those directed toward children. If the advertising and food industries stop trying to sell high-calorie, nutritionally deficient food to children, and if parents understand that the feeding patterns they impose on their children can determine the adolescent and adult eating habits those children will develop, the future generation may not be as fat as ours is.

1. The primary purpose of the passage is to
  - (A) explain why prevention is the best defense against obesity
  - (B) criticize the food and advertising industries for encouraging bad eating habits and thus contributing to the prevalence of obesity in the United States
  - (C) recruit volunteers for a national crusade against obesity
  - (D) discourage dependency on fad diets as a method for losing weight
  - (E) argue that obesity is a genetic disorder that is virtually impossible to cure
2. By the rule of thumb mentioned in the passage, which of the following would be considered obese?
  - I. A 25-pound toddler whose desirable weight is 20 pounds
  - II. A large-framed woman weighting 140 pounds whose desirable weight for her height is between 112 and 120 pounds
  - III. A 175-pound man who was 25 pounds over his desirable weight and then gained an additional 10 pounds
  - (A) II only
  - (B) III only
  - (C) I and III only

- (D) II and III only  
(E) I, II, and III
3. Which of the following, if true, best helps to explain why a greater percentage of women than men in the United States are considered obese by the measure mentioned in the passage?
- (A) The measure is the same for both men and women, but it is normal for women to carry a greater percentage of fat at any weight.  
(B) The average man is heavier than the average woman; therefore, men generally need to gain more weight than women do before they are considered obese.  
(C) There are more women in the United States than there are men.  
(D) Because of the influence of the fashion and film industries, many American women consider themselves obese even though they are not.  
(E) Women burn off fewer calories than men because their bodies contain a lower percentage of muscle, and muscle burns calories at a faster rate than fat.
4. According to the passage, modern humans do not need to store as much fat as primitive humans because
- (A) modern humans work fewer hours than their primitive forebears did  
(B) the diet of modern humans is higher in protein than was the diet of primitive humans  
(C) modern humans eat more regularly than primitive humans did  
(D) primitive humans had to insulate their bodies from the cold whereas modern humans do not  
(E) the food consumed by modern humans has a higher nutritional value than that consumed by primitive humans
5. All of the following statements about protein are supported by the passage EXCEPT:
- (A) Gram for gram, foods that are high in protein are lower in calories than foods that are high in fat.  
(B) The body gets all of its nitrogen from protein.  
(C) Nine grams of protein yield the same number of calories as 4 grams of fat.  
(D) Protein is not converted into adipose tissue.  
(E) Five grams of protein carry 20 grams of water.
6. The author mentions that “cancer is more curable” (line 27) than obesity in order to
- (A) underscore the point that obesity is the leading disease in the United States  
(B) support the conclusion that it is easier to keep people from becoming obese than it is to cure them once they are  
(C) discourage obese people from trying to lose weight



- (D) demonstrate by analogy that more money should be spent on obesity research
- (E) refute the contention that the causes of obesity are purely physiological
7. The passage contains information that answers which of the following questions?
- (A) What percent of the total population in the United States is obese?
- (B) What psychological factors cause people to gain weight rapidly once they go off a diet?
- (C) What function does nitrogen perform in the body?
- (D) How is an individual's desirable weight determined?
- (E) If a snack bar contains 130 calories and 4 grams of fat, what percentage of the calories in the bar come from fat?
8. The author mentions all of the following as factors that cause obese people to abandon diets EXCEPT
- (A) depression
- (B) increased lipid synthesis
- (C) a negative nitrogen balance
- (D) enervation
- (E) a lower metabolic rate
9. Which of the following, if it could be demonstrated, would most strengthen the claim that the feeding patterns of children "can determine the adolescent and adult eating habits those children will develop" (lines 55-56)?
- (A) The incidence of obesity in children whose parents are both obese is 80 percent.
- (B) Thirty-six percent of infants who are obese during their first half year of life are also overweight between the ages of 20 and 36.
- (C) Excessive weight gain during the teen years can set the stage for a lifetime battle against the bulge.
- (D) Up to 80 percent of youngsters who are fat as 5-year-olds end up fat as adults.
- (E) The average child witnesses more than 15,000 commercials a year for snacks, candy, and soft drinks laden with fat, sugar, and calories.

### Passage 94 (9/15)

The impressionist painters expressly disavowed any interest in philosophy, yet their new approach to art had far-reaching philosophical implications. For the view of matter that the Impressionists assumed differed profoundly from the view that had previously prevailed among artists. This view helped to unify the artistic works created in the new style.

The ancient Greeks had conceived of the world in concrete terms, even endowing abstract qualities with bodies. This Greek view of matter persisted, so far as painting was concerned, into the nineteenth century. The Impressionists, on the other hand, viewed light, not matter, as the ultimate visual reality. The philosopher Taine expressed the Impressionist view of things

when he said, "The chief 'person' in a picture is the light in which everything is bathed."

In Impressionist painting, solid bodies became mere reflectors of light, and distinctions between one object and another became arbitrary conventions; for by light all things were welded together. The treatment of both color and outline was transformed as well. Color, formerly considered a property inherent in an object, was seen to be merely the result of vibrations of light on the object's colorless surface. And outline, whose function had formerly been to indicate the limits of objects, now marked instead merely the boundary between units of pattern, which often merged into one another.

The Impressionist world was composed not of separate objects but of many surfaces on which light struck and was reflected with varying intensity to the eye through the atmosphere, which modified it. It was this process that produced the mosaic of colors that formed an Impressionist canvas. "Light becomes the sole subject of the picture," writes Mauclair. "The interest of the object upon which it plays is secondary. Painting thus conceived becomes a purely optic art."

From this profoundly revolutionary form of art, then, all ideas—religious, moral, psychological—were excluded, and so were all emotions except certain aesthetic ones. The people, places, and things depicted in an Impressionist picture do not tell story or convey any special meaning; they are, instead, merely parts of pattern of light drawn from nature and captured on canvas by the artist.

1. The author of the passage is primarily concerned with
  - (A) explaining how the Impressionists were influenced by scientific studies of light and color
  - (B) discussing the philosophical implications of the Impressionist style of painting
  - (C) identifying the revolutionary artistic techniques developed by the Impressionist painters
  - (D) analyzing the influence of thinkers like Taine and Mauclair on Impressionist painting
  - (E) defending the importance of the Impressionist painters in the history of modern art
2. According to the passage, the Impressionists differed from the ancient Greeks in that the Impressionists
  - (A) considered color to be property inherent in objects
  - (B) placed a higher value on the narrative element in painting
  - (C) depicted the objects in a painting as isolated, rather than united in a single pattern
  - (D) treated light, rather than matter, as the ultimate reality
  - (E) regarded art primarily as a medium for expressing moral and aesthetic ideas
3. The author's quotation of a statement by Taine (lines 15-16) serves which of the following functions in the passage?

- (A) It furnishes a specific example of an Impressionist painting that features light as its chief subject.
  - (B) It resolves an apparent contradiction in the philosophy of the Impressionists.
  - (C) It qualifies the statement that the ancient Greeks viewed the world in concrete terms.
  - (D) It summarizes the unique perspective that the Impressionists brought to painting.
  - (E) It provides a concrete illustration of the far-reaching philosophical implications of Impressionism.
4. According to the passage, the Impressionists believed that the atmosphere
- (A) reflects light with varying intensity
  - (B) creates the illusion of color in colorless surfaces
  - (C) modifies the shapes of objects
  - (D) is the result of vibrations of light
  - (E) affects the way we perceived color
5. The author's use of the term "mosaic of colors" (line 32) suggests that Impressionist paintings were characterized by
- (A) discontinuous dabs of unmixed pigment
  - (B) broad, sweeping brush strokes
  - (C) clearly defined forms and objects
  - (D) subjects devoid of emotive or literary qualities
  - (E) the glowing reds, greens, and midnight blues of stained glass
6. The passage contains information that answers which of the following questions?
- I. How did the Impressionists perceive matter?
  - II. What is the unifying element in a typical Impressionist painting?
  - III. How did the Impressionists' view of color differ from that of eighteenth-century artists?
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
7. The ideas attributed to the Impressionists in the passage suggest that an Impressionist painter would be most likely to agree with which of the following statement?
- (A) A picture is significant primarily as a manifestation of the artist's mental state.
  - (B) The highest purpose of art is to teach religious truths.

- (C) The quality of a picture has nothing to do with the nature of the objects it depicts.
- (D) An artist should strive to recreate on canvas the inner nature of objects from real life.
- (E) It is futile to attempt to paint pictures that aim to copy the optical appearance of the world.

### Passage 95 (10/15)

Radiation occurs from three natural sources: radioactive material in the environment, such as in soil, rock, or building materials; cosmic rays; and substances in the human body, such as radioactive potassium in bone and radioactive carbon in tissues. These natural sources account for an exposure of about 100 millirems a year for the average American.

The largest single source of man-made radiation is medical X rays, yet most scientists agree that hazards from this source are not as great as those from weapons test fallout, since strontium 90 and carbon 14 become incorporated into the body, hence delivering radiation for an entire lifetime. The issue is, however, by no means uncontroversial. The last two decades have witnessed intensified examination and dispute about the effects of low-level radiation, beginning with the United Nations Scientific Committee on the Effects of Atomic Radiation, which reported in 1958 that "even the smallest amounts of radiation are likely to cause deleterious genetic and perhaps also somatic effects."

A survey conducted in Britain confirmed that an abnormally high percentage of patients suffering from arthritis of the spine who had been treated with X rays contracted cancer. Another study revealed a high incidence of childhood cancer in cases where the mother had been given prenatal pelvic X rays. These studies have pointed to the need to reexamine the assumption that exposure to low-linear energy transfer presents only a minor risk.

Recently, examination of the death certificates of former employees of a West Coast plant that produces plutonium for nuclear weapons revealed markedly higher rates for cancers of the pancreas, lung, bone marrow, and lymphatic system than would have been expected in a normal population.

While the National Academy of Sciences committee attributes this difference to chemical or other environmental causes rather than radiation, other scientists maintain that any radiation exposure, no matter how small, leads to an increase in cancer risk. It is believed by some that a dose of one rem, if sustained over many generations, would lead to an increase of 1 percent in the number of serious genetic defects at birth, a possible increase of 1,000 disorders per million births.

In the meantime, regulatory efforts have been disorganized, fragmented, inconsistent, and characterized by internecine strife and bureaucratic delays. A Senate report concluded that coordination of regulation among involved departments and agencies was not possible because of jurisdictional disputes and confusion. One federal agency has been unsuccessful in its efforts to obtain sufficient funding and manpower for the enforcement of existing radiation laws, and the chairperson of a panel especially created to develop a coordinated federal program has resigned.

1. The primary purpose of the passage is to
  - (A) explain the difference between natural and man-made radiation
  - (B) arouse concern about the risks connected with exposure to radiation
  - (C) criticize the United Nations Scientific Committee on the Effects of Atomic Radiation
  - (D) advocate limiting the use of atomic weapons testing, since the fallout is extremely hazardous
  - (E) publicize the results of British medical survey
2. Which of the following, according to the passage, is a list of three natural sources of radiation?
  - (A) Radioactive potassium in bone, strontium 90, uranium ore
  - (B) Carbon 14 in tissues, cosmic rays, X rays
  - (C) Cosmic rays, radioactive potassium in bones, radioactive carbon in tissues
  - (D) Plutonium, radioactive material in rock, strontium 90
  - (E) X rays, carbon 14, plutonium
3. Which of the following does the author cite in support of the quotation from the United Nations Scientific Committee on the Effects of Atomic Radiation (lines 18-20)?
  - I. Strontium 90 and carbon 14 become incorporated into the body and deliver radiation for an entire lifetime.
  - II. An abnormally high percentage of patients with arthritis of the spine who were treated with X rays subsequently contracted cancer.
  - III. A high incidence of cancer appeared among children of mothers who had been given prenatal pelvic X rays.
  - (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
4. The passage contains information that answers which of the following questions?
  - (A) How many millirems of radiation from man-made sources is the average American exposed to each year?
  - (B) Is exposure to radiation linked to any other diseases besides cancer?
  - (C) How many types of radiation are there?
  - (D) What is the maximum level of radiation to which humans can safely be exposed?
  - (E) Why is exposure to the fallout from weapons testing considered by some to be more hazardous than exposure to X rays?

5. According to the passage, some scientists believe that a dose of one rem of radiation continued over a period of generations would
- (A) raise the strontium 90 levels in the body but otherwise have little effect
  - (B) relieve the acute suffering of those afflicted with arthritis of the spine without side effects
  - (C) have the effect of increasing by 1 percent the cases of serious genetic defects
  - (D) have little impact on the regulatory efforts of federal agencies
  - (E) cause an additional 1,000 per million cases of cancer of the bone marrow or lymphatic system
6. It can be inferred from the last paragraph of the passage that the chairperson who resigned from the panel to develop a coordinated federal program for radiation regulation most likely did so because
- (A) he or she disagreed with the findings of the Senate committee
  - (B) his or her agency could not obtain funding or manpower for implementation of existing laws
  - (C) he or she supported the position of the National Academy of Sciences committee and opposed regulation of radiation exposure
  - (D) he or she was disorganized and inconsistent in chairing the panel
  - (E) regulatory efforts have been balked by disputes, confusion, and bureaucratic delays
7. The passage contains evidence suggesting that it was most likely written
- (A) in 1958
  - (B) by a British scientist
  - (C) for the journal of the National Academy of Sciences
  - (D) by a lobbyist for the defense industry
  - (E) in the late 1970s
8. The passage implies that each of the following statements about radiation has been disputed EXCEPT?
- (A) Even small doses of radiation are likely to cause birth defects.
  - (B) Exposure to low-linear energy transfer presents only a minor risk.
  - (C) Many small doses of radiation are as harmful as a single large dose.
  - (D) Humans can tolerate a certain amount of radiation.
  - (E) Exposure to radiation causes cancer.

**Passage 96 (11/15)**

Many readers assume that, as a neoclassical literary critic, Samuel Johnson would normally prefer the abstract, the formal, and the regulated to the concrete, the natural, and the



spontaneous in a work of literature. Yet any close reading of Johnson's criticism shows that Johnson is not blind to the importance of the immediate, vivid, specific detail in literature; rather, he would underscore the need for the *telling* rather than the merely *accidental* detail.

In other ways, too, Johnson's critical method had much in common with that of the Romantics, with whom Johnson and, indeed, the entire neoclassical tradition are generally supposed to be in conflict. Johnson was well aware, for example, of the sterility of literary criticism that is legalistic or pedantic, as was the case with the worst products of the neoclassical school. His famous argument against the slavish following of the "three unities" of classical drama is a good example, as is his defense of the supposedly illegitimate "tragicomic" mode of Shakespeare's latest plays. Note, in particular, the basis of that defense: "That this is a practice contrary to the rules of criticism," Johnson wrote, "will be readily allowed; but there is always an appeal from criticism to nature."

The sentiment thus expressed could easily be endorsed by any of the Romantics; the empiricism it exemplifies is vital quality of Johnson's criticism, as is the willingness to jettison "laws" of criticism when to do so makes possible a more direct appeal to the emotions of the reader. Addison's *Cato*, highly praised in Johnson's day for its "correctness," is damned with faint praise by Johnson: "*Cato* affords a splendid exhibition of artificial and fictitious manners, and delivers just and noble sentiments, in diction easy, elevated, and harmonious, but its hopes and fears communicate no vibration to the heart." Wordsworth could hardly demur.

Even on the question of poetic diction, which, according to the usual interpretation of Wordsworth's 1800 preface to the *Lyrical Ballads*, was the central area of conflict between Romantic and Augustan, Johnson's views are surprisingly "modern." In his *Life of Dryden*, he defends the use of a special diction in poetry, it is true; but his reasons are all-important. For Johnson, poetic diction should serve the ends of direct emotional impact and ease of comprehension, not those of false profundity or grandiosity. "Words too familiar," he wrote, "or too remote, defeat the purpose of a poet. From those sounds which we hear on small or on coarse occasions, we do not easily receive strong impressions, or delightful images; and words to which we are nearly strangers, whenever they occur, draw that attention on themselves which they should transmit to things." If the poetic diction of the neoclassical poets, at its worst, erects needless barriers between reader and meaning, that envisioned by Johnson would do just the opposite: it would put the reader in closer contact with the "things" that are the poem's subject.

1. The author of the passage develops her points about Johnson primarily by
  - (A) contrasting Johnson's critical methods with those of his contemporaries
  - (B) citing specific illustrations drawn from Johnson's work
  - (C) alluding to contemporary comments about Johnson's theories
  - (D) quoting Johnson's remarks about the critical approaches prevalent in his own day
  - (E) emphasizing the fallacies inherent in the most common view of Johnson
2. The passage implies that the judging of literary works according to preconceived rules

- (A) tends to lessen the effectiveness of much modern literary criticism
  - (B) is the primary distinguishing mark of the neoclassical critic
  - (C) was the primary neoclassical technique against which the Romantics rebelled
  - (D) is the underlying basis of much of Johnson's critical work
  - (E) characterizes examples of the worst neoclassical criticism
3. The passage implies that the neoclassical critics generally condemned
- (A) Shakespeare's use of the "tragicomic" (line 18) literary mode
  - (B) the slavish following of the "three unities" (line 16) in drama
  - (C) attempts to judge literary merit on the basis of "correctness" (line 28)
  - (D) artificiality and abstraction in literary works
  - (E) the use of a special diction in the writing of poetry
4. According to the author, Johnson's defense of Shakespeare's latest plays illustrates Johnson's reliance on which of the following in his criticism?
- (A) The sentiments endorsed by the Romantics
  - (B) The criteria set forth by Wordsworth in his 1800 preface to the *Lyrical Ballads*
  - (C) The precedents established by the Greek and Roman playwrights of the Classical Age
  - (D) The principles followed by the neoclassical school of criticism
  - (E) His own experience and judgment
5. According to the passage, Johnson's opinion of Addison's *Cato* was
- (A) roundly condemnatory
  - (B) somewhat self-contradictory
  - (C) ultimately negative
  - (D) effusively adulatory
  - (E) uncharacteristically bold
6. According to the passage, Johnson's views on the use of a special diction in the writing of poetry were
- (A) "modern" in their rejection of a clear-cut division between the diction of poetry and that of prose
  - (B) "neoclassical" in their emphasis on the use of language that appeals directly to the emotions of the reader
  - (C) "Romantic" in their defense of the idea that a special diction for poetry could be stylistically effective
  - (D) "modern" in their underlying concern for the impact of the literary work on the sensibility of the reader
  - (E) "neoclassical" in their emphasis on ease of comprehension as a literary virtue

7. It can be inferred from the passage that in addition to being a literary critic, Johnson was also a
- (A) surprisingly modern poet
  - (B) poet in the Augustan mode
  - (C) dramatist
  - (D) biographer
  - (E) naturalist
8. Which one of the following statements best summarizes the main point of the passage?
- (A) Although many of Johnson's critical opinions resemble those of the neoclassical critics, his basic concerns are closer to those of the Romantics.
  - (B) The usual classification of Johnson as a member of the neoclassical school of criticism is based on an inaccurate evaluation of his critical theories and ideals.
  - (C) The Romantic critics were mistaken in their belief that the critical ideas they formulated represented a departure from those propounded by Johnson.
  - (D) Although many of Johnson's critical opinions resemble those of the Romantic critics, his basic concerns are closer to those of the neoclassical critics.
  - (E) Johnson's literary criticism represents an attempt to unify the best elements of the neoclassical and the Romantic schools of criticism.
9. The author of the passage is primarily concerned with
- (A) defending a reputation
  - (B) reconciling conflicting views
  - (C) comparing two schools of thought
  - (D) challenging an assumption
  - (E) presenting new evidence in support of an established theory

### Passage 97 (12/15)

The idea of building "New Towns" to absorb growth is frequently considered a cure-all for urban problems. It is erroneously assumed that if new residents can be diverted from existing centers, the present urban situation at least will get no worse. It is further and equally erroneously assumed that since European New Towns have been financially and socially successful, we can expect the same sorts of results in the United States.

Present planning, thinking, and legislation will not produce the kinds of New Town that have been successful abroad. It will multiply suburbs or encourage developments in areas where land is cheap and construction profitable rather than where New Towns are genuinely needed.

Such ill-considered projects not only will fail to relieve pressures on existing cities but will, in fact, tend to weaken those cities further by drawing away high-income citizens and

increasing the concentration of low-income groups that are unable to provide tax income. The remaining taxpayers, accordingly, will face increasing burdens, and industry and commerce will seek escape. Unfortunately, this mechanism is already at work in some metropolitan areas.

The promoters of New Towns so far in the United States have been developers, builders, and financial institutions. The main interest of these promoters is economic gain. Furthermore, federal regulations designed to promote the New Town idea do not consider social needs as the European New Town plans do. In fact, our regulations specify virtually all the ingredients of the typical suburban community, with a bit of political rhetoric thrown in.

A workable American New Town formula should be established as firmly here as the national formula was in Britain. All possible social and governmental innovations as well as financial factors should be thoroughly considered and accommodated in this policy. Its objectives should be clearly stated, and both incentives and penalties should be provided to ensure that the objectives are pursued. If such a policy is developed, then the New Town approach can play an important role in alleviating America's urban problems.

1. The passage contains information that answers which of the following questions?
  - (A) Where did the idea of New Towns originate?
  - (B) How does Britain's New Town formula differ from that of other European countries?
  - (C) What is the purpose of building New Towns?
  - (D) What incentives and penalties will be necessary to make a New Town formula workable?
  - (E) Why have European New Towns been financially successful?
2. The author believes that New Towns are not being built where they are genuinely needed because
  - (A) the government offers developers incentives to build in other areas
  - (B) the promoters of New Town are motivated chiefly by self-interest
  - (C) few people want to live in areas where land is still cheap
  - (D) no studies have been done to determine the best locations
  - (E) federal regulations make construction in those areas less profitable
3. According to the author, ill-considered New Towns will tend to weaken existing cities in which of the following ways?
  - I. They will cause an erosion in the tax base of existing cities.
  - II. They will divert residents from existing cities to other areas.
  - III. They will increase the number of low-income residents in existing cities.
  - (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III

4. According to the passage, as compared with American New Towns, European New Towns have been designed with greater concern for
  - (A) social needs
  - (B) financial factors
  - (C) urban congestion
  - (D) the profits of developers and builders
  - (E) the environment
5. The author's tone in discussing "developers, builders, and financial institutions" (lines 25-26) can best be described as
  - (A) critical
  - (B) pedantic
  - (C) evasive
  - (D) captious
  - (E) vitriolic
6. It can be inferred from the passage that the author believes which of the following about suburbs?
  - (A) They are a panacea for urban problems.
  - (B) They will soon be plagued by the same problems that now plague cities.
  - (C) They are poor models for New Towns.
  - (D) They drive up property values in inner cities.
  - (E) They alleviate some, but not all, of America's urban problems.
7. It can be inferred from the passage that the author considers the present American New Town formula to be
  - (A) thoroughly considered
  - (B) insufficiently innovative
  - (C) potentially workable
  - (D) overly restrictive
  - (E) financially sound
8. The author of the passage is primarily concerned with
  - (A) arguing for a change in policy
  - (B) exploring the implications of novel idea
  - (C) comparing and contrasting two manifestations of the same phenomenon
  - (D) proposing a radically new solution to an old problem
  - (E) summarizing recent research on a topic

**Passage 98 (13/15)**

In reaction to a rigid, overrefined classical curriculum, some educational philosophers have

swung sharply to an espousal of “life experience” as the sole source of learning. Using their narrow interpretation of John Dewey’s theories for support and spouting such phrases as “Teach the child, not the subject,” they demand an end to rigorous study and insist that only through doing can learning take place. While not all adherents to this philosophy would totally eliminate the study of great books, the gradual subordination of literature in the school curriculum reflects their influence.

What is the purpose of literature? Why read if life alone is to be our teacher? James Joyce tells us that the artist reveals the human condition by re-creating life out of life; Aristotle, that art presents universal truths because its form is taken from nature. Thus, consciously or otherwise, great writers extend our understanding of ourselves and our world. We can soar with them to the heights of aspiration or plummet with them to the depths of despair. How much wider is the understanding we gain from reading than from viewing life through the keyhole of our individual experience.

This function of literature, the enlarging of our life sphere, is of major importance in itself. Additionally, however, literature suggests solutions to social problems. The overweening ambitions of political leaders—and their sneering contempt for the law—did not appear for the first time in the writings of Bernstein and Woodward. The problems and behavior of the guilt-ridden did not await the appearance of the bearded psychoanalysts of the nineteenth century.

Federal Judge Learned Hand wrote, “I venture to believe that it is as important to a judge called upon to pass on a question of constitutional law, to have at least a bowing acquaintance with Thucydides, Gibbon, and Carlyle, with Homer, Dante, Shakespeare, and Milton, with Montaigne and Rabelais, with Plato, Bacon, Hume, and Kant, as with the books which have been specifically written on the subject. For in such matters everything turns upon the spirit in which he approaches the questions before him.”

How do we overcome our dissenter? We must start with the field of agreement: the belief that education should serve to improve the individual and society. We must persuade our dissenters that the voices of human experience stretch our human faculties and open us to learning. We must convince them of the unity of life and art. We must prove to them that far from being separate, literature is that part of life that illumines life.

1. The primary purpose of the passage is to
  - (A) list the writers who make up the backbone of a great literature curriculum
  - (B) explain the function of literature
  - (C) advocate the adoption of a new philosophy of education
  - (D) plead for the retention of great literature as a fundamental part of the school curriculum
  - (E) overcome the opposition of Dewey’s followers to the inclusion of contemporary literature in the curriculum
2. It can be inferred from the passage that the author considers those who believe in “‘life experience’ as the sole source of learning” (line 3) to be
  - (A) practical



- (B) progressive
  - (C) misguided
  - (D) inflexible
  - (E) ignorant
3. Based on the information in the passage, with which of the following statements about education would John Dewey be most likely to agree?
- (A) Education should be a continuous reconstruction of living experience, with the child the center of concern.
  - (B) Education is the imparting of knowledge, not the drawing out of what is already in the child.
  - (C) Though rigid, the classical curriculum has served us well for centuries and should be restored.
  - (D) The purpose of education is to correct the inequalities brought about by the rise of civilization.
  - (E) Children should be taught only the skills and knowledge they need to get ahead.
4. The author implies that children who learn exclusively by doing are likely to
- (A) be good problem solvers but poor judges
  - (B) be more guilt-ridden than those who learn both by doing and reading
  - (C) have below-average reading skills
  - (D) believe that art has nothing to do with life
  - (E) have a myopic view of themselves and the world
5. Which of the following best describes the organization of the third paragraph of the passage?
- (A) An idea is reiterated, a new idea is introduced, and two supporting examples are given.
  - (B) The preceding paragraph is summarized and conclusions are drawn.
  - (C) A new idea is introduced, the idea is qualified, and the implications of the idea are analyzed.
  - (D) The main idea of the preceding paragraph is restated, and evidence is given to support it.
  - (E) Two functions of literature are identified, and an example of each is given.
6. The author quotes Judge Learned Hand (lines 32-41 primarily in order to
- (A) call attention to the writing of Thucydides and Carlyle
  - (B) support the point that literature broadens the reader's understanding
  - (C) point out that constitutional law is a part of the great literature of the past
  - (D) show that everyone, including judges, enjoys reading
  - (E) give specific examples of writers who have suggested solutions to social

problems

7. Which of the following could best be substituted for the words “the subject” (line 39) in the quotation from Judge Hand without altering the meaning of the quotation?
- (A) The question of constitutional law before the judge
  - (B) The contempt of political leaders for the law
  - (C) Social problems
  - (D) The liberal arts, specifically history, literature, and philosophy
  - (E) The human condition
8. The passage supplies information to suggest that the author and the educational philosophers mentioned in the first paragraph would agree that
- (A) learning is the key to adaptability in an ever-changing environment
  - (B) the traditional classroom should be transformed into a learning laboratory
  - (C) the purpose of education is to improve society as well as the individual
  - (D) one must know history in order to understand the present and the future
  - (E) the primary aim of education is the transmission of culture
9. It can be inferred from the passage that the author makes which of the following assumptions about his readers?
- (A) They believe that schools should reflect society.
  - (B) They believe that the subject, not the child, should be taught.
  - (C) They favor a return to the classical curriculum.
  - (D) They share his view that the study of great books is essential to education.
  - (E) They believe that only through reading can learning take place.

### Passage 99 (14/15)

Methods for typing blood were developed around the turn of the century, about the same time that fingerprints were first used for identification. Only in the last decade or two, however, have scientists begun to believe that genetic markers in blood and other bodily fluids may someday prove as useful in crime detection as fingerprints.

The standard ABO blood typing has long been used as a form of negative identification. Added sophistication came with the discovery of additional subgroups of genetic markers in blood and with the discovery that genetic markers are present not only in blood but also in other bodily fluids, such as perspiration and saliva.

These discoveries were of little use in crime detection, however, because of the circumstances in which police scientists must work. Rather than a plentiful sample of blood freshly drawn from a patient, the crime laboratory is likely to receive only a tiny fleck of dried blood of unknown age from an unknown “donor” on a shirt or a scrap of rag that has spent hours or days exposed to air, high temperature, and other contaminants.

British scientists found a method for identifying genetic markers more precisely in small samples. In this process, called electrophoresis, a sample is placed on a tray containing a gel through which an electrical current is then passed. A trained analyst reads the resulting patterns in the gel to determine the presence of various chemical markers.

Electrophoresis made it possible to identify several thousand subgroups of blood types rather than the twelve known before. However, the equipment and special training required were expensive. In addition, the process could lead to the destruction of evidence. For example, repeated tests of a blood-flecked shirt—one for each marker—led to increasing deterioration of the evidence and the cost of a week or more of laboratory time.

It remained for another British researcher, Brian Wrexall, to demonstrate that simultaneous analyses, using an inexpensive electrophoresis apparatus, could test for ten different genetic markers within a 24-hour period. This development made the study of blood and other fluid samples an even more valuable tool for crime detection.

1. The author of the passage is primarily concerned with describing
  - (A) how advances in crime detection methods have led to new discoveries in science
  - (B) various ways in which crime detection laboratories assist the police
  - (C) the development of new scientific tools for use in crime detection
  - (D) areas of current research in the science of crime detection
  - (E) developments in genetic research and their application to crime detection
2. It can be inferred from the passage that electrophoresis resembles fingerprinting in that both
  - (A) provide a form of negative identification in crime detection
  - (B) were first developed by British scientists
  - (C) may be used to help identify those who were present at the time of a crime
  - (D) were developed by scientists at around the same time
  - (E) must be employed almost immediately after a crime to be effective
3. The author sets off the word “donor” (line 18) with quotation marks in order to
  - (A) emphasize that most of the blood samples received by crime laboratories come from anonymous sources
  - (B) underscore the contrast between the work done in a crime laboratory and that done in a blood bank
  - (C) call attention to the fact that, because of underfunding, crime laboratories are forced to rely on charitable contributions
  - (D) show that the word is being used in a technical, rather than a general, sense
  - (E) indicate that the blood samples received by crime laboratories are not given freely
4. The passage contains information that would answer which of the following questions?

- (A) Is evidence of genetic markers in bodily fluids admissible in court?
  - (B) Can electrophoresis be used to identify genetic markers in saliva?
  - (C) How many subgroups of blood types are currently identifiable?
  - (D) How accurate is the process of electrophoresis?
  - (E) How many tests for genetic markers must police scientists run in order to establish the identity of a criminal?
5. According to the passage, all of the following may reduce the usefulness of a fluid sample for crime detection EXCEPT
- (A) the passage of time
  - (B) discoloration or staining
  - (C) exposure to heat
  - (D) the small size of the sample
  - (E) exposure to contaminants
6. The passage implies that electrophoresis may help scientists determine
- (A) whether or not a sample of blood could have come from a particular person
  - (B) the age and condition of a dried specimen of blood or other bodily fluid
  - (C) when and where a crime was probably committed
  - (D) the cause of death in homicide cases
  - (E) the age, gender, and ethnic background of an unknown criminal suspect
7. According to the passage, Brian Wrexall's refinement of electrophoresis led to
- (A) more accurate test results
  - (B) easier availability of fluid samples
  - (C) wider applicability of genetic analysis
  - (D) increased costs of testing
  - (E) more rapid testing
8. Which of the following statements about genetic markers can be inferred from the passage?
- I. They carry an electrical charge.
  - II. They cannot be identified through standard ABO blood typing.
  - III. They were of no use in crime detection before the invention of electrophoresis.
- (A) I only
  - (B) II only
  - (C) III only
  - (D) II and III only
  - (E) I, II, and III

*Passage 100 (15/15)*

The delegates to the Constitutional Convention were realists. They knew that the greatest battles would take place after the convention, once the Constitution had already been drafted and signed. The delegates had overstepped their bounds. Instead of amending the Articles of Confederation by which the American states had previously been governed, they had proposed an entirely new government. Under these circumstances, the convention was understandably reluctant to submit its work to the Congress for approval.

Instead, the delegates decided to pursue what amounted to a revolutionary course. They declared that ratification of the new Constitution by nine states would be sufficient to establish the new government. In other words, the Constitution was being submitted directly to the people. Not even the Congress, which had called the convention, would be asked to approve its work.

The leaders of the convention shrewdly wished to bypass the state legislatures, which were attached to states' rights and which required in most cases the agreement of two houses. For speedy ratification of the Constitution, the single-chambered, specially elected state ratifying conventions offered the greatest promise of agreement.

Battle lines were quickly drawn. The Federalists, as the supporters of the Constitution were called, had one solid advantage: they came with a concrete proposal. Their opponents, the Antifederalists, came with none. Since the Antifederalists were opposing something with nothing, their objections, though sincere, were basically negative. They stood for a policy of drift while the Federalists were providing clear leadership.

Furthermore, although the Antifederalists claimed to be the democratic group, their opposition to the Constitution did not necessarily spring from a more democratic view of government. Many of the Antifederalists were as distrustful of the common people as their opponents. In New York, for example, Governor George Clinton criticized the people for their fickleness and their tendency to "vibrate from one extreme to another." Elbridge Gerry of Massachusetts, who refused to sign the Constitution, asserted that "the evils we experience flow from the excess of democracy," and John F. Mercer of Maryland professed little faith in his neighbors as voters when he said that "the people cannot know and judge the character of candidates."

1. The author is primarily concerned with
  - (A) contrasting the opposing sides in a battle
  - (B) analyzing the effects of an event
  - (C) urging a reassessment of history
  - (D) criticizing the opponents of a plan
  - (E) describing the background of conflict
2. According to the passage, the delegates to the Constitutional Convention did not submit their work to Congress for approval because
  - (A) they knew that most members of congress would want to broaden the powers of the national government

- (B) it was unclear whether Congress had the legal right to offer or withhold such approval
  - (C) they considered it more democratic to appeal directly to the citizens of the separate states
  - (D) they believed that Congress would not accept the sweeping changes they had proposed
  - (E) Congress was dominated by a powerful group of Antifederalist leaders
3. According to the passage, in contrast to most state legislatures, state ratifying conventions were
- (A) elected
  - (B) unicameral
  - (C) characterized by strong leadership
  - (D) nearly unanimous in their support of the new Constitution
  - (E) opposed to states' rights
4. The author characterizes the leaders of the Constitutional Convention as
- (A) shrewd and visionary
  - (B) liberal and enlightened
  - (C) radical and idealistic
  - (D) clever and pragmatic
  - (E) eloquent and persuasive
5. In stating that the Antifederalists “were opposing something with nothing” (line 28), the author suggests that the Antifederalists
- (A) based most of their arguments on their antidemocratic sentiments
  - (B) lacked leaders who were as articulate as the Federalist leaders
  - (C) were unable to rally significant support for their position among the populace
  - (D) had few reasonable arguments to put forth in support of their position
  - (E) offered no alternative plan of government of their own
6. Which of the following statements about Elbridge Gerry can be inferred from the passage?
- (A) He was a delegate to the Massachusetts state ratifying convention.
  - (B) He was a delegate to the Constitutional Convention.
  - (C) He was the architect of the “policy of drift” (line 30) advocated by the Antifederalists.
  - (D) He claimed to have a more democratic view of government than the Federalists.
  - (E) He was one of the leaders of the Antifederalist Party.
7. The author’s quotation of John F. Mercer (lines 43-45) serves which of the



following functions in the passage?

- (A) It summarizes the last paragraph.
  - (B) It furnishes a concrete example.
  - (C) It articulates the main point of the passage.
  - (D) It clarifies the preceding quotation.
  - (E) It expresses a general conclusion.
8. Which of the following would be the most appropriate title for the passage?
- (A) Divided Leadership at the Constitutional Convention
  - (B) How the Constitution Became Law
  - (C) The U.S. Constitution: Its Strengths and Weaknesses
  - (D) The Battle for Ratification of the Constitution
  - (E) The Views of the Antifederalists on Democracy

#### 四、OG 新增 17Passages

##### Passage 101 (1/17)

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

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

I believe that the evidence of her letters supports continued respect for Nightingale's brilliance and creativity. When counseling a village schoolmaster to encourage children to use their faculties of observation, she sounds like a modern educator. Her insistence on classifying the problems of the needy in order to devise appropriate treatments is similar to the approach of modern social workers. In sum, although Nightingale may not have achieved all of her goals

during the Crimean War, her breadth of vision and ability to realize ambitious projects have earned her an eminent place among the ranks of social pioneers.

73. The passage is primarily concerned with evaluating
- (A) the importance of Florence Nightingale's innovations in the field of nursing
  - (B) contrasting approaches to the writing of historical biography
  - (C) contradictory accounts of Florence Nightingale's historical significance
  - (D) the quality of health care in nineteenth-century England
  - (E) the effect of the Crimean War on developments in the field of health care
74. According to the passage, the editors of Nightingale's letters credit her with contributing to which of the following?
- (A) Improving of the survival rate for soldiers in British Army hospitals during the Crimean War
  - (B) The development of a nurses' training curriculum that was far in advance of its day
  - (C) The increase in the number of women doctors practicing in British Army hospitals
  - (D) Establishment of the first facility for training nurses at a major British university
  - (E) The creation of an organization for monitoring the peacetime living conditions of British soldiers
75. The passage suggests which of the following about Nightingale's relationship with the British public of her day?
- (A) She was highly respected, her projects receiving popular and governmental support.
  - (B) She encountered resistance both from the army establishment and the general public.
  - (C) She was supported by the working classes and opposed by the wealthier classes.
  - (D) She was supported by the military establishment but had to fight the governmental bureaucracy.
  - (E) After initially being received with enthusiasm, she was quickly forgotten.
76. The passage suggests which of the following about sanitary conditions in Britain after the Crimean War?
- (A) While not ideal, they were superior to those in other parts of the world.
  - (B) Compared with conditions before the war, they had deteriorated.
  - (C) They were more advanced in rural areas than in the urban centers.
  - (D) They were worse in military camps than in the neighboring civilian populations.

- (E) They were uniformly crude and unsatisfactory throughout England.
77. Which of the following statements regarding the differing interpretations of Nightingale's importance would the author most likely agree?
- (A) Summers misunderstood both the importance of Nightingale's achievements during the Crimean War and her subsequent influence on British policy.
- (B) The editors of Nightingale's letters made some valid points about her practical achievements, but they still exaggerated her influence on subsequent generations.
- (C) Although Summers' account of Nightingale's role in the Crimean War may be accurate, she ignored evidence of Nightingale's subsequent achievement that suggests that her reputation as an eminent social reformer is well deserved.
- (D) The editors of Nightingale's letters mistakenly propagated the outdated idealization of Nightingale that only impedes attempts to arrive at a balance assessment of her true role.
- (E) The evidence of Nightingale's letters supports Summers' conclusions both about Nightingale's activities and about her influence.
78. Which of the following is an assumption underlying the author's assessment of Nightingale's creativity?
- (A) Educational philosophy in Nightingale's day did not normally emphasize developing children's ability to observe.
- (B) Nightingale was the first to notice the poor living conditions in British military barracks in peacetime.
- (C) No educator before Nightingale had thought to enlist the help of village schoolmasters in introducing new teaching techniques.
- (D) Until Nightingale began her work, there was no concept of organized help for the needy in nineteenth-century Britain.
- (E) The British Army's medical services had no cost-accounting system until Nightingale devised one in the 1860's.
79. In the last paragraph, the author is primarily concerned with
- (A) summarizing the arguments about Nightingale presented in the first two paragraphs
- (B) refuting the view of Nightingale's career presented in the preceding paragraph
- (C) analyzing the weaknesses of the evidence presented elsewhere in the passage
- (D) citing evidence to support a view of Nightingale's career
- (E) correcting a factual error occurring in one of the works under review

### Passage 102 (2/17)

A meteor stream is composed of dust particles that have been ejected from a parent comet at a variety of velocities. These particles follow the same orbit as the parent comet, but due to

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

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

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

80. The primary focus of the passage is on which of the following?
- (A) Comparing two scientific theories and contrasting the predictions that each would make concerning a natural phenomenon
  - (B) Describing a new theoretical model and noting that it explains the nature of observations made of a particular natural phenomenon
  - (C) Evaluating the results of a particular scientific experiment and suggesting further areas for research
  - (D) Explaining how two different natural phenomena are related and demonstrating a way to measure them
  - (E) Analyzing recent data derived from observations of an actual phenomenon and constructing a model to explain the data
81. According to the passage, which of the following is an accurate statement concerning meteor streams?
- (A) Meteor streams and comets start out with similar orbits, but only those of meteor streams are perturbed by planetary gravitation.
  - (B) Meteor streams grow as dust particles are attracted by the gravitational fields of comets.
  - (C) Meteor streams are composed of dust particles derived from comets.

- (D) Comets may be composed of several kinds of materials, while meteor streams consist only of large dust particles.
- (E) Once formed, meteor streams hasten the further disintegration of comets.
82. The author states that the research described in the first paragraph was undertaken in order to
- (A) determine the age of an actual meteor stream
- (B) identify the various structural features of meteor streams
- (C) explore the nature of a particularly interesting meteor stream
- (D) test the hypothesis that meteor streams become broader as they age
- (E) show that a computer model could help in explaining actual astronomical data
83. It can be inferred from the passage that which of the following would most probably be observed during the Earth's passage through a meteor stream if the conventional theories mentioned in line 18 were correct?
- (A) Meteor activity would gradually increase to a single, intense peak, and then gradually decline.
- (B) Meteor activity would be steady throughout the period of the meteor shower.
- (C) Meteor activity would rise to a peak at the beginning and at the end of the meteor shower.
- (D) Random bursts of very high meteor activity would be interspersed with periods of very little activity.
- (E) In years in which the Earth passed through only the outer areas of a meteor stream, meteor activity would be absent.
84. According to the passage, why do the dust particles in a meteor stream eventually surround a comet's original orbit?
- (A) They are ejected by the comet at differing velocities.
- (B) Their orbits are uncontrolled by planetary gravitational fields.
- (C) They become part of the meteor stream at different times.
- (D) Their velocity slows over time.
- (E) Their ejection velocity is slower than that of the comet.
85. The passage suggests that which of the following is a prediction concerning meteor streams that can be derived from both the conventional theories mentioned in line 18 and the new computer-derived theory?
- (A) Dust particles in a meteor stream will usually be distributed evenly throughout any cross section of the stream.
- (B) The orbits of most meteor streams should cross the orbit of the Earth at some point and give rise to a meteor shower.
- (C) Over time the distribution of dust in a meteor stream will usually become denser at the outside edges of the stream than at the center.

- (D) Meteor showers caused by older meteor streams should be, on average, longer in duration than those caused by very young meteor streams.
- (E) The individual dust particles in older meteor streams should be, on average, smaller than those that compose younger meteor streams.
86. It can be inferred from the last paragraph of the passage that which of the following must be true of the Earth as it orbits the Sun?
- (A) Most meteor streams it encounters are more than 2,000 years old.
- (B) When passing through a meteor stream, it usually passes near to the stream's center.
- (C) It crosses the Geminid meteor stream once every year.
- (D) It usually takes over a day to cross the actual Geminid meteor stream.
- (E) It accounts for most of the gravitational perturbation affecting the Geminid meteor stream.
87. Which of the following is an assumption underlying the last sentence of the passage?
- (A) In each of the years between 1970 and 1979, the Earth took exactly 19 hours to cross the Geminid meteor stream.
- (B) The comet associated with the Geminid meteor stream has totally disintegrated.
- (C) The Geminid meteor stream should continue to exist for at least 5,000 years.
- (D) The Geminid meteor stream has not broadened as rapidly as the conventional theories would have predicted.
- (E) The computer-model Geminid meteor stream provides an accurate representation of the development of the actual Geminid stream.

### Passage 103 (3/17)

The new school of political history that emerged in the 1960's and 1970's sought to go beyond the traditional focus of political historians on leaders and government institutions by examining directly the political practices of ordinary citizens. Like the old approach, however, this new approach excluded women. The very techniques these historians used to uncover mass political behavior in the nineteenth-century United States—quantitative analyses of election returns, for example—were useless in analyzing the political activities of women, who were denied the vote until 1920.

By redefining "political activity," historian Paula Baker has developed a political history that includes women. She concludes that among ordinary citizens, political activism by women in the nineteenth century prefigured trends in twentieth-century politics. Defining "politics" as "any action taken to affect the course of behavior of government or of the community," Baker concludes that, while voting and holding office were restricted to men, women in the nineteenth century organized themselves into societies committed to social issues such as temperance and poverty. In other words, Baker contends, women activists were early



practitioners of nonpartisan, issue-oriented politics and thus were more interested in enlisting lawmakers, regardless of their party affiliation, on behalf of certain issues than in ensuring that one party or another won an election. In the twentieth century, more men drew closer to women's ideas about politics and took up modes of issue-oriented politics that Baker sees women as having pioneered.

131. The primary purpose of the passage is to
- (A) enumerate reason why both traditional scholarly methods and newer scholarly methods have limitations
  - (B) identify a shortcoming in a scholarly approach and describe an alternative approach
  - (C) provide empirical data to support a long-held scholarly assumption
  - (D) compare two scholarly publications on the basis of their authors' backgrounds
  - (E) attempt to provide a partial answer to a long-standing scholarly dilemma
132. The passage suggests which of the following concerning the techniques used by the new political historians described in the first paragraph of the passage?
- (A) They involved the extensive use of the biographies of political party leaders and political theoreticians.
  - (B) They were conceived by political historians who were reacting against the political climates of the 1960s and 1970s.
  - (C) They were of more use in analyzing the positions of United States political parties in the nineteenth century than in analyzing the positions of those in the twentieth century.
  - (D) They were of more use in analyzing the political behavior of nineteenth-century voters than in analyzing the political activities of those who could not vote during that period.
  - (E) They were devised as a means of tracing the influence of nineteenth-century political trends on twentieth-century political trends.
133. It can be inferred that the author of the passage quotes Baker directly in the second paragraph primarily in order to
- (A) clarify a position before providing an alternative of that position
  - (B) differentiate between a novel definition and traditional definitions
  - (C) provide an example of a point agreed on by different generations of scholars
  - (D) provide an example of the prose style of an important historian
  - (E) amplify a definition given in the first paragraph
134. According to the passage, Paula Baker and the new political historians of the 1960's and 1970's shared which of the following?
- (A) A commitment to interest-group politics
  - (B) A disregard for political theory and ideology
  - (C) An interest in the ways in which nineteenth-century politics prefigured

- contemporary politics
- (D) A reliance on such quantitative techniques as the analysis of election returns
- (E) An emphasis on the political involvement of ordinary citizens
135. Which of the following best describes the structure of the first paragraph of the passage?
- (A) Two scholarly approaches are compared, and a shortcoming common to both is identified.
- (B) Two rival schools of thought are contrasted, and a third is alluded to.
- (C) An outmoded scholarly approach is described, and a corrective approach is called for.
- (D) An argument is outlined, and counterarguments are mentioned.
- (E) A historical era is described in terms of its political trends.
136. The information in the passage suggests that a pre-1960's political historian would have been most likely to undertake which of the following studies?
- (A) An analysis of voting trends among women voters of the 1920's
- (B) A study of male voters' gradual ideological shift from party politics to issue-oriented politics
- (C) A biography of an influential nineteenth-century minister of foreign affairs
- (D) An analysis of narratives written by previously unrecognized women activists
- (E) A study of voting trends among naturalized immigrant laborers in a nineteenth-century logging camp

### Passage 104 (4/17)

New observations about the age of some globular clusters in our Milky Way galaxy have cast doubt on a long-held theory about how the galaxy was formed. The Milky Way contains about 125 globular clusters (compact groups of anywhere from several tens of thousands to perhaps a million stars) distributed in a roughly spherical halo around the galactic nucleus. The stars in these clusters are believed to have been born during the formation of the galaxy, and so may be considered relics of the original galactic nebula, holding vital clues to the way the formation took place.

The conventional theory of the formation of the galaxy contends that roughly 12 to 13 billion years ago the Milky Way formed over a relatively short time (about 200 million years) when a spherical cloud of gas collapsed under the pressure of its own gravity into a disc surrounded by a halo. Such a rapid formation of the galaxy would mean that all stars in the halo should be very nearly the same age.

However, the astronomer Michael Bolte has found considerable variation in the ages of globular clusters. One of the clusters studied by Bolte is 2 billions years older than most other clusters in the galaxy, while another is 2 billion years younger. A colleague of Bolte contends that the cluster called Palomar 12 is 5 billion years younger than most other globular clusters.

To explain the age differences among the globular clusters, astronomers are taking a second look at “renegade” theories. One such newly fashionable theory, first put forward by Richard Larson in the early 1970’s, argues that the halo of the Milky Way formed over a period of a billion or more years as hundreds of small gas clouds drifted about, collided, lost orbital energy, and finally collapsed into a centrally condensed elliptical system. Larson’s conception of a “lumpy and turbulent” protogalaxy is complemented by computer modeling done in the 1970’s by mathematician Alan Toomre, which suggests that closely interacting spiral galaxies could lose enough orbital energy to merge into a single galaxy.

137. The passage is primarily concerned with discussing
- (A) the importance of determining the age of globular clusters in assessing when the Milky Way galaxy was formed
  - (B) recent changes in the procedure used by astronomers to study the formation of the Milky Way galaxy
  - (C) current disputes among astronomers regarding the size and form of the Milky Way galaxy
  - (D) the effect of new discoveries regarding globular clusters on theories about the formation of the Milky Way galaxy
  - (E) the origin, nature, and significance of groups of stars known as globular clusters
138. According to the passage, one way in which Larson’s theory and the conventional theory of the formation of the Milky Way galaxy differs is in their assessment of the
- (A) amount of time it took to form the galaxy
  - (B) size of the galaxy immediately after its formation
  - (C) particular gas involved in the formation of the galaxy
  - (D) importance of the age of globular clusters in determining how the galaxy was formed
  - (E) shape of the halo that formed around the galaxy
139. Which of the following, if true, would be most useful in supporting the conclusions drawn from recent observations about globular clusters?
- (A) There is firm evidence that the absolute age of the Milky Way galaxy is between 10 and 17 billion years.
  - (B) A survey reveals that a galaxy close to the Milky Way galaxy contains globular clusters of ages close to the age of Palomar 12.
  - (C) A mathematical model proves that small gas clouds move in regular patterns.
  - (D) Space probes indicate that the stars in the Milky Way galaxy are composed of several different types of gas.
  - (E) A study of over 1,500 individual stars in the halo of the Milky Way galaxy indicates wide discrepancies in their ages.

140. If Bolte and his colleague are both correct, it can be inferred that the globular cluster Palomar 12 is approximately
- (A) 5 billion years younger than any other cluster in the galaxy
  - (B) the same age as most other clusters in the galaxy
  - (C) 7 billion years younger than another cluster in the galaxy
  - (D) 12 billion years younger than most other clusters in the galaxy
  - (E) 2 billion years younger than most other clusters in the galaxy
141. The passage suggests that Toomre's work complements Larson's theory because it
- (A) specifies more precisely the time frame proposed by Larson
  - (B) subtly alters Larson's theory to make it more plausible
  - (C) supplements Larson's hypothesis with direct astronomical observations
  - (D) provides theoretical support for the ideas suggested by Larson
  - (E) expands Larson's theory to make it more widely applicable
142. Which of the following most accurately states a finding of Bolte's research, as described in the passage?
- (A) The globular clusters in the Milky Way galaxy are 2 billion years older than predicted by the conventional theory.
  - (B) The ages of at least some globular clusters in the Milky Way galaxy differ by at least 4 billion years.
  - (C) One of the globular clusters in the Milky Way galaxy is 5 billion years younger than most others.
  - (D) The globular clusters in the Milky Way galaxy are significantly older than the individual stars in the halo.
  - (E) Most globular clusters in the Milky Way galaxy are between 11 and 15 billion years old.
143. The author of the passage puts the word "renegade" (line 29) in quotation marks most probably in order to
- (A) emphasize the lack of support for the theories in question
  - (B) contrast the controversial quality of the theories in question with the respectable character of their formulators
  - (C) generate skepticism about the theories in question
  - (D) ridicule the scientists who once doubted the theories in question
  - (E) indicate that the theories in question are no longer as unconventional as they once seemed

**Passage 105 (5/17)**

During the 1960's and 1970's, the primary economic development strategy of local

governments in the United States was to attract manufacturing industries. Unfortunately, this strategy was usually implemented at another community's expense: many manufacturing facilities were lured away from their moorings elsewhere through tax incentives and slick promotional efforts. Through the transfer of jobs and related revenues that resulted from this practice, one town's triumph could become another town's tragedy.

In the 1980's the strategy shifted from this zero-sum game to one called "high-technology development," in which local governments competed to attract newly formed high-technology manufacturing firms. Although this approach was preferable to victimizing other geographical areas by taking their jobs, it also had its shortcomings: high-tech manufacturing firms employ only a specially trained fraction of the manufacturing workforce, and there simply are not enough high-tech firms to satisfy all geographic areas.

Recently, local governments have increasingly come to recognize the advantages of yet a third strategy: the promotion of homegrown small businesses. Small indigenous businesses are created by a nearly ubiquitous resource, local entrepreneurs. With roots in their communities, these individuals are less likely to be enticed away by incentives offered by another community. Indigenous industry and talent are kept at home, creating an environment that both provides jobs and fosters further entrepreneurship.

144. The primary purpose of the passage is to

- (A) advocate more effective strategies for encouraging the development of high-technology enterprises in the United States
- (B) contrast the incentives for economic development offered by local governments with those offered by the private sector
- (C) acknowledge and counter adverse criticism of programs being used to stimulate local economic development
- (D) define and explore promotional efforts used by local governments to attract new industry
- (E) review and evaluate strategies and programs that have been used to stimulate economic development

145. The passage suggests which of the following about the majority of United States manufacturing industries before the high-technology development era of the 1980's?

- (A) They lost many of their most innovative personnel to small entrepreneurial enterprises.
- (B) They experienced a major decline in profits during the 1960's and 1970's.
- (C) They could provide real economic benefits to the areas in which they were located.
- (D) They employed workers who had no specialized skills.
- (E) They actively interfered with local entrepreneurial ventures.

146. The tone of the passage suggests that the author is most optimistic about the economic development potential of which of the following groups?

- (A) Local governments
  - (B) High-technology promoters
  - (C) Local entrepreneurs
  - (D) Manufacturing-industry managers
  - (E) Economic development strategists
147. The passage does NOT state which of the following about local entrepreneurs?
- (A) They are found nearly everywhere.
  - (B) They encourage further entrepreneurship.
  - (C) They attract out-of-town investors.
  - (D) They employ local workers.
  - (E) They are established in their communities.
148. The author of the passage mentions which of the following as an advantage of high-technology development?
- (A) It encourages the modernization of existing manufacturing facilities.
  - (B) It promotes healthy competition between rival industries.
  - (C) It encourages the growth of related industries.
  - (D) It takes full advantage of the existing workforce.
  - (E) It does not advantage one local workforce at the expense of another.

### Passage 106 (6/17)

Researchers compared the number of tooth fractures in present-day carnivores with tooth fractures in carnivores that lived 36,000 to 10,000 years ago and that were preserved in the Rancho La Brea tar pits in Los Angeles. The breakage frequencies in the extinct species were strikingly higher than those in the present-day species.

In considering possible explanations for this finding, the researchers dismissed demographic bias because older individuals were not overrepresented in the fossil samples. They rejected preservational bias because a total absence of breakage in two extinct species demonstrated that the fractures were not the result of abrasion within the pits. They ruled out local bias because breakage data obtained from other Pleistocene sites were similar to the La Brea data. The explanation they consider most plausible is behavioral differences between extinct and present-day carnivores—in particular, more contact between the teeth of predators and the bones of prey due to more thorough consumption of carcasses by the extinct species. Such thorough carcass consumption implies to the researchers either that prey availability was low, at least seasonally, or that there was intense competition over kills and a high rate of carcass theft due to relatively high predator densities.

231. The primary purpose of the passage is to
- (A) present several explanations for a well-known fact
  - (B) suggest alternative method of resolving a debate



- (C) argue in favor of a controversial theory
  - (D) question the methodology used in a study
  - (E) discuss the implications of a research finding
232. The passage suggests that, compared with Pleistocene carnivores in other areas, Pleistocene carnivores in the La Brea area
- (A) included the same species, in approximately the same proportions
  - (B) had a similar frequency of tooth fractures
  - (C) populated the La Brea more densely
  - (D) consumed their preys more thoroughly
  - (E) found it harder to obtain sufficiency prey
233. According to the passage, the researchers believes that the high frequency of tooth breakage in carnivores found at La Brea was caused primarily by
- (A) the aging process in individual carnivores
  - (B) contact between the fossils in the pits
  - (C) poor preservation of the fossils after they were removed from the pits
  - (D) the impact of carnivores' teeth against the bones of their prey
  - (E) the impact of carnivores' teeth against the bones of other carnivores during fights over kills
234. The researchers' conclusion concerning the absence of demographic bias would be most seriously undermined if it were found that
- (A) the older as individual carnivore is, the more likely it is to have a large number of tooth fractures
  - (B) the average age at death of a present-day carnivores is greater than was the average age at death of a Pleistocene carnivore
  - (C) in Pleistocene carnivore species, older individuals consumed carcasses as thoroughly as did younger individuals
  - (D) the methods used to determine animals' ages in fossil samples tend to misidentify many older individuals as younger individuals
  - (E) data concerning the ages of fossil samples cannot provide reliable information about behavioral differences between extinct carnivores and present-day carnivores
235. The passage suggests that if the researchers had not found that two extinct carnivore species were free of tooth breakage, the researchers would have concluded that
- (A) the difference in breakage frequencies could have been the result of damage to the fossil remains in the La Brea pits
  - (B) the fossils in other Pleistocene sites could have higher breakage frequencies than do the fossils in the La Brea pits

- (C) Pleistocene carnivore species probably behaved very similarly to one another with respect to consumption of carcass
- (D) all Pleistocene carnivores species differed behaviorally from present-day carnivore species
- (E) predator densities during the Pleistocene era were extremely high

### Passage 107 (7/17)

During the nineteenth-century, occupational information about women that was provided by the United States census—a population count conducted each decade—became more detailed and precise in response to social changes. Through 1840, simple enumeration by household mirrored a home-based agricultural economy and hierarchical social order: the head of the household (presumed male or absent) was specified by name, whereas other household members were only indicated by the total number of persons counted in various categories, including occupational categories. Like farms, most enterprises were family-run, so that the census measured economic activity as an attribute of the entire household, rather than of individuals.

The 1850 census, partly responding to antislavery and women's rights movements, initiated the collection of specific information about each individual in a household. Not until 1870 was occupational information analyzed by gender: the census superintendent reported 1.8 million women employed outside the home in "gainful and reputable occupations." In addition, he arbitrarily attributed to each family one woman "keeping house." Overlap between the two groups was not calculated until 1890, when the rapid entry of women into the paid labor force and social issues arising from industrialization were causing women's advocates and women statisticians to press for more thorough and accurate accounting of women's occupations and wages.

236. The primary purpose of the passage is to
- (A) explain and critique the methods used by early statisticians
  - (B) compare and contrast a historical situation with a current-day one
  - (C) describe and explain a historical change
  - (D) discuss historical opposition to an established institution
  - (E) trace the origin of a contemporary controversy
237. Each of the following aspects of nineteenth-century United States censuses is mentioned in the passage EXCEPT the
- (A) year in which data on occupations began to be analyzed by gender
  - (B) year in which specific information began to be collected on individuals in addition to the head of the household
  - (C) year in which overlap between women employed outside the home and women keeping house was first calculated
  - (D) way in which the 1890 census measured women's income levels and educational backgrounds

- (E) way in which household members were counted in the 1840 census
238. It can be inferred from the passage that the 1840 United States census provided a count of which of the following?
- (A) Women who worked exclusively in the home
  - (B) People engaged in nonfarming occupations
  - (C) People engaged in social movements
  - (D) Women engaged in family-run enterprises
  - (E) Men engaged in agriculture
239. The author uses the adjective “simple” in line 5 most probably to emphasize that the
- (A) collection of census information became progressively more difficult throughout the nineteenth-century
  - (B) technology for tabulating census information was rudimentary during the first half of the nineteenth century
  - (C) home-based agricultural economy of the early nineteenth century was easier to analyze than the later industrial economy
  - (D) economic role of women was better defined in the early nineteenth century than in the late nineteenth century
  - (E) information collected by early-nineteen-century censuses was limited in its amount of detail
240. The passage suggests which of the following about the “women’s advocates and women statisticians” mentioned in lines 27-28?
- (A) They wanted to call attention to the lack of pay for women who worked in the home.
  - (B) They believed that previous census information was inadequate and did not reflect certain economic changes in the United States.
  - (C) They had begun to press for changes in census-taking methods as part of their participation in the antislavery movement.
  - (D) They thought that census statistics about women would be more accurate if more women were employed as census officials.
  - (E) They had conducted independent studies that disputed the official statistics provided by previous United States censuses.

### Passage 108 (8/17)

The modern multinational corporation is described as having originated when the owner-managers of nineteenth-century British firms carrying on international trade were replaced by teams of salaried managers organized into hierarchies. Increases in the volume of transactions in such firms are commonly believed to have necessitated this structural change. Nineteenth-century inventions like the steamship and the telegraph, by facilitating coordination

of managerial activities, are described as key factors. Sixteenth- and seventeenth-century chartered trading companies, despite the international scope of their activities, are usually considered irrelevant to this discussion: the volume of their transactions is assumed to have been too low and the communications and transport of their day too primitive to make comparisons with modern multinationals interesting.

In reality, however, early trading companies successfully purchased and outfitted ships, built and operated offices and warehouses, manufactured trade goods for use abroad, maintained trading posts and production facilities overseas, procured goods for import, and sold those goods both at home and in other countries. The large volume of transactions associated with these activities seems to have necessitated hierarchical management structures well before the advent of modern communications and transportation. For example, in the Hudson's Bay Company, each far-flung trading outpost was managed by a salaried agent, who carried out the trade with the Native Americans, managed day-to-day operations, and oversaw the post's workers and servants. One chief agent, answerable to the Court of Directors in London through the correspondence committee, was appointed with control over all of the agents on the bay.

The early trading companies did differ strikingly from modern multinationals in many respects. They depended heavily on the national governments of their home countries and thus characteristically acted abroad to promote national interests. Their top managers were typically owners with a substantial minority share, whereas senior managers' holdings in modern multinationals are usually insignificant. They operated in a pre-industrial world, grafting a system of capitalist international trade onto a pre-modern system of artisan and peasant production. Despite these differences, however, early trading companies organized effectively in remarkably modern ways and merit further study as analogues of more modern structures.

241. The author's main point is that

- (A) modern multinationals originated in the sixteenth and seventeenth centuries with the establishment of chartered trading companies
- (B) the success of early chartered trading companies, like that of modern multinationals, depended primarily on their ability to carry out complex operations
- (C) early chartered trading companies should be more seriously considered by scholars studying the origins of modern multinationals
- (D) scholars are quite mistaken concerning the origins of modern multinationals
- (E) the management structures of early chartered trading companies are fundamentally the same as those of modern multinationals

242. According to the passage, early chartered trading companies are usually described as

- (A) irrelevant to a discussion of the origins of the modern multinational corporation
- (B) interesting but ultimately too unusually to be good subjects for economic study

- (C) analogues of nineteenth-century British trading firms
  - (D) rudimentary and very early forms of the modern multinational corporation
  - (E) important national institutions because they existed to further the political aims of the governments of their home countries
243. It can be inferred from the passage that the author would characterize the activities engaged in by early chartered trading companies as being
- (A) complex enough in scope to require a substantial amount of planning and coordination on the part of management
  - (B) too simple to be considered similar to those of a modern multinational corporation
  - (C) as intricate as those carried out by the largest multinational corporations today
  - (D) often unprofitable due to slow communications and unreliable means of transportation
  - (E) hampered by the political demands imposed on them by the governments of their home countries
244. The author lists the various activities of early chartered trading companies in order to
- (A) analyze the various ways in which these activities contributed to changes in management structure in such companies
  - (B) demonstrate that the volume of business transactions of such companies exceeded that of earlier firms
  - (C) refute the view that the volume of business undertaken by such companies was relatively low
  - (D) emphasize the international scope of these companies' operations
  - (E) support the argument that such firms coordinated such activities by using available means of communication and transport
245. With which of the following generalizations regarding management structures would the author of the passage most probably agree?
- (A) Hierarchical management structures are the most efficient management structures possible in a modern context.
  - (B) Firms that routinely have a high volume of business transactions find it necessary to adopt hierarchical management structures.
  - (C) Hierarchical management structures cannot be successfully implemented without modern communications and transportation.
  - (D) Modern multinational firms with a relatively small volume of business transactions usually do not have hierarchically organized management structures.
  - (E) Companies that adopt hierarchical management structures usually do so in order to facilitate expansion into foreign trade.

246. The passage suggests that modern multinationals differ from early chartered trading companies in that
- (A) the top managers of modern multinationals own stock in their own companies rather than simply receiving a salary
  - (B) modern multinationals depend on a system of capitalist international trade rather than on less modern trading systems
  - (C) modern multinationals have operations in a number of different foreign countries rather than merely in one or two
  - (D) the operations of modern multinationals are highly profitable despite the more stringent environmental and safety regulations of modern governments
  - (E) the overseas operations of modern multinationals are not governed by the national interests of their home countries
247. The author mentions the artisan and peasant production systems of early chartered trading companies as an example of
- (A) an area of operations of these companies that was unhampered by rudimentary systems of communications and transport
  - (B) a similarity that allows fruitful comparison of these companies with modern multinationals
  - (C) a positive achievement of these companies in the face of various difficulties
  - (D) a system that could not have emerged in the absence of management hierarchies
  - (E) a characteristic that distinguishes these companies from modern multinationals
248. The passage suggests that one of the reasons that early chartered trading companies deserve comparison with early modern multinationals is
- (A) the degree to which they both depended on new technology
  - (B) the similar nature of their management structures
  - (C) similarities in their top managements' degree of ownership in the company
  - (D) their common dependence on political stability abroad in order to carry on foreign operations
  - (E) their common tendency to revolutionize systems of production

### Passage 109 (9/17)

In an unfinished but highly suggestive series of essays, the late Sarah Eisenstein has focused attention on the evolution of working women's values from the turn of the century to the First World War. Eisenstein argues that turn-of-the-century women neither wholly accepted nor rejected what she calls the dominant "ideology of domesticity," but rather took this and other available ideologies—feminism, socialism, trade unionism—and modified or adapted them in light of their own experiences and needs. In thus maintaining that wage-work helped to produce a new "consciousness" among women, Eisenstein to some extent challenges the



recent, controversial proposal by Leslie Tentler that for women the work experience only served to reinforce the attractiveness of the dominant ideology. According to the Tentler, the degrading conditions under which many female wage earners worked made them view the family as a source of power and esteem available nowhere else in their social world. In contrast, Eisenstein's study insists that wage-work had other implications for women's identities and consciousness. Most importantly, her work aims to demonstrate that wage-work enabled women to become aware of themselves as a distinct social group capable of defining their collective circumstance. Eisenstein insists that as a group working-class women were not able to come to collective consciousness of their situation until they began entering the labor force, because domestic work tended to isolate them from one another.

Unfortunately, Eisenstein's unfinished study does not develop these ideas in sufficient depth or detail, offering tantalizing hints rather than an exhaustive analysis. Whatever Eisenstein's overall plan may have been, in its current form her study suffers from the limited nature of the sources she depended on. She uses the speeches and writings of reformers and labor organizers, who she acknowledges were far from representative, as the voice of the typical woman worker. And there is less than adequate attention given to the differing values of immigrant groups that made up a significant proportion of the population under investigation. While raising important questions, Eisenstein's essays do not provide definitive answer, and it remains for others to take up the challenges they offer.

249. The primary purpose of the passage is to
- (A) criticize a scholar's assumptions and methodology
  - (B) evaluate an approach to women's study
  - (C) compare two sociological theories
  - (D) correct a misconception about feminist theory
  - (E) defend an unpopular ideology
250. It can be inferred from the passage that, in Eisenstein's view, working women at the turn of the century had which of the following attitudes toward the dominant ideology of their time?
- (A) They resented the dominant ideology as degrading.
  - (B) They preferred the dominant ideology to other available ideologies.
  - (C) They began to view the dominant ideology more favorably as a result of their experiences in the labor force.
  - (D) They accepted some but not all aspects of the dominant ideology.
  - (E) They believed that the dominant ideology isolated them from one another.
251. Which of the following best describes the organization of the first paragraph of the passage?
- (A) A chronological account of a historical development is presented, and then future developments are predicted.
  - (B) A term is defined according to several different schools of thought, and then a new definition is formulated.

- (C) A theory is presented, an alternative viewpoint is introduced, and then the reasoning behind the initial theory is summarized.
  - (D) A tentative proposal is made, reasons for and against it are weighed, and then a modified version of the proposal is offered.
  - (E) A controversy is described, its historical implications are assessed, and then a compromise is suggested.
252. Which of the following would the author of the passage be most likely to approve as a continuation of Eisenstein's study?
- (A) An oral history of prominent women labor organizers
  - (B) An analysis of letters and diaries written by typical female wage earners at the turn of the century
  - (C) An assessment of what different social and political groups defined as the dominant ideology in the early twentieth century
  - (D) A theoretical study of how socialism and feminism influenced one another at the turn of the century
  - (E) A documentary account of labor's role in the introduction of women into the labor force

### Passage 110 (10/17)

Neotropical coastal mangrove forests are usually "zonal," with certain mangrove species found predominantly in the seaward portion of the habitat and other mangrove species on the more landward portions of the coast. The earliest research on mangrove forests produced descriptions of species distribution from shore to land, without exploring the causes of the distributions.

The idea that zonation is caused by plant succession was first expressed by J. H. Davis in a study of Florida mangrove forests. According to Davis' scheme, the shoreline is being extended in a seaward direction because of the "land-building" role of mangroves, which, by trapping sediments over time, extend the shore. As a habitat gradually becomes more inland as the shore extends, the "land-building" species are replaced. This continuous process of accretion and succession would be interrupted only by hurricanes or storm flushings.

Recently the universal application of Davis' succession paradigm has been challenged. It appears that in areas where weak currents and weak tidal energies allow the accumulation of sediments, mangroves will follow land formation and accelerate the rate of soil accretion; succession will proceed according to Davis' scheme. But on stable coastlines, the distribution of mangrove species results in other patterns of zonation; "land building" does not occur.

To find a principle that explains the various distribution patterns, several researchers have looked to salinity and its effects on mangrove. While mangroves can develop in fresh water, they can also thrive in salinities as high as 2.5 times that of seawater. However, those mangrove species found in freshwater habitats do well only in the absence of competition, thus suggesting that salinity tolerance is a critical factor in competitive success among mangrove species. Research suggests that mangroves will normally dominate highly saline regions,

although not because they require salt. Rather, they are metabolically efficient (and hence grow well) in portions of an environment whose high salinity excludes plants adapted to lower salinities. Tides create different degrees of salinity along a coastline. The characteristic mangrove species of each zone should exhibit a higher metabolic efficiency at that salinity than will any potential invader, including other species of mangrove.

253. The primary of the purpose of the passage is to
- (A) refute the idea that the zonation exhibited in mangrove forests is caused by adaptation to salinity
  - (B) describe the pattern of zonation typically found in Florida mangrove forests
  - (C) argue that Davis' succession paradigm cannot be successfully applied to Florida mangrove forests
  - (D) discuss hypotheses that attempt to explain the zonation of coastal mangrove forests
  - (E) establish that plants that do well in saline forest environments require salt to achieve maximum metabolic efficiency
254. According to the passage, the earliest research on mangrove forest produced which of the following?
- (A) Data that implied random patterns of mangrove species distribution
  - (B) Descriptions of species distributions suggesting zonation
  - (C) Descriptions of the development of mangrove forests over time
  - (D) Reclassification of species formerly thought to be identical
  - (E) Data that confirmed the "land-building" role of mangroves
255. It can be inferred from the passage that Davis' paradigm does NOT apply to which of the following?
- (A) The shoreline of Florida mangrove forests first studies by Davis
  - (B) A shoreline in an area with weak currents
  - (C) A shoreline in an area with weak tidal energy
  - (D) A shoreline extended by "land-building" species of mangrove
  - (E) A shoreline in which few sediments can accumulate
256. Information in the passage indicates that the author would most probably regard which of following statements as INCORRECT?
- (A) Coastal mangrove forests are usually zonal.
  - (B) Hurricanes interrupt the process of accretion and succession that extends existing shorelines.
  - (C) Species of plants that thrive in a saline habitat require salt to flourish.
  - (D) Plants with the highest metabolic efficiency in a given habitat tend to exclude other plants from that habitat.
  - (E) Shoreline in areas with weak currents and tides are more likely to be extended

through the process of accumulation of sediment than are shorelines with strong currents and tides.

### Passage 111 (11/17)

Modern manufacturers, who need reliable sources of materials and technologically advanced components to operate profitably, face an increasingly difficult choice between owning the producers of these items (a practice known as backward integration) and buying from independent producers. Manufacturers who integrate may reap short-term rewards, but they often restrict their future capacity for innovative product development.

Backward integration removes the need for some purchasing and marketing functions, centralizes overhead, and permits manufacturers to eliminate duplicated efforts in research and development. Where components are commodities (ferrous metals or petroleum, for example), backward integration almost certainly boosts profits. Nevertheless, because product innovation means adopting the most technologically advanced and cost-effective ways of making components, backward integration may entail a serious risk for a technologically active company—for example, a producer of sophisticated consumer electronics.

A company that decides to make rather than buy important parts can lock itself into an outdated technology. Independent suppliers may be unwilling to share innovations with assemblers with whom they are competing. Moreover, when an assembler sets out to master the technology of producing advanced components, the resulting demands on its resources may compromise its ability to assemble these components successfully into end products. Long-term contracts with suppliers can achieve many of the same cost benefits as backward integration without compromising a company's ability to innovate.

However, moving away from backward integration is not a complete solution either. Developing innovative technologies requires independent suppliers of components to invest huge sums in research and development. The resulting low profit margins on the sale of components threaten the long-term financial stability of these firms. Because the ability of end-product assemblers to respond to market opportunities depends heavily on suppliers of components, assemblers are often forced to integrate by purchasing the suppliers of components just to keep their suppliers in business.

257. According to the passage, all of the following are benefits associated with backward integration EXCEPT:
- (A) improvement in the management of overhead expenses
  - (B) enhancement of profit margins on sales of components
  - (C) simplification of purchasing and marketing operations
  - (D) reliability of a source of necessary components
  - (E) elimination of unnecessary research efforts
258. According to passage, when an assembler buys a firm that makes some important component of the end product that the assembler produces, independent suppliers of the same component may
- (A) withhold technological innovations from the assembler

- (B) experience improved profit margins on sales of their products
  - (C) lower their prices to protect themselves from competition
  - (D) suffer financial difficulties and go out of business
  - (E) stop developing new versions of the component
259. Which of the following best describes the way the last paragraph functions in the context of the passage?
- (A) The last in a series of arguments supporting the central argument of the passage is presented.
  - (B) A viewpoint is presented which qualifies one presented earlier in the passage.
  - (C) Evidence is presented in support of the argument developed in the preceding paragraph.
  - (D) Questions arising from the earlier discussion are identified as points of departure for further study of the topic.
  - (E) A specific example is presented to illustrate the main elements of argument presented in the earlier paragraphs.
260. According to the passage, which of the following relationships between profits and investments in research and development holds true for producers of technologically advanced components?
- (A) Modest investments are required and the profit margins on component sales are low.
  - (B) Modest investments are required but the profit margins on component sales are quite high.
  - (C) Despite the huge investments that are required, the profit margins on components sales are high.
  - (D) Because huge investments are required, the profit margins on component sales are low.
  - (E) Long-term contractual relationships with purchasers of components ensure a high ratio of profits to investment costs.

### Passage 112 (12/17)

Homeostasis, an animal's maintenance of certain internal variables within an acceptable range, particularly in extreme physical environments, has long interested biologists. The desert rat and the camel in the most water-deprived environments, and marine vertebrates in an all-water environment, encounter the same regulatory problem: maintaining adequate internal fluid balance.

For desert rats and camels, the problem is conservation of water in an environment where standing water is nonexistent, temperature is high, and humidity is low. Despite these handicaps, desert rats are able to maintain the osmotic pressure of their blood, as well as their total body-water content, at approximately the same levels as other rats. One countermeasure is behavioral: these rats stay in burrows during the hot part of the day, thus avoiding loss of

fluid through panting or sweating, which are regulatory mechanisms for maintaining internal body temperature by evaporative cooling. Also, desert rats' kidneys can excrete a urine having twice as high a salt content as sea water.

Camels, on the other hand, rely more on simple endurance. They cannot store water, and their reliance on an entirely unexceptional kidney results in a rate of water loss through renal function significantly higher than that of desert rats. As a result, camels must tolerate losses in body water of up to thirty percent of their body weight. Nevertheless, camels do rely on a special mechanism to keep water loss within a tolerable range: by seating and panting only when their body temperature exceeds that which would kill a human, they conserve internal water.

Marine vertebrates experience difficulty with their water balance because though there is no shortage of seawater to drink, they must drink a lot of it to maintain their internal fluid balance. But the excess salts from the seawater must be discharged somehow, and the kidneys of most marine vertebrates are unable to excrete a urine in which the salts are more concentrated than in seawater. Most of these animals have special salt-secreting organs outside the kidney that enable them to eliminate excess salt.

261. Which of the following most accurately states the purpose of the passage?
- (A) To compare two different approaches to the study of homeostasis
  - (B) To summarize the findings of several studies regarding organisms' maintenance of internal variables in extreme environments
  - (C) To argue for a particular hypothesis regarding various organisms' conservation of water in desert environments
  - (D) To cite examples of how homeostasis is achieved by various organisms
  - (E) To defend a new theory regarding the maintenance of adequate fluid balance
262. According to the passage, the camel maintains internal fluid balance in which of the following ways?
- I. By behavioral avoidance of exposure to conditions that lead to fluid loss
  - II. By an ability to tolerate high body temperatures
  - III. By reliance on stored internal fluid supplies
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
263. It can be inferred from the passage that some mechanisms that regulate internal body temperature, like sweating and panting, can lead to which of the following?
- (A) A rise in the external body temperature
  - (B) A drop in the body's internal fluid level
  - (C) A decrease in the osmotic pressure of the blood



- (D) A decrease in the amount of renal water loss
  - (E) A decrease in the urine's salt content
264. It can be inferred from the passage that the author characterizes the camel's kidney as "entirely unexceptional" (line 24) primarily to emphasize that it
- (A) functions much as the kidney of a rat functions
  - (B) does not aid the camel in coping with the exceptional water loss resulting from the extreme conditions of its environment
  - (C) does not enable the camel to excrete as much salt as do the kidneys of marine vertebrates
  - (D) is similar in structure to the kidneys of most mammals living in water-deprived environments
  - (E) requires the help of other organs in eliminating excess salt

### Passage 113 (13/17)

In the seventeenth-century Florentine textile industry, women were employed primarily in low-paying, low-skill jobs. To explain this segregation of labor by gender, economists have relied on the useful theory of human capital. According to this theory, investment in human capital—the acquisition of difficult job-related skills—generally benefits individuals by making them eligible to engage in well-paid occupations. Women's role as child bearers, however, results in interruptions in their participation in the job market (as compared with men's) and thus reduces their opportunities to acquire training for highly skilled work. In addition, the human capital theory explains why there was a high concentration of women workers in certain low-skill jobs, such as weaving, but not in others, such as combing or carding, by positing that because of their primary responsibility in child rearing women took occupations that could be carried out in the home.

There were, however, differences in pay scales that cannot be explained by the human capital theory. For example, male construction workers were paid significantly higher wage than female taffeta weavers. The wage difference between these two low-skill occupations stems from the segregation of labor by gender: because a limited number of occupations were open to women, there was a large supply of workers in their fields, and this "overcrowding" resulted in women receiving lower wages and men receiving higher wages.

265. The passage suggests that combing and carding differ from weaving in that combing and carding are
- (A) low-skill jobs performed by primarily by women employees
  - (B) low-skill jobs that were not performed in the home
  - (C) low-skill jobs performed by both male and female employees
  - (D) high-skill jobs performed outside the home
  - (E) high-skill jobs performed by both male and female employees
266. Which of the following, if true, would most weaken the explanation provided by the human capital theory for women's concentration in certain occupations in

seventeenth-century Florence?

- (A) Women were unlikely to work outside the home even in occupations whose house were flexible enough to allow women to accommodate domestic tasks as well as paid labor.
- (B) Parents were less likely to teach occupational skills to their daughters than they were to their sons.
- (C) Women's participation in the Florentine paid labor force grew steadily throughout the sixteenth and seventeenth centuries.
- (D) The vast majority of female weavers in the Florentine wool industry had children.
- (E) Few women worked as weavers in the Florentine silk industry, which was devoted to making cloths that required a high degree of skill to produce.

267. The author of the passage would be most likely to describe the explanation provided by the human capital theory for the high concentration of women in certain occupations in the seventeenth-century Florence textile industry as

- (A) well founded though incomplete
- (B) difficult to articulate
- (C) plausible but poorly substantiated
- (D) seriously flawed
- (E) contrary to recent research

### Passage 114 (14/17)

Maps made by non-Native Americans to depict Native American land tenure, resources and population distributions appeared almost as early as Europeans' first encounters with Native Americans and took many form: missionaries' field sketches, explorers' drawings, and surveyors' maps, as well as maps rendered in connection with treaties involving land transfers. Most existing maps of Native American lands are reconstructions that are based largely on archaeology, oral reports, and evidence gathered from observers' accounts in letter, diaries, and official reports; accordingly, the accuracy of these maps is especially dependent on the mapmakers' own interpretive abilities.

Many existing maps also reflect the 150-year role of the Bureau of Indian Affairs (BIA) in administering tribal lands. Though these maps incorporate some information gleaned directly from Native Americans, rarely has Native American cartography contributed to this official record, which has been compiled, surveyed, and authenticated by non-Native American. Thus our current cartographic record relating to Native American tribes and their migrations and cultural features, as well as territoriality and contemporary trust lands, reflects the origins of the data, the mixed purposes for which the maps have been prepared, and changes both in United States government policy and in non-Native Americans' attitudes toward an understanding of Native Americans.

268. Which of the following best describes the content of the passage?
- (A) A chronology of the development of different methods for mapping Native Americans
  - (B) A discussion of how the mapmaking techniques of Native Americans differed from those of Europeans
  - (C) An argument concerning the present-day uses to which historical maps of Native American lands are put
  - (D) An argument concerning the nature of information contained in maps of Native American lands
  - (E) A proposal for improving the accuracy of maps of Native American lands
269. The passage mentions each of the following as a factor affecting current maps of Native American lands EXCEPT
- (A) United States government policy
  - (B) non-Native Americans' perspective on Native Americans
  - (C) origins of the information utilized to produce the maps
  - (D) changes in ways that tribal lands are used
  - (E) the reason for producing the maps
270. The passage suggests which of the following about most existing maps of Native American lands?
- (A) They do not record the migrations of Native American tribes.
  - (B) They have been preserved primarily because of their connection with treaties involving land transfers.
  - (C) They tend to reflect archaeological evidence that has become outdated.
  - (D) They tend to be less accurate when they are based on oral reports than when they are based on written documents.
  - (E) They are not based primarily on the mapmakers' firsthand observations of Native American lands.
271. All of the following are examples of the type of evidence used in creating "Most existing maps" (line 7-8) EXCEPT
- (A) a nineteenth-century government report on population distribution of a particular tribe
  - (B) taped conversations with people who lived on Native American tribal lands in the early twentieth century
  - (C) aerial photographs of geological features of lands inhabited by Native Americans
  - (D) findings from a recently excavated site once inhabited by a certain Native American people
  - (E) a journal kept by a non-Native American explorer who traveled in Native American territory in the early nineteenth century

## Passage 115 (15/17)

(This passage was written in 1984.)

It is now possible to hear a recording of Caruso's singing that is far superior to any made during his lifetime. A decades-old wax-cylinder recording of this great operatic tenor has been digitized, and the digitized signal has been processed by computer to remove the extraneous sound, or "noise," introduced by the now "ancient" wax-cylinder recording process.

Although this digital technique needs improvements, it represents a new and superior way of recording and processing sound which overcomes many of the limitations of analog recording. In analog recording systems, the original sound is represented as a continuous waveform created by variations in the sound's amplitude over time. When analog playback systems reproduce this waveform, however, they invariably introduce distortions. First, the waveform produced during playback differs somewhat from the original waveform. Second, the medium that stores the analog recording creates noise during playback which gets added to the recorded sounds.

Digital recordings, by contrast, reduce the original sound to a series of discrete numbers that represent the sound's waveform. Because the digital playback system "reads" only numbers, any noise and distortion that may accumulate during storage and manipulation of the digitized signal will have little effect: as long as the numbers remain recognizable, the original waveform will be reconstructed with little loss in quality. However, because the waveform is continuous, while its digital representation is composed of discrete numbers, it is impossible for digital systems to avoid some distortion. One kind of distortion, called "sampling error," occurs if the sound is sampled (i.e., its amplitude is measured) too infrequently, so that the amplitude changes more than one quantum (the smallest change in amplitude measured by the digital system) between samplings. In effect, the sound is changing too quickly for the system to record it accurately. A second form of distortion is "quantizing error," which arises when the amplitude being measured is not a whole number of quanta, forcing the digital recorder to round off. Over the long term, these errors are random, and the noise produced (a background buzzing) is similar to analog noise except that it only occurs when recorded sounds are being reproduced.

272. Which of the following best describes the relationship of the first paragraph to the passage as a whole?
- (A) The first paragraph introduces a general thesis that is elaborated on in detail elsewhere in the passage.
  - (B) The first paragraph presents a concrete instance of a problem that is discussed elsewhere in the passage.
  - (C) The first paragraph describes a traditional process that is contrasted unfavorably with a newer process described elsewhere in the passage.
  - (D) The first paragraph presents a dramatic example of the potential of a process that is described elsewhere in the passage.
  - (E) The first paragraph describes a historic incident that served as the catalyst for developments described elsewhere in the passage.

273. According the passage, one of the ways in which analog recording systems differ from digital recording systems is that analog systems
- (A) can be used to reduce background noise in old recordings
  - (B) record the original sound as a continuous waveform
  - (C) distort the original sound somewhat
  - (D) can avoid introducing extraneous and nonmusical sounds
  - (E) can reconstruct the original waveform with little loss in quality
274. Which of the following statements about the numbers by which sound is represented in a digital system can be inferred from the passage?
- (A) They describe the time interval between successive sounds in a passage of music.
  - (B) They model large changes in the amplitude of the initial sound with relatively poor precision.
  - (C) They are slightly altered each time they are read by the playback apparatus.
  - (D) They are not readily altered by distortion and noise accumulated as the digital signal is stored and manipulated.
  - (E) They are stored in the recording medium in small groups that can be read simultaneously by the playback apparatus.
275. Which of the following can be inferred from the passage about the digital approach to the processing of sound?
- (A) It was developed in competition with wax-cylinder recording technology.
  - (B) It has resulted in the first distortion-free playback system.
  - (C) It has been extensively applied to nonmusical sounds.
  - (D) It cannot yet process music originally recorded on analog equipment.
  - (E) It is not yet capable of reprocessing old recordings in a completely distortion-free manner.

### Passage 116 (16/17)

The function of capital markets is to facilitate an exchange of funds among all participants, and yet in practice we find that certain participants are not on a par with others. Members of society have varying degrees of market strength in terms of information they bring to a transaction, as well as of purchasing power and creditworthiness, as defined by lenders.

For example, within minority communities, capital markets do not properly fulfill their functions; they do not provide access to the aggregate flow of funds in the United States. The financial system does not generate the credit or investment vehicles needed for underwriting economic development in minority areas. The problem underlying this dysfunction is found in a rationing mechanism affecting both the available alternatives for investment and the amount of financial resources. This creates a distributive mechanism penalizing members of minority groups because of their socioeconomic differences from others. The existing system expresses

definite socially based investment preferences that result from the previous allocation of income and that influence the allocation of resources for the present and future. The system tends to increase the inequality of income distribution. And, in the United States economy, a greater inequality of income distribution leads to a greater concentration of capital in certain types of investment.

Most traditional financial-market analysis studies ignore financial markets' deficiencies in allocation because of analysts' inherent preferences for the simple model of perfect competition. Conventional financial analysis pays limited attention to issues of market structure and dynamics, relative costs of information, and problems of income distribution. Market participants are viewed as acting as entirely independent and homogeneous individuals with perfect foresight about capital-market behavior. Also, it is assumed that each individual in the community at large has the same access to the market and the same opportunity to transact and to express the preference appropriate to his or her individual interest. Moreover, it is assumed that transaction costs for various types of financial instruments (stocks, bonds, etc.) are equally known and equally divided among all community members.

276. The main point made by the passage is that

- (A) financial markets provide for an optimum allocation of resources among all competing participants by balancing supply and demand
- (B) the allocation of financial resources takes place among separate individual participants, each of whom has access to the market
- (C) the existence of certain factors adversely affecting members of minority groups shows that financial markets do not function as conventional theory says they function
- (D) investments in minority communities can be made by the use of various alternative financial instruments, such as stocks and bonds
- (E) since transaction costs for stocks, bonds, and other financial instruments are not equally apportioned among all minority-group members, the financial market is subject to criticism

277. The passage states that traditional studies of the financial market overlook imbalances in the allocation of financial resources because

- (A) an optimum allocation of resources is the final result of competition among participants
- (B) those performing the studies choose an oversimplified description of the influences on competition
- (C) such imbalances do not appear in the statistics usually compiled to measure the market's behavior
- (D) the analysts who study the market are unwilling to accept criticism of their methods as biased
- (E) socioeconomic difference form the basis of a rationing mechanism that puts minority groups at a disadvantage

278. The author's main point is argued by



- (A) giving examples that support a conventional generalization
  - (B) showing that the view opposite to the author's is self-contradictory
  - (C) criticizing the presuppositions of a proposed plan
  - (D) showing that omissions in a theoretical description make it inapplicable in certain cases
  - (E) demonstrating that an alternative hypothesis more closely fits the data
279. A difference in which of the following would be an example of inequality in transaction costs as alluded to in lines 40-43?
- (A) Maximum amounts of loans extended by a bank to businesses in different areas
  - (B) Fees charged to large and small investors for purchasing stocks
  - (C) Prices of similar goods offered in large and small stores in an area
  - (D) Stipends paid to different attorneys for preparing legal suits for damages
  - (E) Exchange rates in dollars for currencies of different countries
280. Which of the following can be inferred about minority communities on the basis of the passage?
- (A) They provide a significant portion of the funds that become available for investment in the financial market.
  - (B) They are penalized by the tax system, which increases the inequality of the distribution of income between investors and wage earners.
  - (C) They do not receive the share of the amount of funds available for investment that would be expected according to traditional financial-market analysis.
  - (D) They are not granted governmental subsidies to assist in underwriting the cost of economic development.
  - (E) They provide the same access to alternative sources of credit to finance businesses as do majority communities.
281. According to the passage, a questionable assumption of the conventional theory about the operation of financial markets is that
- (A) creditworthiness as determined by lenders is a factor determining market access
  - (B) market structure and market dynamics depend on income distribution
  - (C) a scarcity of alternative sources of funds would result from taking socioeconomic factors into consideration
  - (D) those who engage in financial-market transactions are perfectly well informed about the market
  - (E) inequalities in income distribution are increased by the functioning of the financial market
282. According to the passage, analysts have conventionally tended to view those who participate in financial market as

- (A) judging investment preferences in terms of the good of society as a whole
- (B) influencing the allocation of funds through prior ownership of certain kinds of assets
- (C) varying in market power with respect to one another
- (D) basing judgments about future events mainly on chance
- (E) having equal opportunities to engage in transactions

### Passage 117 (17/17)

(The following is based on material written in 1996.)

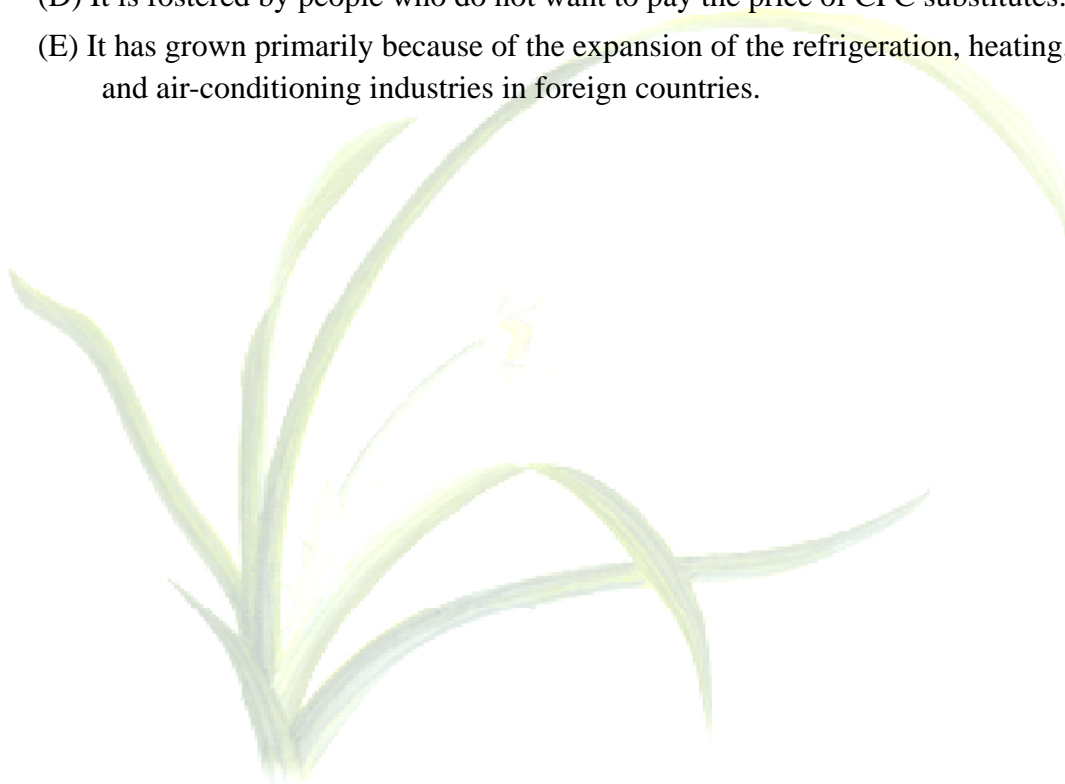
The Montreal Protocol on Substances that Deplete the Ozone Layer, signed in 1987 by more than 150 nations, has attained its short-term goals: it has decreased the rate of increase in amounts of most ozone-depleting chemicals reaching the atmosphere and has even reduced the atmospheric levels of some of them. The projection that the ozone layer will substantially recover from ozone depletion by 2050 is based on the assumption that the protocol's regulations will be strictly followed. Yet there is considerable evidence of violations, particularly in the form of the release of ozone-depleting chlorofluorocarbons (CFC's), which are commonly used in the refrigeration, heating, and air conditioning industries. These violations reflect industry attitudes; for example, in the United States, 48 percents of respondents in a recent survey of subscribers to *Air Conditioning, Heating, and Refrigeration News*, an industry trade journal, said that they did not believe that CFC's damage the ozone layer. Moreover, some in the industry apparently do not want to pay for CFC substitutes, which can run five times the cost of CFC's. Consequently, a black market in imported illicit CFC's has grown. Estimates of the contraband CFC trade range from 10,000 to 22,000 tons a year, with most of the CFC's originating in India and China, whose agreements under the Protocol still allow them to produce CFC's. In fact, the United States Customs Service reports that CFC-12 is a contraband problem second only to illicit drugs.

283. According to the passage, which of the following best describes most ozone-depleting chemicals in 1996 as compared to those in 1987?
- (A) The levels of such chemicals in the atmosphere had decreased.
  - (B) The number of such chemicals that reached the atmosphere had declined.
  - (C) The amounts of such chemicals released had increased but the amounts that reached the atmosphere had decreased.
  - (D) The rate of increase in amounts of such chemicals reaching the atmosphere had decreased.
  - (E) The rate at which such chemicals were being reduced in the atmosphere had slowed.
284. The author of the passage compares the smuggling of CFC's to the illicit drug trade most likely for which of the following reasons?
- (A) To qualify a previous claim
  - (B) To emphasize the extent of a problem

- (C) To provide an explanation for an earlier assertion
- (D) To suggest that the illicit CFC trade, likely the illicit drug trade, will continue to increase
- (E) To suggest that the consequences of a relatively little-known problem are as serious as those of a well-known one

285. The passage suggests which of the following about the illicit trade in CFC's?

- (A) It would cease if manufacturers in India and China stopped producing CFC's.
- (B) Most people who participate in such trade do not believe that CFC's deplete the ozone layer.
- (C) It will probably surpass illicit drugs as the largest contraband problem faced by the United States Custom Services.
- (D) It is fostered by people who do not want to pay the price of CFC substitutes.
- (E) It has grown primarily because of the expansion of the refrigeration, heating, and air-conditioning industries in foreign countries.



GRE RC (No. 2—No. 9)

## No. 2-1

## SECTION A

Extended debate concerning the exact point of origin of individual folktales told by Afro-American slaves has unfortunately taken precedence over analysis of the tales' meaning and function. Cultural continuities with Africa were not dependent on importation and perpetuation of specific folktales in their pristine form. It is in the place that tales occupied in the lives of the slaves and in the meaning slaves derived from them that the clearest resemblances to African tradition can be found. Afro-American slaves did not borrow tales indiscriminately from the Whites among whom they lived. Black people were most influenced by those Euro-American tales whose functional meaning and aesthetic appeal had the greatest similarity to the tales with deep roots in their ancestral homeland. Regardless of where slave tales came from, the essential point is that, with respect to language, delivery, details of characterization, and plot, slaves quickly made them their own.

17. The author claims that most studies of folktales told by Afro-American slaves are inadequate because the studies
- (A) fail to recognize any possible Euro-American influence on the folktales
  - (B) do not pay enough attention to the features of a folktale that best reveal an African influence
  - (C) overestimate the number of folktales brought from Africa by the slaves
  - (D) do not consider the fact that a folktale can be changed as it is retold many times
  - (E) oversimplify the diverse and complex traditions of the slaves ancestral homeland
18. The author's main purpose is to
- (A) create a new field of study
  - (B) discredit an existing field of study
  - (C) change the focus of a field of study
  - (D) transplant scholarly techniques from one field of study to another
  - (E) restrict the scope of a burgeoning new field of study
19. The passage suggests that the author would regard which of the following areas of inquiry as most likely to reveal the slaves' cultural continuities with Africa?
- (A) The means by which Blacks disseminated their folktales in nineteenth-century America
  - (B) Specific regional differences in the styles of delivery used by the slaves in telling folktales

- (C) The functional meaning of Black folktales in the lives of White children raised by slave
  - (D) The specific way the slaves used folktales to impart moral teaching to their children
  - (E) The complexities of plot that appear most frequently in the slaves' tales
20. Which of the following techniques is used by the author in developing the argument in the passage?
- (A) Giving a cliché a new meaning
  - (B) Pointedly refusing to define key terms
  - (C) Alternately presenting generalities and concrete details
  - (D) Concluding the passage with a restatement of the first point made in the passage
  - (E) Juxtaposing statements of what is not the case and statements of what is the case

The energy contained in rock within the earth's crust represents a nearly unlimited energy source, but until recently commercial retrieval has been limited to underground hot water and/or steam recovery systems. These systems have been developed in areas of recent volcanic activity, where high rates of heat flow cause visible eruption of water in the form of geysers and hot springs. In other areas, however, hot rock also exists near the surface but there is insufficient water present to produce eruptive phenomena. Thus a potential hot dry rock (HDR) reservoir exists whenever the amount of spontaneously produced geothermal fluid has been judged inadequate for existing commercial systems.

As a result of recent energy crisis, new concepts for creating HDR recovery systems—which involve drilling holes and connecting them to artificial reservoirs placed deep within the crust—are being developed. In all attempts to retrieve energy from HDR's, artificial stimulation will be required to create either sufficient permeability or bounded flow paths to facilitate the removal of heat by circulation of a fluid over the surface of the rock.

The HDR resource base is generally defined to include crustal rock that is hotter than 150°C, is at depths less than ten kilometers, and can be drilled with presently available equipment. Although wells deeper than ten kilometers are technically feasible, prevailing economic factors will obviously determine the commercial feasibility of wells at such depths. Rock temperatures as low as 100°C may be useful for space heating; however, for producing electricity, temperatures greater than 200°C are desirable.

The geothermal gradient, which specifically determines the depth of drilling required to reach a desired temperature, is a major factor in the recoverability of geothermal resources. Temperature gradient maps generated from oil and gas well temperature-depth records kept by the American Association of Petroleum Geologists suggest that tappable high-temperature gradients are distributed all across the United States. (There are many areas, however, for which no temperature gradient records exist.)

Indications are that the HDR resource base is very large. If an average geothermal temperature gradient of 22°C per kilometer of depth is used, a staggering 13,000,000

quadrillion B.T.U.'s of total energy are calculated to be contained in crustal rock to a ten-kilometer depth in the United States. If we conservatively estimate that only about 0.2 percent is recoverable, we find a total of all the coal remaining in the United States. The remaining problem is to balance the economics of deeper, hotter, more costly wells and shallower, cooler, less expensive wells against the value of the final product, electricity and/or heat.

21. The primary purpose of the passage is to
- (A) alert readers to the existence of HDR's as an available energy source
  - (B) document the challenges that have been surmounted in the effort to recover energy from HDR's
  - (C) warn the users of coal and oil that HDR's are not an economically feasible alternative
  - (D) encourage the use of new techniques for the recovery of energy from underground hot water and steam
  - (E) urge consumers to demand quicker development of HDR resources for the production of energy
22. The passage would be most likely to appear in a
- (A) petrological research report focused on the history of temperature-depth records in the United States
  - (B) congressional report urging the conservation of oil and natural gas reserves in the United States
  - (C) technical journal article concerned with the recoverability of newly identified energy sources
  - (D) consumer report describing the extent and accessibility of remaining coal resources
  - (E) pamphlet designed to introduce homeowners to the advantages of HDR space-heating systems
23. According to the passage, an average geothermal gradient of  $22^{\circ}\text{C}$  per kilometer of depth can be used to
- (A) balance the economics of HDR energy retrieval against that of underground hot water or steam recovery systems
  - (B) determine the amount of energy that will be used for space heating in the United States
  - (C) provide comparisons between hot water and HDR energy sources in the United States
  - (D) revise the estimates on the extent of remaining coal resources in the United States
  - (E) estimate the total HDR resource base in the United States
24. It can be inferred from the passage that the availability of temperature-depth



- records for any specific area in the United States depends primarily on the
- (A) possibility that HDR's may be found in that area
  - (B) existence of previous attempts to obtain oil or gas in that area
  - (C) history of successful hot water or steam recovery efforts in that area
  - (D) failure of inhabitants to conserve oil gas reserves in that area
  - (E) use of coal as a substitute for oil or gas in that area
25. According to the passage, in all HDR recovery systems fluid will be necessary in order to allow
- (A) sufficient permeability
  - (B) artificial stimulation
  - (C) drilling of holes
  - (D) construction of reservoirs
  - (E) transfer of heat
26. According to the passage, if the average geothermal gradient in an area is 22°C per kilometer of depth, which of the following can be reliably predicted?
- I. The temperature at the base of a 10-kilometer well will be sufficient for the production of electricity.
  - II. Drilling of wells deeper than 10 kilometers will be economically feasible.
  - III. Insufficient water is present to produce eruptive phenomena.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
27. Which of the following would be the most appropriate title for the passage?
- (A) Energy from Water Sources: The Feasibility of Commercial Systems
  - (B) Geothermal Energy Retrieval: Volcanic Activity and Hot Dry Rocks
  - (C) Energy Underground: Geothermal Sources Give Way to Fossil Fuels
  - (D) Tappable Energy for America's Future: Hot Dry Rocks
  - (E) High Geothermal Gradients in the United States: Myth or Reality?

## SECTION B

Four legal approaches may be followed in attempting to channel technological development in socially useful direction: specific directives, market incentive modifications, criminal prohibitions, and changes in decision-making structures. Specific directives involve the government's identifying one or more factors controlling research, development, or implementation of a given technology. Directives affecting such factors may vary from administrative regulation of private activity to government ownership of a technological

operation. Market incentive modifications are deliberate alterations of the market within which private decisions regarding the development and implementation of technology are made. Such modifications may consist of imposing taxes to cover the costs to society of a given technology, granting subsidies to pay for social benefits of a technology, creating the right to sue to prevent certain technological development, or easing procedural rules to enable the recovery of damages to compensate for harm caused by destructive technological activity. Criminal prohibitions may modify technological activity in areas impinging on fundamental social values, or they may modify human behavior likely to result from technological applications—for example, the deactivation of automotive pollution control devices in order to improve vehicle performance. Alteration of decision-making structures includes all possible modifications in the authority, constitution, or responsibility of private and public entities deciding questions of technological development and implementation. Such alterations include the addition of public-interest members to corporate boards, the imposition by statute of duties on governmental decision-makers, and the extension of warranties in response to consumer action.

Effective use of these methods to control technology depends on whether or not the goal of regulation is the optimal allocation of resources. When the object is optimal resource allocation, that combination of legal methods should be used that most nearly yields the allocation that would exist if there were no external costs resulting from allocating resources through market activity. There are external costs when the price set by buyers and sellers of goods fails to include some costs, to anyone, that result from the production and use of the goods. Such costs are internalized when buyers pay them.

Air pollution from motor vehicles imposes external costs on all those exposed to it, in the form of soiling, materials damage, and disease: these externalities result from failure to place a price on air, thus making it a free good, common to all. Such externalities lead to nonoptimal resource allocation, because the private net product and the social net product of market activity are not often identical. If all externalities were internalized, transactions would occur until bargaining could no longer improve the situation, thus giving an optimal allocation of resources at a given time.

17. The passage is primarily concerned with describing
- (A) objectives and legal method for directing technological development
  - (B) technical approaches to the problem of controlling market activity
  - (C) economic procedures for facilitating transactions between buyers and sellers
  - (D) reasons for slowing the technological development in light of environmentalist objections
  - (E) technological innovations making it possible to achieve optimum allocation of resources
18. The author cites air pollution from motor vehicles in lines 54-56 in order to
- (A) revise cost estimates calculated by including the costs of resources
  - (B) evaluate legal methods used to prevent technological developments
  - (C) give examples of costs not included in buyer-seller bargains

- (D) refute hypotheses not made on the basis of monetary exchange values  
(E) commend technological research undertaken for the common welfare
19. According to the passage, transactions between private buyers and sellers have effects on society that generally
- (A) are harmful when all factors are considered  
(B) give rise to ever-increasing resource costs  
(C) reflect an optimal allocation of natural resources  
(D) encompass more than the effects on the buyers and sellers alone  
(E) are guided by legal controls on the development of technology
20. It can be inferred from the passage that the author does NOT favor which of the following?
- (A) Protecting the environment for future use  
(B) Changing the balance of power between opposing interests in business  
(C) Intervening in the activity of the free market  
(D) Making prices reflect costs to everyone in society  
(E) Causing technological development to cease
21. A gasoline-conservation tax on the purchase of large automobiles, with the proceeds of the tax rebated to purchasers of small automobiles, is an example of
- (A) a specific directive  
(B) a market incentive modification  
(C) an optimal resource allocation  
(D) an alteration of a decision-making structure  
(E) an external cost
22. If there were no external costs, as they are described in the passage, which of the following would be true?
- (A) All technology-control methods would be effective.  
(B) Some resource allocations would be illegal.  
(C) Prices would include all costs to members of society.  
(D) Some decision-making structures would be altered.  
(E) The availability of common goods would increase.
23. The author assumes that, in determining what would be an optimal allocation of resources, it would be possible to
- (A) assign monetary value to all damage resulting from the use of technology  
(B) combine legal methods to yield the theoretical optimum  
(C) convince buyers to bear the burden of damage from technological developments  
(D) predict the costs of new technological developments

(E) derive an equation making costs depend on prices

24. On the basis of the passage, it can be inferred that the author would agree with which of the following statements concerning technological development?

(A) The government should own technological operations.

(B) The effect of technological development cannot be controlled.

(C) Some technological developments are beneficial.

(D) The current state of technological development results in a good allocation of resources.

(E) Applications of technological developments are criminally destructive.

The whole biosphere, like the individual organisms that live inside it, exists in a chemically **dynamic state**. In this homeostatic system, a great number of organic compounds are synthesized, transformed, and decomposed continuously; together, these processes constitute the major parts of the carbon cycle. For the smooth operation of this cycle, degradation is just as important as synthesis: the green plants produce great quantities of polymers, such as cellulose, and innumerable other compounds like alkaloids, terpenes, and flavonoids, that green plants cannot use as sources of energy during respiration. The release of the carbon in these compounds for recycling depends almost entirely on the action of both aerobic and anaerobic bacteria and certain types of fungi. Some bacteria and fungi possess the unique and extremely important biochemical asset of being able to catalyze the oxidation of numerous inert products, thereby initiating reaction sequences that produce carbon dioxide and so return much carbon to a form that actively enters into life cycles once again.

25. The passage contains information that would answer which of the following questions about the carbon cycle?

I. What are some of the compounds that are broken down in the carbon cycle?

II. Why are some compounds that are involved in the carbon cycle less reactive than others?

III. What role do bacteria and fungi play in the carbon cycle?

(A) I only

(B) II only

(C) III only

(D) I and II only

(E) I and III only

26. The author implies that which of the following is the primary reason that degradation is as important as synthesis to the smooth operation of the carbon cycle?

(A) Most of the polymers and organic compounds found in the plant kingdom are chemically unstable.

(B) The synthesis of some organic material deprives life processes of an energy source.

- (C) Decomposition permits the recycling of carbon that would otherwise be fixed in certain substances.
- (D) Many organisms cannot use plants as a source of food, but can feed on bacteria and fungi.
- (E) Bacteria and fungi could not survive if some carbon compounds were not degraded.
27. The author's contention about the importance of bacteria and fungi in the production of energy for life processes would be most clearly strengthened if which of the following were found to be true?
- (A) Both aerobes and anaerobes provide sources of energy through the decomposition of organic material.
- (B) Most compounds containing carbon are unavailable as energy sources except to some bacteria and fungi.
- (C) Bacteria and fungi break down inert material in ways that do not involve oxidation.
- (D) Many compounds remain inert, even in the presence of bacteria and fungi.
- (E) Bacteria and fungi assist in the synthesis of many organic compounds.

No. 2-2

## SECTION A

Even as the number of females processed through juvenile courts climbs steadily, an implicit consensus remains among scholars in criminal justice that male adolescents define the delinquency problem in the United States. We suggest two reasons why this view persists. First, female adolescents are accused primarily of victimless crimes, such as truancy, that do not involve clear-cut damage to persons or property. If committed by adults, these actions are not even considered prosecutable; if committed by juvenile males, they have traditionally been looked on leniently by the courts. Thus, ironically, the plight of female delinquents receives little scrutiny because they are accused of committing relatively minor offenses. Second, the courts have long justified so-called preventive intervention into the lives of young females viewed as antisocial with the rationale that women are especially vulnerable. Traditional stereotypes of women as the weaker and more dependent sex have led to earlier intervention and longer periods of misdirected supervision for female delinquents than for males.

17. Which of the following statements best expresses the irony pointed out by the authors in lines 13-16 of the passage?
- (A) Female delinquents tend to commit victimless crimes more frequently than their male counterparts.
- (B) The predicament of male delinquents receives more attention than that of females because males are accused of more serious crimes.
- (C) Adults are frequently punished less severely than adolescents for committing

more serious crimes.

- (D) The juvenile justice system cannot correct its biases because it does not even recognize them.
- (E) Although the number of female delinquents is steadily increasing, the crimes of which they are accused are not particularly serious.

18. It can be inferred from the passage that the authors believe traditional stereotypes of women to be
- (A) frequently challenged
  - (B) persistently inexplicable
  - (C) potentially harmful
  - (D) rapidly changing
  - (E) habitually disregarded
19. The passage suggests that scholars in criminal justice could be criticized for which of the following?
- (A) Underestimating the seriousness of juvenile crime
  - (B) Rationalizing the distinction made between juveniles and adults in the legal system
  - (C) Concerning themselves too little with the prevention of juvenile delinquency
  - (D) Focusing on those whose crimes have involved damage to persons or property
  - (E) Failing to point out injustices in the correctional system

Scattered around the globe are more than one hundred regions of volcanic activity known as **hot spots**. Unlike most volcanoes, hot spots are rarely found along the boundaries of the continental and oceanic plates that comprise the Earth's crust; most hot spots lie deep in the interior of plates and are anchored deep in the layers of the Earth's surface. Hot spots are also distinguished from other volcanoes by their lavas, which contain greater amounts of alkali metals than do those from volcanoes at plate margins.

In some cases, plates moving past hot spots have left trails of extinct volcanoes in much the same way that wind passing over a chimney carries off puffs of smoke. It appears that the Hawaiian Islands were created in such a manner by a single source of lava, welling up from a hot spot, over which the Pacific Ocean plate passed on a course roughly from the east toward the northwest, carrying off a line of volcanoes of increasing age. Two other Pacific island chains—the Austral Ridge and the Tuamotu Ridge—parallel the configuration of the Hawaiian chain; they are also aligned from the east toward the northwest, with the most recent volcanic activity near their eastern terminuses.

That the Pacific plate and the other plates are moving is now beyond dispute; the relative motion of the plates has been reconstructed in detail. However, the relative motion of the plates with respect to the Earth's interior cannot be determined easily. Hot spots provide the measuring instruments for resolving the question of whether two continental plates are moving in opposite directions or whether one is stationary and the other is drifting away from it. The



most compelling evidence that a continental plate is stationary is that, at some hot spots, lavas of several ages are superposed instead of being spread out in chronological sequence. Of course, reconstruction of plate motion from the tracks of hot-spot volcanoes assumes that hot spots are immobile, or nearly so. Several studies support such an assumption, including one that has shown that prominent hot spots throughout the world seem not to have moved during the past ten million years.

Beyond acting as frames of reference, hot spots apparently influence the geophysical processes that propel the plates across the globe. When a continental plate comes to rest over a hot spot, material welling up from deeper layers forms a broad dome that, as it grows, develops deep fissures. In some instances, the continental plate may rupture entirely along some of the fissures so that the hot spot initiates the formation of a new ocean. Thus, just as earlier theories have explained the mobility of the continental plates, so hot-spot activity may suggest a theory to explain their mutability.

20. The primary purpose of the passage is to
- (A) describe the way in which hot spots influence the extinction of volcanoes
  - (B) describe and explain the formation of the oceans and continents
  - (C) explain how to estimate the age of lava flows from extinct volcanoes
  - (D) describe hot spots and explain how they appear to influence and record the motion of plates
  - (E) describe the formation and orientation of island chains in the Pacific Ocean
21. According to the passage, hot spots differ from most volcanoes in that hot spots
- (A) can only be found near islands
  - (B) are active whereas all other volcanoes are extinct
  - (C) are situated closer to the earth's surface
  - (D) can be found along the edges of the plates
  - (E) have greater amounts of alkali metals in their lavas
22. It can be inferred from the passage that evidence for the apparent course of the Pacific plate has been provided by the
- (A) contours of the continents
  - (B) dimensions of ocean hot spots
  - (C) concurrent movement of two hot spots
  - (D) pattern of fissures in the ocean floor
  - (E) configurations of several mid-ocean island chains
23. It can be inferred from the passage that the spreading out of lavas of different ages at hot spots indicates that a
- (A) hot spot is active
  - (B) continental plate has moved
  - (C) continental rupture is imminent

- (D) hot spot had been moving very rapidly
- (E) volcano contains large concentrations of alkali metals
24. The passage suggests which of the following about the Hawaiian Islands, the Austral Ridge, and the Tuamotu Ridge?
- (A) The three chains of islands are moving eastward.
- (B) All the islands in the three chains have stopped moving.
- (C) The three island chains are a result of the same plate movement.
- (D) The Hawaiian Islands are receding from the other two island chains at a relatively rapid rate.
- (E) The Austral Ridge and the Tuamotu Ridge chains have moved closer together whereas the Hawaiian Islands have remained stationary.
25. Which of the following, if true, would best support the author's statement that hot-spot activity may explain the mutability of continental plates?
- (A) Hot spots move more rapidly than the continental and oceanic plates.
- (B) Hot spots are reliable indicators of the age of continental plates.
- (C) Hot spots are regions of volcanic activity found only in the interiors of the continental plates.
- (D) The alignment of hot spots in the Pacific Ocean parallels the alignment of Pacific Ocean islands.
- (E) The coastlines of Africa and South America suggest that they may once have constituted a single continent that ruptured along a line of hot spots.
26. The author's argument that hot spots can be used to reconstruct the movement of continental plates is weakened by the fact that
- (A) hot spots are never found at the boundaries of plates
- (B) only extinct volcanoes remain after a plate moves over a hot spot
- (C) lava flow patterns for all hot spots have not been shown to be the same
- (D) the immobility or near immobility of hot spots has not been conclusively proven
- (E) the changing configurations of islands make pinpointing the locations of hot spots difficult
27. The author's style can best be described as
- (A) dramatic
- (B) archaic
- (C) esoteric
- (D) objective
- (E) humanistic

Although scientists observe that an organism's behavior falls into rhythmic patterns, they disagree about how these patterns are affected when the organism is transported to a new environment. One experimenter, Brown, brought oysters from Connecticut waters to Illinois waters. She noted that the oysters initially opened their shells widest when it was high tide in Connecticut, but that after fourteen days their rhythms had adapted to the tide schedule in Illinois. Although she could not posit an unequivocal causal relationship between behavior and environmental change, Brown concluded that a change in tide schedule is one of several possible exogenous influences (those outside the organism) on the oysters' rhythms. Another experimenter, Hamner, however, discovered that hamsters from California maintain their original rhythms even at the South Pole. He concluded that endogenous influences (those inside the organism) seem to affect an organism's rhythmic behavior.

17. All of the following could be considered examples of exogenous influences on an organism EXCEPT the influence of the
- (A) level of a hormone on a field mouse's readiness for mating
  - (B) temperature of a region on a bear's hibernation
  - (C) salt level of a river on a fish's migration
  - (D) humidity of an area on a cat's shedding of its fur
  - (E) proximity of an owl on a lizard's searching for food
18. Which of the following statements best describes the conclusion drawn by Brown (lines 14-17)
- (A) A change in tide schedule is the primary influence on an oyster's rhythms.
  - (B) A change in tide schedule may be an important exogenous influence on an oyster's rhythms.
  - (C) Exogenous influences, such as a change in tide schedule, seldom affect an oyster's rhythms.
  - (D) Endogenous influences have no effect on an oyster's rhythms.
  - (E) Endogenous influences are the only influences on an oyster's rhythms.
19. The passage suggests that Brown's study was similar to Hamner's in which of the following ways?
- I. Both experimenters discovered that a new environment had a significant effect on an organism's behavior rhythms.
  - II. Both experimenters observed an organism's behavioral rhythms after the organism had been transported to a new environment.
  - III. Both experimenters knew an organism's rhythmic patterns in its original environment.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only

(E) I, II, and III

20. Which of the following, if true, would most weaken Brown's conclusion?
- (A) The oyster gradually closed their shells after high tide in Illinois had passed.
  - (B) The oysters' behavioral rhythms maintained their adaptation to the tide schedule in Illinois throughout thirty days of observation.
  - (C) Sixteen days after they were moved to Illinois, the oysters opened their shells widest when it was high tide in Connecticut.
  - (D) A scientist who brought Maryland oysters to Maine found that the oysters opened their shells widest when it was high tide in Maine.
  - (E) In an experiment similar to Brown's, a scientist was able to establish a clear causal relationship between environmental change and behavioral rhythms.

Picture-taking is a technique both for annexing the objective world and for expressing the singular self. Photographs depict objective realities that already exist, though only the camera can disclose them. And they depict an individual photographer's temperament, discovering itself through the camera's cropping of reality. That is, photography has two antithetical ideals: in the first, photography is about the world and the photographer is a mere observe who counts for little; but in the second, photography is the instrument of intrepid, questing subjectivity and the photographer is all.

These conflicting ideals arise from a fundamental uneasiness on the part of both photographers and viewers of photographs toward the aggressive component in "taking" a picture. Accordingly, the ideal of a photographer as observer is attractive because it implicitly denies that picture-taking is an aggressive act. The issue, of course, is not so clear-cut. What photographers do cannot be characterized as simply predatory or as simply, and essentially, benevolent. As a consequence, one ideal of picture-taking or the other is always being rediscovered and championed.

An important result of the coexistence of these two ideals is a recurrent ambivalence toward photography's means. Whatever the claims that photography might make to be a form of personal expression *on a par* with painting, its originality is inextricably linked to the powers of a machine. The steady growth of these powers has made possible the extraordinary informativeness and imaginative formal beauty of many photographs, like Harold Edgerton's high-speed photographs of a bullet hitting its target or of the swirls and eddies of a tennis stroke. But as cameras become more sophisticated, more automated, some photographers are tempted to disarm themselves or to suggest that they are not really armed, preferring to submit themselves to the limits imposed by premodern camera technology because a cruder, less high-powered machine is thought to give more interesting or emotive results, to leave more room for creative accident. For example, it has been virtually a point of honor for many photographers, including Walker Evans and Cartier-Bresson, to refuse to use modern equipment. These photographers have come to doubt the value of the camera as an instrument of "fast seeing." Cartier-Bresson, in fact, claims that the modern camera may see too fast.

This ambivalence toward photographic means determines trends in taste. The cult of the future (of faster and faster seeing) alternates *over time* with the wish to return to a purer past—when images had a handmade quality. This nostalgia for some pristine state of the

photographic enterprise is currently widespread and underlies the present-day enthusiasm for daguerreotypes and the work of forgotten nineteenth-century provincial photographers. Photographers and viewers of photographs, it seems, need periodically to resist their own knowingness.

21. According to the passage, interest among photographers in each of photography's two ideals can be described as
- (A) rapidly changing
  - (B) cyclically recurring
  - (C) steadily growing
  - (D) unimportant to the viewers of photographs
  - (E) unrelated to changes in technology
22. The author is primarily concerned with
- (A) establishing new technical standards for contemporary photography
  - (B) analyzing the influence of photographic ideals on picture-taking
  - (C) tracing the development of camera technology in the twentieth century
  - (D) describing how photographers' individual temperaments are reflected in their work
  - (E) explaining how the technical limitations imposed by certain photographers on themselves affect their work
23. The passage states all of the following about photographs EXCEPT:
- (A) They can display a cropped reality.
  - (B) They can convey information.
  - (C) They can depict the photographer's temperament.
  - (D) They can possess great formal beauty.
  - (E) They can change the viewer's sensibilities.
24. The author mentions the work of Harold Edgerton in order to provide an example of
- (A) how a controlled ambivalence toward photography's means can produce outstanding pictures
  - (B) how the content of photographs has changed from the nineteenth century to the twentieth
  - (C) the popularity of high-speed photography in the twentieth century
  - (D) the relationship between photographic originality and technology
  - (E) the primacy of formal beauty over emotional content
25. The passage suggests that photographers such as Walker Evans prefer old-fashioned techniques and equipment because these photographers
- (A) admire instruments of fast seeing

- (B) need to feel armed by technology
  - (C) strive for intense formal beauty in their photographs
  - (D) like the discipline that comes from self-imposed limitations
  - (E) dislike the dependence of photographic effectiveness on the powers of a machine
26. According to the passage, the two antithetical ideals of photography differ primarily in the
- (A) value that each places on the beauty of the finished product
  - (B) emphasis that each places on the emotional impact of the finished product
  - (C) degree of technical knowledge that each requires of the photographer
  - (D) extent of the power that each requires of the photographer's equipment
  - (E) way in which each defines the role of the photographer
27. Which of the following statements would be most likely to begin the paragraph immediately following the passage?
- (A) Photographers, as a result of their heightened awareness of time, are constantly trying to capture events and actions that are fleeting.
  - (B) Thus the cult of the future, the worship of machines and speed, is firmly established in spite of efforts to the contrary by some photographers.
  - (C) The rejection of technical knowledge, however, can never be complete and photography cannot for any length of time pretend that it has no weapons.
  - (D) The point of honor involved in rejecting complex equipment is, however, of no significance to the viewer of a photograph.
  - (E) Consequently the impulse to return to the past through images that suggest a handwrought quality is nothing more than a passing fad.

No. 2-3

## SECTION A

It is well known that biological changes at the molecular level have morphogenetic consequences, consequences affecting the formation and differentiation of tissues and organs. It is superfluous to point out that gene mutations and disturbances of the bio-synthetic processes in the embryo may result in abnormalities in the morphology (structure) of an organism. However, whereas much is known about causes and consequences at the molecular level, and in spite of an enormous accumulation of chemical and morphological data on embryos of various kinds, our understanding of how genes control morphogenesis is still far from complete. Perhaps one reason for this is that molecular biologists and morphologists speak different languages. Whereas the former speak about messenger-RNA and conformational changes of protein molecules, the latter speak of ectoderms, hypoblasts, and neural crests.



One solution to this predicament is to try to find some phenomena relevant to morphogenesis which both the molecular biologist and the morphologist can understand and discuss. As morphogenesis must be basically the result of changes in behavior of the individual cells, it seems logical to ask morphologists to describe the morphogenetic events observed in terms of changes in cellular contact, changes in the rate of proliferation of cells, or similar phenomena. Once this is done, it may be appropriate to ask questions about the molecular background for these changes. One may, for instance, ask whether variations in cell contact reflect alterations in the populations of molecules at the cell surface, or one may inquire about the molecular basis for the increased cell mobility involved in cell dispersion.

Studies of this kind have been carried out with cells released from tissues in various ways and then allowed to reveal their behavior after being spread out into a thin layer. In many cases, such cells show the ability to reaggregate, after which different cell types may sort themselves out into different layers and even take part in still more intricate morphogenetic events. But in most cases, the behavior of cells in the intact embryo is difficult to study because of the thickness and opacity of the cell masses. The sea urchin embryo, however, has the advantage that it is so transparent that each cell can be easily observed throughout development. Thus, by recording the development of a sea urchin embryo with time-lapse photography, the research scientist might discover previously unknown features of cellular behavior. Perhaps the study of the sea urchin in this manner can provide a medium by which the molecular biologist and the morphologist can begin communicating with each other more effectively about the way in which genes control morphogenesis.

17. The author's primary purpose is to
- (A) outline a procedure and discuss possible applications
  - (B) evaluate an experiment in terms of its applicability to medical research
  - (C) propose a method for curing specific genetic disorders
  - (D) explain a problem and suggest a solution for it
  - (E) reveal the shortcomings of several attitudes toward genetic research
18. The author states that research into the genetic control of morphogenesis has been impeded by
- (A) an incomplete understanding of biomolecular reactions that are highly complex
  - (B) a lack of communication between scientists whose work could be complementary
  - (C) a reluctance on the part of morphologists to share data with molecular biologists
  - (D) a lack of research in the area of morphology
  - (E) the unavailability of suitable research equipment
19. The major objective of the author's proposal is to
- (A) devise a technique for proving that abnormalities in morphology result from gene mutations

- (B) improve the procedures for organizing chemical and morphological data
  - (C) increase the accuracy of measurements of cell populations and cell mobility
  - (D) reduce the margin of error in the study of conformational changes of protein molecules
  - (E) provide a plan for increasing knowledge about the influence of genes on morphogenesis
20. It can be inferred from the passage that some cells that have been isolated from an organism have the ability to
- (A) control morphogenesis
  - (B) reform to make higher organisms
  - (C) reorganize to form clusters of cells
  - (D) regulate the transmission of light through the cell wall
  - (E) regulate the rate of tissue formation
21. It can be inferred from the passage that the study of the effects of genes on morphogenesis is best accomplished by observing
- (A) intact developing embryos
  - (B) adult sea urchins
  - (C) isolated living cells
  - (D) groups of genetically mutated cells
  - (E) cells from the same kind of tissue
22. According to the passage, it is difficult to study cells in most intact embryos because
- (A) morphogenetic events cannot be isolated
  - (B) embryos die quickly
  - (C) embryos are difficult to obtain
  - (D) individual cells reaggregate too quickly
  - (E) individual cells are difficult to see
23. Which of the following sequences best describes the author's suggestion for future research on morphogenesis?
- (A) Accumulation of data, simplification of language, explanation of morphogenesis
  - (B) Dispersion of cells, evaluation of cell activity, development of an explanatory hypothesis
  - (C) Classification of cell types, separation of cell, observation of cell activity
  - (D) Observation of cell development, description of cell behavior, explanation at the molecular level
  - (E) Differentiation of cell types, description of cell structure, analysis of molecular components

24. The tone of the author's discussion of the difference in the language used by morphologists and that used by molecular biologists is one of
- (A) indifference
  - (B) neutrality
  - (C) derision
  - (D) approbation
  - (E) indignation

The black experience, one might automatically assume, is known to every Black author. Henry James was pondering a similar assumption when he said: "You were to suffer your fate. That was not necessarily to know it." This disparity between an experience and knowledge of that experience is the longest bridge an artist must cross. Don L. Lee, in his picture of the Black poet, "studying his own poetry and the poetry of other Black poets," touches on the crucial point. In order to transform his own sufferings—or joys—as a Black person into usable knowledge for his readers, the author must first order his experiences in his mind. Only then can he create feelingly and coherently the combination of fact and meaning that Black audiences require for the reexploration of their lives. A cultural community of Black authors studying one another's best works systematically would represent a dynamic interchange of the spirit—corrective and instructive and increasingly beautiful in its recorded expression.

25. It can be inferred from the passage that the author considers poetry to be which of the following?
- (A) A means of diversion in which suffering is transformed into joy
  - (B) An art form that sometimes stifles creative energy
  - (C) A bridge between the mundane and the unreal
  - (D) A medium for conveying important information
  - (E) An area where beauty must be sacrificed for accuracy
26. It can be inferred from the passage that the author would be LEAST likely to approve of which of the following?
- (A) Courses that promote cultural awareness through the study of contemporary art
  - (B) The development of creative writing courses that encourage mutual criticism of student work
  - (C) Growing interest in extemporaneous writing that records experiences as they occur
  - (D) A shift in interest from abstract philosophical poetry to concrete autobiographical poetry
  - (E) Workshops and newsletters designed to promote dialogues between poets
27. The author refers to Henry James primarily in order to
- (A) support his own perception of the "longest bridge" (lines 6-7)
  - (B) illustrate a coherent "combination of fact and meaning" (lines 14-15)

- (C) provide an example of “dynamic interchange of the spirit” (line 19)
- (D) establish the pervasiveness of lack of self-knowledge
- (E) contrast James’s ideas about poetry with those of Don L. Lee

## SECTION B

My objective is to analyze certain forms of knowledge, not in terms of repression or law, but in terms of power. But the word power is apt to lead to misunderstandings about the nature, form, and unity of power. By power, I do not mean a group of institutions and mechanisms that ensure the subservience of the citizenry. I do not mean, either, a mode of subjugation that, in contrast to violence, has the form of the rule. Finally, I do not have in mind a general system of domination exerted by one group over another, a system whose effects, through successive derivations, pervade the entire social body. The sovereignty of the state, the form of law, or the overall unity of a domination are only the terminal forms power takes.

It seems to me that power must be understood as the multiplicity of force relations that are immanent in the social sphere; as the process that, through ceaseless struggle and confrontation, transforms, strengthens, or reverses them; as the support that these force relations find in one another, or on the contrary, the disjunctions and contradictions that isolate them from one another; and lastly, as the strategies in which they take effect, whose general design or institutional crystallization is embodied in the state apparatus, in the formulation of the law, in the various social hegemonies.

Thus, the viewpoint that permits one to understand the exercise of power, even in its more “peripheral” effects, and that also makes it possible to use its mechanisms as a structural framework for analyzing the social order, must not be sought in a unique source of sovereignty from which secondary and descendent forms of power emanate but in the moving substrate of force relations that, by virtue of their inequality, constantly engender local and unstable states of power. If power seems omnipresent, it is not because it has the privilege of consolidating everything under its invincible unity, but because it is produced from one moment to the next, at every point, or rather in every relation from one point to another. Power is everywhere, not because it embraces everything, but because it comes from everywhere. And if power at times seems to be permanent, repetitious, inert, and self-reproducing, it is simply because the overall effect that emerges from all these mobilities is a concatenation that rests on each of them and seeks in turn to arrest their movement. One needs to be nominalistic, no doubt: power is not an institution, and not a structure; neither is it a certain strength we are endowed with; it is the name that one attributes to a complex strategic situation in a particular society.

17. The author’s primary purpose in defining power is to
- (A) counteract self-serving and confusing uses of the term
  - (B) establish a compromise among those who have defined the term in different ways
  - (C) increase comprehension of the term by providing concrete examples
  - (D) demonstrate how the meaning of the term has evolved
  - (E) avoid possible misinterpretations resulting from the more common uses of the

term

18. According to the passage, which of the following best describes the relationship between law and power?
- (A) Law is the protector of power.
  - (B) Law is the source of power.
  - (C) Law sets bounds to power.
  - (D) Law is a product of power.
  - (E) Law is a stabilizer of power.
19. Which of the following methods is NOT used extensively by the author in describing his own conception of power?
- (A) Restatement of central ideas
  - (B) Provision of concrete examples
  - (C) Analysis and classification
  - (D) Comparison and contrast
  - (E) Statement of cause and effect
20. With which of the following statement would the author be most likely to agree?
- (A) Power tends to corrupt; absolute power corrupts absolutely.
  - (B) The highest proof of virtue is to possess boundless power without abusing it.
  - (C) To love knowledge is to love power.
  - (D) It is from the people and their deeds that power springs.
  - (E) The health of the people as a state is the foundation on which all their power depends.
21. The author's attitude toward the various kinds of compulsion employed by social institutions is best described as
- (A) concerned and sympathetic
  - (B) scientific and detached
  - (C) suspicious and cautious
  - (D) reproachful and disturbed
  - (E) meditative and wistful
22. According to the passage, states of power are transient because of the
- (A) differing natures and directions of the forces that create them
  - (B) rigid structural framework in which they operate
  - (C) unique source from which they emanate
  - (D) pervasive nature and complexity of the mechanisms by which they operate
  - (E) concatenation that seeks to arrest their movement
23. It can be inferred from the passage that the author believes the conflict among

social forces to be

- (A) essentially the same from one society to another even though its outward manifestation may seem different
- (B) usually the result of misunderstandings that impede social progress
- (C) an inevitable feature of the social order of any state
- (D) wrongly blamed for disrupting the stability of society
- (E) best moderated in states that possess a strong central government

The hypothesis of an expanding Earth has never attracted notable support, and if it were not for the historical example of continental drift, such indifference might be a legitimate response to an apparently improbable concept. It should be remembered, however, that drift too was once regarded as illusory, but the idea was kept alive until evidence from physicists compelled geologists to reinterpret their data.

Of course, it would be as dangerous to overreact to history by concluding that the majority must now be wrong about expansion as it would be to reenact the response that greeted the suggestion that the continents had drifted. The cases are not precisely analogous. There were serious problems with the pre-drift world view that a drift theory could help to resolve, whereas Earth expansion appears to offer no comparable advantages. If, however, physicists could show that the Earth's gravitational force has decreased with time, expansion would have to be reconsidered and accommodated.

24. The passage indicates that one reason why the expansion hypothesis has attracted little support is that it will not
- (A) overcome deficiencies in current geologic hypotheses
  - (B) clarify theories concerning the Earth's gravitational forces
  - (C) complement the theory of continental drift
  - (D) accommodate relevant theories from the field of physics
  - (E) withstand criticism from scientists outside the field of geology
25. The final acceptance of a drift theory could best be used to support the argument that
- (A) physicists are reluctant to communicate with other scientists
  - (B) improbable hypotheses usually turn out to be valid
  - (C) there should be cooperation between different fields of science
  - (D) there is a need for governmental control of scientific research
  - (E) scientific theories are often proved by accident
26. In developing his argument, the author warns against
- (A) relying on incomplete measurements
  - (B) introducing irrelevant information
  - (C) rejecting corroborative evidence
  - (D) accepting uninformed opinions



- (E) making unwarranted comparisons
27. It can be deduced from the passage that the gravitational force at a point on the Earth's surface is
- (A) representative of the geologic age of the Earth
  - (B) analogous to the movement of land masses
  - (C) similar to optical phenomena such as mirages
  - (D) proportional to the size of the Earth
  - (E) dependent on the speed of the Earth's rotation

## No. 3-1

## SECTION A

Notable as important nineteenth-century novels by women, Mary Shelley's *Frankenstein* and Emily Brontë's *Wuthering Heights* treat women very differently. Shelley produced a "masculine" text in which the fates of subordinate female characters seem entirely dependent on the actions of male heroes or anti-heroes. Brontë produced a more realistic narrative, portraying a world where men battle for the favors of apparently high-spirited, independent women. Nevertheless, these two novels are alike in several crucial ways. Many readers are convinced that the compelling mysteries of each plot conceal elaborate structures of allusion and fierce, though shadowy, moral ambitions that seem to indicate metaphysical intentions, though efforts by critics to articulate these intentions have generated much controversy. Both novelists use a storytelling method that emphasizes ironic disjunctions between different perspectives on the same events as well as ironic tensions that inhere in the relationship between surface drama and concealed authorial intention, a method I call an evidentiary narrative technique.

17. The primary purpose of the passage is to
- (A) defend a controversial interpretation of two novels
  - (B) explain the source of widely recognized responses to two novels
  - (C) delineate broad differences between two novels
  - (D) compare and contrast two novels
  - (E) criticize and evaluate two novels
18. According the passage, *Frankenstein* differs from *Wuthering Heights* in its
- (A) use of multiple narrators
  - (B) method of disguising the author's real purposes
  - (C) portrayal of men as determiners of the novel's action
  - (D) creation of a realistic story
  - (E) controversial effect on readers
19. Which of the following narrative strategies best exemplifies the "evidentiary

narrative technique” mentioned in line 24?

- (A) Telling a story in such a way that the author’s real intentions are discernible only through interpretations of allusions to a world outside that of the story
  - (B) Telling a story in such a way that the reader is aware as events unfold of the author’s underlying purposes and the ways these purposes conflict with the drama of the plot
  - (C) Telling a story in a way that both directs attention to the incongruities among the points of view of several characters and hints that the plot has a significance other than that suggested by its mere events
  - (D) Telling a story as a mystery in which the reader must deduce, from the conflicting evidence presented by several narrators, the moral and philosophical significance of character and event
  - (E) Telling a story from the author’s point of view in a way that implies both the author’s and the reader’s ironic distance from the dramatic unfolding of events
20. According to the passage, the plots of *Wuthering Heights* and *Frankenstein* are notable for their elements of
- (A) drama and secrecy
  - (B) heroism and tension
  - (C) realism and ambition
  - (D) mystery and irony
  - (E) morality and metaphysics

Climatic conditions are delicately adjusted to the composition of the Earth’s atmosphere. If there were a change in the atmosphere—for example, in the relative proportions of atmospheric gases—the climate would probably change also. A slight increase in water vapor, for instance, would increase the heat-retaining capacity of the atmosphere and would lead to a rise in global temperatures. In contrast, a large increase in water vapor would increase the thickness and extent of the cloud layer, reducing the amount of solar energy reaching the Earth’s surface.

The level of carbon dioxide, CO<sub>2</sub>, in the atmosphere has an important effect on climatic change. Most of the Earth’s incoming energy is short-wavelength radiation, which tends to pass through atmospheric CO<sub>2</sub> easily. The Earth, however, reradiates much of the received energy as long-wavelength radiation, which CO<sub>2</sub> absorbs and then remits toward the Earth. This phenomenon, known as the greenhouse effect, can result in an increase in the surface temperature of a planet. An extreme example of the effect is shown by Venus, a planet covered by heavy clouds composed mostly of CO<sub>2</sub>, whose surface temperatures have been measured at 430°C. If the CO<sub>2</sub> content of the atmosphere is reduced, the temperature falls. According to one respectable theory, if the atmospheric CO<sub>2</sub> concentration were halved, the Earth would become completely covered with ice. Another equally respectable theory, however, states that a halving of the CO<sub>2</sub> concentration would lead only to a reduction in global temperatures of 3°C.

If, because of an increase in forest fires or volcanic activity, the CO<sub>2</sub> content of the

atmosphere increased, a warmer climate would be produced. Plant growth, which relies on both the warmth and the availability of CO<sub>2</sub> would probably increase. As a consequence, plants would use more and more CO<sub>2</sub>. Eventually CO<sub>2</sub> levels would diminish and the climate, in turn, would become cooler. With reduced temperatures many plants would die; CO<sub>2</sub> would thereby be returned to the atmosphere and gradually the temperature would rise again. Thus, if this process occurred, there might be a long-term oscillation in the amount of CO<sub>2</sub> present in the atmosphere, with regular temperature increases and decreases of a set magnitude.

Some climatologists argue that the burning of fossil fuels has raised the level of CO<sub>2</sub> in the atmosphere and has caused a global temperature increase of at least 1°C. But a supposed global temperature rise of 1°C may in reality be only several regional temperature increases, restricted to areas where there are many meteorological stations and caused simply by shifts in the pattern of atmospheric circulation. Other areas, for example the Southern Hemisphere oceanic zone, may be experiencing an equivalent temperature decrease that is unrecognized because of the shortage of meteorological recording stations.

21. The passage supplies information for answering which of the following questions?
- (A) Why are projections of the effects of changes in water vapor levels on the climate so inaccurate?
  - (B) What are the steps in the process that takes place as CO<sub>2</sub> absorbs long-wavelength radiation?
  - (C) How might our understanding of the greenhouse effect be improved if the burning of fossil fuels were decreased?
  - (D) What might cause a series of regular increases and decreases in the amount of CO<sub>2</sub> in the atmosphere?
  - (E) Why are there fewer meteorological recording stations in the Southern Hemisphere oceanic zone than elsewhere?
22. The author is primarily concerned with
- (A) explaining the effects that the burning of fossil fuels might have on climate
  - (B) illustrating the effects of CO<sub>2</sub> on atmospheric radiation
  - (C) discussing effects that changes in the CO<sub>2</sub> level in the atmosphere might have on climate
  - (D) challenging hypotheses about the effects of water vapor and CO<sub>2</sub> on climate
  - (E) refuting hypotheses by climatologists about the causes of global temperature fluctuations
23. The passage suggests that a large decrease in the amount of CO<sub>2</sub> in the atmosphere would result in
- (A) at least a slight decrease in global temperatures
  - (B) at the most a slight increase in short-wavelength radiation reaching the Earth
  - (C) a slight long-term increase in global temperatures
  - (D) a large long-term increase in the amount of volcanic activity

- (E) a slight short-term increase in atmosphere water vapor content
24. The author refers to Venus primarily in order to
- (A) show the inherent weakness of the greenhouse effect theory
  - (B) show that the greenhouse effect works on other planets but not on Earth
  - (C) show the extent to which Earth's atmosphere differs from that of Venus
  - (D) support the contention that as water vapor increase, the amount of CO<sub>2</sub> increases
  - (E) support the argument that the CO<sub>2</sub> level in the atmosphere has a significant effect on climate
25. The passage suggests that if there were a slight global warming at the present time, it would be
- (A) easy to measure the exact increase in temperature because of the abundance of temperature recording stations throughout the world
  - (B) difficult to measure the increase of CO<sub>2</sub> in the atmosphere because of local variations in amounts
  - (C) easy to demonstrate the effects of the warming on the water vapor in the atmosphere
  - (D) difficult to prove that the warming was caused by the burning of fossil fuels
  - (E) easy to prove that the warming was caused by an increase of cloud cover
26. The discussion of climate in the passage suggests which of the following conclusion?
- I. Climate is not perfectly stable, and slight regional temperature variations can be considered a normal feature of the environment.
  - II. We are unable at present to measure global temperature changes precisely.
  - III. The most important cause of regional climatic fluctuations is the change in CO<sub>2</sub> levels in the atmosphere.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
27. All of the following can be found in the author's discussion of climate EXCEPT
- (A) a statement about the effects of increased volcanic activity on the Earth's temperatures
  - (B) an indication of the effect of an increase in water vapor in the atmosphere
  - (C) a contrast between two theories about the effects of a lowering of CO<sub>2</sub> levels in the atmosphere
  - (D) a generalization about the efficiency of meteorological recording stations

- (E) a hypothesis about the relationship between atmospheric gases and changes in climate

## SECTION B

The Food and Drug Administration has recently proposed severe restrictions on the use of antibiotics to promote the health and growth of meat animals. Medications added to feeds kill many microorganisms but also encourage the appearance of bacterial strains that are resistant to anti-infective drugs. Already, for example, penicillin and the tetracyclines are not as effective therapeutically as they once were. The drug resistance is chiefly conferred by tiny circlets of genes, called plasmids, that can be exchanged between different strains and even different species of bacteria. Plasmids are also one of the two kinds of vehicles (the other being viruses) that molecular biologists depend on when performing gene transplant experiments. Even present guidelines forbid the laboratory use of plasmids bearing genes for resistance to antibiotics. Yet, while congressional debate rages over whether or not to toughen these restrictions on scientists in their laboratories, little congressional attention has been focused on an ill-advised agricultural practice that produces known deleterious effects.

17. In the passage, the author is primarily concerned with
- (A) discovering methods of eliminating harmful microorganisms without subsequently generating drug-resistant bacteria
  - (B) explaining reasons for congressional inaction on the regulation of gene transplant experiments
  - (C) describing a problematic agricultural practice and its serious genetic consequences
  - (D) verifying the therapeutic ineffectiveness of anti-infective drugs
  - (E) evaluating recently proposed restrictions intended to promote the growth of meat animals
18. According to the passage, the exchange of plasmids between different bacteria can result in which of the following?
- (A) Microorganisms resistant to drugs
  - (B) Therapeutically useful circlets of genes
  - (C) Anti-infective drugs like penicillin
  - (D) Viruses for use by molecular biologists
  - (E) Vehicles for performing gene transplant experiments
19. It can be inferred from the passage that the author believes that those in favor of stiffening the restrictions on gene transplant research should logically also
- (A) encourage experiments with any plasmids except those bearing genes for antibiotic resistance
  - (B) question the addition of anti-infective drugs to livestock feeds
  - (C) resist the use of penicillin and tetracyclines to kill microorganisms

- (D) agree to the development of meatier livestock through the use of antibiotics  
(E) favor congressional debate and discussion of all science and health issues
20. The author's attitude toward the development of bacterial strains that render antibiotic drugs ineffective can best be described as
- (A) indifferent  
(B) perplexed  
(C) pretentious  
(D) insincere  
(E) apprehensive

During adolescence, the development of political ideology becomes apparent in the individual; ideology here is defined as the presence of roughly consistent attitudes, *more or less* organized in reference to a more encompassing, though perhaps *tacit*, set of general principles. *As such*, political ideology is dim or absent at the beginning of adolescence. Its acquisition by the adolescent, in even the most modest sense, requires the acquisition of relatively sophisticated cognitive skills: the ability to manage abstractness, to synthesize and generalize, to imagine the future. These are accompanied by a steady advance in the ability to understand principles.

The child's rapid acquisition of political knowledge also promotes the growth of political ideology during adolescence. By knowledge I mean more than the dreary "facts," such as the composition of county government that the child is exposed to in the conventional ninth-grade civics course. Nor do I mean only information on current political realities. These are facets of knowledge, but they are less critical than the adolescent's absorption, often unwitting, of a feeling for those many unspoken assumptions about the political system that comprise the common ground of understanding—for example, what the state can appropriately demand of its citizens, and *vice versa*, or the proper relationship of government to subsidiary social institutions, such as the schools and churches. Thus political knowledge is the awareness of social assumptions and relationships as well as of objective facts. Much of the naiveté that characterizes the younger adolescent's grasp of politics stems not from an ignorance of "facts" but from conventions of the system, of what is and is not customarily done, and of how and why it is or is not done.

Yet I do not want to overemphasize the significance of increased political knowledge in forming adolescent ideology. Over the years I have become progressively disenchanted about the centrality of such knowledge and have come to believe that much current work in political socialization, by relying too heavily on its apparent acquisition, has been misled about the tempo of political understanding in adolescence. Just as young children can count numbers in series without grasping the principle of ordination, young adolescents may have in their heads many random bits of political information without a secure understanding of those concepts that would give order and meaning to the information.

Like magpies, children's minds pick up *bits and pieces* of data. If you encourage them, they will drop these at your feet—Republicans and Democrats, the tripartite division of the federal system, perhaps even the capital of Massachusetts. But until the adolescent has grasped the integumental function that concepts and principles provide, the data remain fragmented,



random, disordered.

21. The author's primary purpose in the passage is to
- (A) clarify the kinds of understanding an adolescent must have in order to develop a political ideology
  - (B) dispute the theory that a political ideology can be acquired during adolescence
  - (C) explain why adolescents are generally uninterested in political arguments
  - (D) suggest various means of encouraging adolescents to develop personal political ideologies
  - (E) explain why an adolescent's political ideology usually appears more sophisticated than it actually is
22. According to the author, which of the following contributes to the development of political ideology during adolescence?
- (A) Conscious recognition by the adolescent of his or her own naiveté
  - (B) Thorough comprehension of the concept of ordination
  - (C) Evaluation by the adolescent of the general principles encompassing his or her specific political ideas
  - (D) Intuitive understanding of relationships among various components of society
  - (E) Rejection of abstract reasoning in favor of involvement with pragmatic situations
23. The author uses the term "common ground of understanding" (line 27) to refer to
- (A) familiar legislation regarding political activity
  - (B) the experiences that all adolescents share
  - (C) a society's general sense of its own political activity
  - (D) a society's willingness to resolve political tensions
  - (E) the assumption that the state controls social institutions
24. The passage suggests that, during early adolescence, a child would find which of the following most difficult to understand?
- (A) A book chronicling the ways in which the presidential inauguration ceremony has changed over the years
  - (B) An essay in which an incident in British history is used to explain the system of monarchic succession
  - (C) A summary of the respective responsibilities of the legislative, executive, and judicial branches of government
  - (D) A debate in which the participants argue, respectively, that the federal government should or should not support private schools
  - (E) An article detailing the specific religious groups that founded American colonies and the guiding principles of each one

25. It can be inferred from the passage that the author would be most likely to agree with which of the following statements about schools?
- (A) They should present political information according to carefully planned, schematic arrangements.
  - (B) They themselves constitute part of a general sociopolitical system that adolescents are learning to understand.
  - (C) If they were to introduce political subject matter in the primary grades, students would understand current political realities at an earlier age.
  - (D) They are ineffectual to the degree that they disregard adolescents' political naiveté.
  - (E) Because they are subsidiary to government their contribution to the political understanding of adolescent must be limited.
26. Which of the following best summarizes the author's evaluation of the accumulation of political knowledge by adolescents?
- (A) It is unquestionably necessary, but its significance can easily be overestimated.
  - (B) It is important, but not as important as is the ability to appear knowledgeable.
  - (C) It delays the necessity of considering underlying principles.
  - (D) It is primarily relevant to an understanding of limited, local concerns, such as county politics.
  - (E) It is primarily dependent on information gleaned from high school courses such as civics.
27. Which of the following statements best describes the organization of the author's discussion of the role of political knowledge in the formation of political ideology during adolescence?
- (A) He acknowledges its importance, but then modifies his initial assertion of that importance.
  - (B) He consistently resists the idea that it is important, using a series of examples to support his stand.
  - (C) He wavers in evaluating it and finally uses analogies to explain why he is indecisive.
  - (D) He begins by questioning conventional ideas about its importance, but finally concedes that they are correct.
  - (E) He carefully refrains from making an initial judgment about it, but later confirms its critical role.

No. 3-2

SECTION A

The making of classifications by literary historians can be a somewhat risky enterprise. When Black poets are discussed separately as a group, for instance, the extent to which their work reflects the development of poetry in general should not be forgotten, or a distortion of literary history may result. This caution is particularly relevant in an assessment of the differences between Black poets at the turn of the century (1900-1909) and those of the generation of the 1920's. These differences include the bolder and more forthright speech of the later generation and its technical inventiveness. It should be remembered, though, that comparable differences also existed for similar generations of White poets.

When poets of the 1910's and 1920's are considered together, however, the distinctions that literary historians might make between "conservative" and "experimental" would be of little significance in a discussion of Black poets, although these remain helpful classifications for White poets of these decades. Certainly differences can be noted between "conservative" Black poets such as Countee Cullen and Claude McKay and "experimental" ones such as Jean Toomer and Langston Hughes. But Black poets were not battling over old or new styles; rather, one accomplished Black poet was ready to welcome another, whatever his or her style, for what mattered was racial pride.

However, in the 1920's Black poets did debate whether they should deal with specifically racial subjects. They asked whether they should only write about Black experience for a Black audience or whether such demands were restrictive. It may be said, though, that virtually all these poets wrote their best poems when they spoke out of racial feeling, race being, as James Weldon Johnson rightly put it, "perforce the thing the Negro poet knows best."

At the turn of the century, by contrast, most Black poets generally wrote in the conventional manner of the age and expressed noble, if vague, emotions in their poetry. These poets were not unusually gifted, though Roscoe Jamison and G. M. McClellan may be mentioned as exceptions. They chose not to write in dialect, which, as Sterling Brown has suggested, "meant a rejection of stereotypes of Negro life," and they refused to write only about racial subjects. This refusal had both a positive and a negative consequence. As Brown observes, "Valuably insisting that Negro poets should not be confined to issues of race, these poets committed [an] error... they refused to look into their hearts and write." These are important insights, but one must stress that this refusal to look within was also typical of most White poets of the United States at the time. They, too, often turned from their own experience and consequently produced not very memorable poems about vague topics, such as the peace of nature.

17. According to the passage, most turn-of-the-century Black poets generally did which of the following?
- (A) Wrote in ways that did not challenge accepted literary practice.
  - (B) Described scenes from their own lives.
  - (C) Aroused patriotic feelings by expressing devotion to the land.
  - (D) Expressed complex feelings in the words of ordinary people.
  - (E) Interpreted the frustrations of Blacks to an audience of Whites.
18. According to the passage, an issue facing Black poets in the 1920's was whether they should

- (A) seek a consensus on new techniques of poetry
  - (B) write exclusively about and for Blacks
  - (C) withdraw their support from a repressive society
  - (D) turn away from social questions to recollect the tranquility of nature
  - (E) identify themselves with an international movement of Black writers
19. It can be inferred from the passage that classifying a poet as either conservative or experimental would be of “little significance” (line 21) when discussing Black poets of the 1910’s and the 1920’s because
- (A) these poets wrote in very similar styles
  - (B) these poets all wrote about nature in the same way
  - (C) these poets were fundamentally united by a sense of racial achievement despite differences in poetic style
  - (D) such a method of classification would fail to take account of the influence of general poetic practice
  - (E) such a method of classification would be relevant only in a discussion of poets separated in time by more than three decades
20. The author quotes Sterling Brown in lines 53-56 in order to
- (A) present an interpretation of some black poets that contradicts the author’s own assertion about their acceptance of various poetic styles
  - (B) introduce a distinction between Black poets who used dialect and White poets who did not
  - (C) disprove James Weldon Johnson’s claim that race is what “the Negro poet knows best”
  - (D) suggest what were the effects of some Black poets’ decision not to write only about racial subjects
  - (E) prove that Black poets at the turn of the century wrote less conventionally than did their White counterparts
21. It can be inferred from the passage that the author finds the work of the majority of the Black poets at the turn of the century to be
- (A) unexciting
  - (B) calming
  - (C) confusing
  - (D) delightful
  - (E) inspiring
22. The author would be most likely to agree that poets tend to produce better poems when they
- (A) express a love of nature
  - (B) declaim noble emotions

- (C) avoid technical questions about style
  - (D) emulate the best work of their predecessors
  - (E) write from personal experience
23. Which of the following best describes the attitude of the author toward classification as a technique in literary history?
- (A) Enthusiastic
  - (B) Indifferent
  - (C) Wary
  - (D) Derisive
  - (E) Defensive

The primary method previously used by paleontologists to estimate climatic changes that occurred during Pleistocene glacial cycles was the determination of  $^{18}\text{O}/^{16}\text{O}$  ratios in calcareous fossils. However, because this ratio is influenced by a number of factors, the absolute magnitude of the temperature difference between Pleistocene glacial and interglacial cycles could not be unequivocally ascertained. For example, both temperature fluctuations and isotopic changes in seawater affect the  $^{18}\text{O}/^{16}\text{O}$  ratio. And, since both factors influence the ratio in the same direction, the contribution of each to the  $^{18}\text{O}/^{16}\text{O}$  cannot be determined.

Fortunately, recent studies indicate that the racemization reaction of amino acids can be used to determine more accurately temperatures that occurred during Pleistocene glacial cycles. Only L-amino acids are usually found in the proteins of living organisms, but over long periods of geological time these acids undergo racemization, producing D-amino acids, which are not found in proteins. This reaction depends on both time and temperature; thus, if one variable is known, the reaction can be used to calculate the other.

24. It can be inferred from the passage that determination of the temperatures mentioned in line 17 through  $^{18}\text{O}/^{16}\text{O}$  ratios and determination through racemization reactions both require which of the following?
- (A) Calcium deposits known to be from Pleistocene seas
  - (B) Proteins containing both L-amino acids and D-amino acids
  - (C) Glacial debris from both before and after the Pleistocene period
  - (D) Fossil material from organisms living during the Pleistocene period
  - (E) Proteins containing both amino acids and  $^{18}\text{O}$
25. The passage suggests that the  $^{18}\text{O}/^{16}\text{O}$  ratio could be used more successfully as a means of measurement if scientists were able to
- (A) determine the  $^{18}\text{O}/^{16}\text{O}$  ratio in living animals as well as in fossil remains
  - (B) locate a greater number of calcareous fossils from the Pleistocene glacial and interglacial cycles
  - (C) locate the factors other than temperature fluctuations and isotopic changes in seawater that affect the  $^{18}\text{O}/^{16}\text{O}$  ratio
  - (D) arrive at more exact determinations of which amino acids are found in the

proteins of living organisms

(E) isolate the relative effects of temperature fluctuations and isotopic changes in seawater on  $^{18}\text{O}/^{16}\text{O}$  ratios

26. The information in the passage can be used to answer which of the following questions?
- I. Do temperature variations and isotopic changes in seawater cause the  $^{18}\text{O}/^{16}\text{O}$  ratio to shift in the same direction?
  - II. What are the methods used to determine the  $^{18}\text{O}/^{16}\text{O}$  ratio?
  - III. Is the study of racemization reactions useful in estimating climatic changes that occurred during Pleistocene glacial cycles if only one of the two important variables is known?
- (A) I only  
(B) I and II only  
(C) I and III only  
(D) II and III only  
(E) I, II, and III
27. According to the passage, before the recent experiments described in the passage were completed, scientists could
- (A) determine temperatures only for Pleistocene seas
  - (B) determine temperatures that occurred during Pleistocene glacial cycles only by examining fossil remains
  - (C) measure changes in temperatures that occurred during Pleistocene glacial cycles with only questionable accuracy
  - (D) only partially identify factors tending to lower Pleistocene temperatures
  - (E) accurately determine temperatures only for land masses affected by glaciation

## SECTION B

Chimps and children, gulls and Greeks—the ethologists go their merry way, comparing bits of human cultural behavior with bits of genetically programmed animal behavior. True, humans are animals; they share certain anatomical features with other animals, and some items of human behavior may seem analogous to the behavior of other animals. But such analogies can seriously mislead if we fail to look at the context of a particular item of behavior. Thus one ethologist compares the presentation of a twig by a cormorant with gift-giving in humans. Yet the cormorant's twig-presentation simply inhibits attack and is comparable to other appeasement rituals found in many species. Human gift-giving differs in form and purpose not only from culture to culture, but within the same culture in various social contexts. Everything significant about it derives from its social context. Thus, ethologists can accomplish little—beyond reminding us that we are animals—until they study humans as cultural beings.

17. The author is primarily concerned with



- (A) demonstrating the usefulness of ethology in discovering the behavioral limits within which humans operate
  - (B) objecting to the degradation of humanity implicit in the ethologists equation of humans and animals
  - (C) pointing out the dangers inherent in comparing highly dissimilar species, such as humans and cormorants, rather than similar ones, such as humans and apes
  - (D) refuting the idea that the appeasement rituals in human cultural behavior can be profitably subjected to ethological analysis
  - (E) arguing that the ethologists' assumption that human behavior can be straightforwardly compared with animal behavior is invalid
18. The author believes that gift-giving in humans
- (A) is instinctive behavior
  - (B) is analogous to appeasement rituals in other animals
  - (C) is not an appropriate subject of study for ethologists
  - (D) must be considered within its social context to be properly understood
  - (E) may be a cultural remnant of behavior originally designed to inhibit attack
19. The author's attitude toward contemporary ethologists can best be described as
- (A) puzzled
  - (B) conciliatory
  - (C) defensive
  - (D) amused
  - (E) disparaging
20. Which of the following statements from a report on a cross-cultural study of gift-giving would, if true, most strongly support the author's assertions concerning human gift-giving?
- (A) In every culture studied, it was found that some forms of gift-giving are acts of aggression that place the receiver under obligation to the giver.
  - (B) Most governmental taxation systems differentiate between gifts of property given to children during a parent's lifetime, and a child's inheritance of the same property from a parent dying without a will.
  - (C) Some gift-giving customs have analogous forms in nearly every culture, as in the almost universal custom of welcoming strangers with gifts of food.
  - (D) In North America, generally speaking, money is an acceptable holiday gift to one's letter carrier or garbage collector, but is often considered an insult if given to one's employer, friends, or relatives.
  - (E) Some gifts, being conciliatory in nature, indicate by their costliness the degree of hostility they must appease in the recipient.

Few areas of neurobehavioral research seemed more promising in the early sixties than

that investigating the relationship between protein synthesis and learning. The conceptual framework for this research was derived directly from molecular biology, which had shown that genetic information is stored in nucleic acids and expressed in proteins. Why not acquired information as well?

The first step toward establishing a connection between protein synthesis and learning seemed to be block memory (cause amnesia) by interrupting the production of protein. We were fortunate in finding a nonlethal dosage of puromycin that could, it first appeared, thoroughly inhibit brain protein synthesis as well as reliably produce amnesia.

Before the actual connection between protein synthesis and learning could be established, however, we began to have doubts about whether inhibition of protein synthesis was in fact the method by which puromycin produced amnesia. First, other drugs, glutarimides—themselves potent protein-synthesis inhibitors—either failed to cause amnesia in some situations where it could easily be induced by puromycin or produced an amnesia with a different time course from that of puromycin. Second, puromycin was found to inhibit protein synthesis by breaking certain amino-acid chains, and the resulting fragments were suspected of being the actual cause of amnesia in some cases. Third, puromycin was reported to cause abnormalities in the brain, including **seizures**. Thus, not only were decreased protein synthesis and amnesia dissociated, but alternative mechanisms for the amnestic action of puromycin were readily suggested.

So, puromycin turned out to be a disappointment. It came to be regarded as a poor agent for amnesia studies, although, of course, it was poor only in the context of our original paradigm of protein-synthesis inhibition. In our frustration, our initial response was simply to change drugs rather than our conceptual orientation. After many such disappointments, however, it now appears unlikely that we will make a firm connection between protein synthesis and learning merely by pursuing the approaches of the past. Our experience with drugs has shown that all the amnestic agents often interfere with memory in ways that seem unrelated to their inhibition of protein synthesis. More importantly, the notion that the interruption or intensification of protein production in the brain can be related in cause-and-effect fashion to learning now seems simplistic and unproductive. Remove the battery from a car and the car will not go. Drive the car a long distance at high speed and the battery will become more highly charged. Neither of these facts proves that the battery powers the car; only a knowledge of the overall automotive system will reveal its mechanism of the locomotion and the role of the battery within that system.

21. This passage was most likely excerpted from
- (A) a diary kept by a practicing neurobehavioral researcher
  - (B) a newspaper article on recent advances in the biochemistry of learning
  - (C) a technical article on experimental techniques in the field of molecular biology
  - (D) an article summarizing a series of scientific investigations in neurobehavioral research
  - (E) a book review in a leading journal devoted to genetic research
22. The primary purpose of the passage is to show that extensive experimentation has

- (A) demonstrated the importance of amino-acid fragmentation in the induction of amnesia
  - (B) cast doubt on the value of puromycin in the neurobehavioral investigation of learning
  - (C) revealed the importance of amnesia in the neurobehavioral study of learning
  - (D) not yet demonstrated the applicability of molecular biology to neurobehavioral research
  - (E) not supported the hypothesis that learning is directly dependent on protein synthesis
23. According to the passage, neurobehaviorists initially based their belief that protein synthesis was related to learning on which of the following?
- (A) Traditional theories about learning
  - (B) New techniques in protein synthesis
  - (C) Previous discoveries in molecular biology
  - (D) Specific research into learning and amnesia
  - (E) Historic experiments on the effects of puromycin
24. The passage mentions all of the following as effects of puromycin EXCEPT:
- (A) brain seizures
  - (B) memory loss
  - (C) inhibition of protein synthesis
  - (D) destruction of genetic information
  - (E) fragmentation of amino-acid chains
25. It can be inferred from the passage that, after puromycin was perceived to be a disappointment, researchers did which of the following?
- (A) They ceased to experiment with puromycin and shifted to other promising protein-synthesis inhibitors.
  - (B) They ceased to experiment with puromycin, and reexamined through experiments the relationship between genetic information and acquired information.
  - (C) They continued to experiment with puromycin, but applied their results to other facets of memory research.
  - (D) They continued to experiment with puromycin, but also tried other protein-synthesis inhibitors.
  - (E) They continued to experiment with puromycin until a new neuroanatomical framework was developed.
26. In the example of the car (lines 58-65), the battery is meant to represent which of the following elements in the neurobehavioral research program?
- (A) Puromycin

- (B) Amnesia
  - (C) Glutarimides
  - (D) Protein synthesis
  - (E) Acquired information
27. Which of the following statements could be most likely to come after the last sentence of the passage?
- (A) The failures of the past, however, must not impede further research into the amnesic action of protein-synthesis inhibitors.
  - (B) It is a legacy of this research, therefore, that molecular biology's genetic models have led to disagreements among neurobehaviorists.
  - (C) The ambivalent status of current research, however, should not deter neurobehaviorists from exploring the deeper connections between protein production and learning.
  - (D) It is important in the future, therefore, for behavioral biochemists to emphasize more strongly the place of their specific findings within the overall protein-synthesis model of learning.
  - (E) It is important in the future, therefore, for behavioral biochemists to focus on the several components of the total learning system.

No. 3-3

## SECTION A

Although pathogenic organisms constantly alight on the skin, they find it a very unfavorable environment and, in the absence of injury, have great difficulty colonizing it. This "self-sterilizing" capacity of the skin results from the tendency of all well-developed ecosystems toward homeostasis, or the maintenance of the status quo.

Species that typically live in soil, water, and elsewhere rarely multiply on the skin. Undamaged skin is also unfavorable to most human pathogens. The skin is too acid and too arid for some species. The constant shedding of the surface skin layers further hinders the establishment of invaders. The most interesting defense mechanism, however, results from the metabolic activities of the **resident flora**. Unsaturated fatty acids, an important component of the lipids in sebum collected from the skin surface, inhibit the growth of several bacterial and fungal cutaneous pathogens. These acids are a metabolic product of certain gram-positive members of the cutaneous community, which break down the more complex lipids in freshly secreted sebum.

17. The primary purpose of the passage is to
- (A) offer an analysis of metabolic processes
  - (B) detail the ways in which bacteria and fungi can be inhibited
  - (C) describe mechanisms by which the skin protects itself against pathogens

- (D) analyze the methods whereby biological systems maintain the status quo  
(E) provide a specific example of the skin's basic defenses against pathogens
18. The "resident flora" mentioned in line 16 refer to  
(A) "Unsaturated fatty acids" (line 17)  
(B) "sebum collected from the skin surface" (lines 18-19)  
(C) "bacterial and fungal cutaneous pathogens" (lines 19-20)  
(D) "certain gram-positive members of the cutaneous community" (lines 21-22)  
(E) "more complex lipids" (lines 23)
19. Among the natural defenses of the skin against pathogenic organisms are all of the following EXCEPT the  
(A) dryness of the skin  
(B) acidity of the skin  
(C) tendency of the pathogens toward homeostasis  
(D) shedding of surface layers of the skin  
(E) metabolic breakdown of lipids
20. The author presents her material in which of the following ways?  
(A) Stating a problem and then supplying a solution  
(B) Presenting a phenomenon and then analyzing reason for it  
(C) Providing information and then drawing a conclusion from it  
(D) Making a general statement and then arguing by analogy  
(E) Making an inference and then developing it by illustration

"Masterpieces are dumb," wrote Flaubert, "They have a tranquil aspect like the very products of nature, like large animals and mountains." He might have been thinking of *War and Peace*, that vast, silent work, unfathomable and simple, provoking endless questions through the majesty of its being. Tolstoi's simplicity is "overpowering," says the critic Bayley, "disconcerting," because it comes from "his casual assumption that the world is as he sees it." Like other nineteenth-century Russian writers he is "impressive" because he "means what he says," but he stands apart from all others and from most Western writers in his identity with life, which is so complete as to make us forget he is an artist. He is the center of his work, but his egocentricity is of a special kind. Goethe, for example, says Bayley, "cared for nothing but himself. Tolstoi was nothing but himself."

For all his varied modes of writing and the multiplicity of characters in his fiction, Tolstoi and his work are of a piece. The famous "conversion" of his middle years, movingly recounted in his *Confession*, was a culmination of his early spiritual life, not a departure from it. The apparently fundamental changes that led from epic narrative to dogmatic parable, from a joyous, buoyant attitude toward life to pessimism and cynicism, from *War and Peace* to *The Kreutzer Sonata*, came from the same restless, impressionable depths of an independent spirit yearning to get at the truth of its experience. "Truth is my hero," wrote Tolstoi in his youth, reporting the fighting in Sebastopol. Truth remained his hero—his own, not others', truth.

Others were awed by Napoleon, believed that a single man could change the destinies of nations, adhered to meaningless rituals, formed their tastes on established canons of art. Tolstoi reversed all preconceptions; and in every reversal he overthrew the "system," the "machine," the externally ordained belief, the conventional behavior in favor of unsystematic, impulsive life, of inward motivation and the solutions of independent thought.

In his work the artificial and the genuine are always exhibited in dramatic opposition: the supposedly great Napoleon and the truly great, **unregarded** little Captain Tushin, or Nicholas Rostov's actual experience in battle and his later account of it. The simple is always **pitted against** the elaborate, knowledge gained from observation against assertions of borrowed faiths. Tolstoi's magical simplicity is a product of these tensions; his work is a record of the questions he put to himself and of the answers he found in his search. The greatest characters of his fiction exemplify this search, and their happiness depends on the measure of their answers. Tolstoi wanted happiness, but only hard-won happiness, that emotional fulfillment and intellectual clarity which could come only as the prize of **all-consuming** effort. He scorned lesser satisfactions.

21. Which of the following best characterizes the author's attitude toward Tolstoi?
- (A) She deprecates the cynicism of his later works.
  - (B) She finds his theatricality artificial.
  - (C) She admires his wholehearted sincerity.
  - (D) She thinks his inconsistency disturbing.
  - (E) She respects his devotion to orthodoxy.
22. Which of the following best paraphrases Flaubert's statement quoted in lines 1-4?
- (A) Masterpiece seem ordinary and unremarkable from the perspective of a later age.
  - (B) Great works of art do not explain themselves to us any more than natural objects do.
  - (C) Important works of art take their place in the pageant of history because of their uniqueness.
  - (D) The most important aspects of good art are the orderliness and tranquility it reflects.
  - (E) Masterpieces which are of enduring value represent the forces of nature.
23. The author quotes from Bayley (line 8-20) to show that
- (A) although Tolstoi observes and interprets life, he maintains no self-conscious distance from his experience
  - (B) the realism of Tolstoi's work gives the illusion that his novels are reports of actual events
  - (C) unfortunately, Tolstoi is unaware of his own limitation, though he is sincere in his attempt to describe experience
  - (D) although Tolstoi works casually and makes unwarranted assumption, his work has an inexplicable appearance of truth



- (E) Tolstoi's personal perspective makes his work almost unintelligible to the majority of his readers
24. The author states that Tolstoi's conversion represented
- (A) a radical renunciation of the world
  - (B) the rejection of avant-garde ideas
  - (C) the natural outcome of his earlier beliefs
  - (D) the acceptance of religion he had earlier rejected
  - (E) a fundamental change in his writing style
25. According to the passage, Tolstoi's response to the accepted intellectual and artistic values of his times was to
- (A) select the most valid from among them
  - (B) combine opposing viewpoints into a new doctrine
  - (C) reject the claims of religion in order to serve his art
  - (D) subvert them in order to defend a new political viewpoint
  - (E) upset them in order to be faithful to his experience
26. It can be inferred from the passage that which of the following is true of *War and Peace*?
- (A) It belongs to an early period of Tolstoi's work.
  - (B) It incorporates a polemic against the disorderliness of Russian life.
  - (C) It has a simple structural outline.
  - (D) It is a work that reflects an ironic view of life.
  - (E) It conforms to the standard of aesthetic refinement favored by Tolstoi's contemporaries.
27. According to the passage, the explanation of Tolstoi's "magical simplicity" (line 55) lies partly in his
- (A) remarkable power of observation and his facility in exact description
  - (B) persistent disregard for conventional restraints together with his great energy
  - (C) unusual ability to reduce the description of complex situations to a few words
  - (D) abiding hatred of religious doctrine and preference for new scientism
  - (E) continuing attempt to represent the natural in opposition to the pretentious

## SECTION B

The stratospheric ozone layer is not a completely uniform stratum, nor does it occur at the same altitude around the globe. It lies closest to the Earth over the poles and rises to maximum altitude over the equator. In the stratosphere, ozone is continuously being made and destroyed by natural processes. During the day the Sun breaks down some of the oxygen molecules to single oxygen atoms, and these reacting with the oxygen molecules that have not been dissociated, form ozone. However, the sunlight also breaks down ozone by converting some of

it back to normal oxygen. In addition naturally occurring nitrogen oxides enter into the cycle and speed the breakdown reactions. The amount of ozone present at any one time is the balance between the processes that create it and those that destroy it.

Since the splitting of the oxygen molecules depends directly upon the intensity of solar radiation, the greatest rate of ozone production occurs over the tropics. However ozone is also destroyed most rapidly there, and wind circulation patterns carry the ozone-enriched upper layers of the atmosphere away from the equator. It turns out that the largest total ozone amounts are found at high latitudes. On a typical day the amount of ozone over Minnesota, for example, is 30 percent greater than the amount over Texas, 900 miles farther south. The density and altitude of the ozone layer also change with the seasons, the weather, and the amount of solar activity. Nevertheless, at any one place above the Earth's surface, the long-term averages maintained by natural processes are believed to be reasonably constant.

The amount of ozone near the Earth is only a small percent of the amount in the stratosphere, and exchange of molecules between the ozone layer and the air at ground level is thought to be relatively small. Furthermore, the ozone molecule is so unstable that only a tiny fraction of ground-level ozone could survive the long trip to the stratosphere, so the ozone layer will not be replenished to any significant degree by the increasing concentrations of ozone that have been detected in recent years near the earth's surface. The long-term averages of ozone both near **ground level** and in the stratosphere are regulated by continuous processes that are constantly destroying and creating it in each of these places. This is why scientists are so concerned about human beings injection into the stratosphere of chemicals like nitrogen oxides, which are catalysts that facilitate the breakdown of ozone. If the ozone layer is depleted significantly, more ultraviolet radiation would penetrate to the Earth's surface and damage many living organisms.

17. The passage suggests that factors contributing to the variation in the amount of ozone above different areas of the Earth's surface include which of the following?
- I. Some of the ozone found at higher latitudes was produced elsewhere.
  - II. There is usually a smaller amount of naturally occurring nitrogen oxide over high latitudes.
  - III. The rate of ozone production over the poles is less than that over the tropics.
- (A) II only  
(B) III only  
(C) I and II only  
(D) I and III only  
(E) I, II, and III
18. Which of the following best states the central idea of the passage?
- (A) Naturally occurring nitrogen oxides, as well as those introduced by humans, threaten to deplete the layer of ozone in the stratosphere.
  - (B) A delicate but reasonably constant balance exists between the natural processes that produce and those that destroy ozone in the stratosphere.
  - (C) There is little hope that the increased concentrations of ground-level ozone

- observed in recent years can offset any future depletion of stratospheric ozone.
- (D) Meteorologically induced changes in the concentration of ozone in the stratosphere tend to cancel themselves out over a period of time.
- (E) Solar radiation not only produces and destroys ozone but also poses a hazard to human life.
19. The processes that determine the amount of ozone in a given portion of the stratosphere most resemble which of the following?
- (A) Automobile emissions and seasonal fog that create a layer of smog over a city
- (B) Planting and harvesting activities that produce a crop whose size is always about the same
- (C) Withdrawals and deposits made in a bank account whose average balance remains about the same
- (D) Assets and liabilities that determine the net worth of a corporation
- (E) High grades and low grades made by a student whose average remains about the same from term to term
20. According to the passage, which of the following has the LEAST effect on the amount of ozone at a given location in the upper atmosphere?
- (A) Latitude
- (B) Weather
- (C) Season
- (D) Ground-level ozone
- (E) Solar activity
21. The author provides information that answers which of the following questions?
- I. What is the average thickness of the stratospheric ozone layer?
- II. Why does increased exposure to ultraviolet radiation damage many living organisms?
- III. What is the role of oxygen in the production of stratospheric ozone?
- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) II and III
22. In explaining what determines the amount of ozone in the stratosphere, the author describes natural processes that form
- (A) an interactive relationship
- (B) a reductive system
- (C) a linear progression

(D) a set of randomly occurring phenomena

(E) a set of sporadically recurring events

Feelings of hopelessness among medieval workers trapped in the poverty cycle gradually lessened as it became possible for women's labor to supplement a family's money income by more than pennies. By 1300, women spinners could be found working **on their own** for wealthy sponsors, even after the introduction in Italy and France of prohibition against advancing money for supplies to women spinners. Historians have usually interpreted this prohibition simply as evidence of women's economic subjection, since it obliged them to turn to usurers; however, it was also almost certainly a response to a trend toward differential reward for women's higher skill. Yarn can be spun irregularly and lumpily, but perfectly smooth yarn is worth more. Working for merchant entrepreneurs on time rates, women had been paid hardly more than children; working as entrepreneurs themselves and producing good work by the piece, they could **break into** the rational system of differential rewards.

23. The primary purpose of the passage is to

(A) propose and defend a theory about the consequences of a certain historical event

(B) present historical facts and offer a broader interpretation of those facts than has been offered in the past

(C) describe the socioeconomic effects of a widely held attitude during a particular historical period

(D) demonstrate the superiority of using an economic approach to historical analysis

(E) call attention to the influence of the textile industry on society during a particular historical period

24. It can be inferred from the passage that the author views the system of paying all workers equally on time rates as

(A) unfair and not rational

(B) undesirable but unavoidable

(C) efficient and profitable

(D) advantageous to most women workers

(E) evidence of a trend toward a more modern wage system

25. The passage implies which of the following about women spinners in medieval Europe?

(A) Most of them worked independently for wealthy sponsors.

(B) They were not typical of medieval women entrepreneurs.

(C) Some of them were paid for their work after it was done, according to its value.

(D) They would have been able to contribute substantial amounts to their families' incomes were it not for the prohibition against advancing money to them.

- (E) They were inevitably disadvantaged in the marketplace because they were obliged to obtain money for their supplies from usurers.
26. The passage implies that feelings of hopelessness among medieval workers
- (A) resulted primarily from the lack of a rational system of differential rewards
  - (B) disappeared completely once medieval textile workers were able to break the cycle of poverty
  - (C) were more prevalent among female workers than among male workers
  - (D) came into being in part because of women's limited earning capacity
  - (E) were particularly common among textile workers in Italy and France
27. The author suggests that historians have done which of the following?
- (A) Failed to give adequate consideration to the economic contribution of women during the medieval period.
  - (B) Overestimated the degree of hopelessness experienced by medieval workers trapped in the poverty cycle.
  - (C) Ignored the fact that by 1300 many women spinners were working independently rather than for merchant entrepreneurs.
  - (D) Regard the economic status of women in Italy and France as representative of women's status throughout medieval Europe.
  - (E) Overlooked part of the significance of a prohibition governing one aspect of yarn production in medieval Europe.

No. 4-1

## SECTION A

By the time the American colonists took up arms against Great Britain in order to secure their independence, the institution of Black slavery was deeply entrenched. But the contradiction inherent in this situation was, for many, a source of constant embarrassment. "It always appeared a most iniquitous scheme to me," Abigail Adams wrote her husband in 1774, "to fight ourselves for what we are daily robbing and plundering from those who have as good a right to freedom as we have."

Many Americans besides Abigail Adams were struck by the inconsistency of their stand during the War of Independence, and they were not averse to making moves to emancipate the slaves. Quakers and other religious groups organized antislavery societies, while numerous individuals manumitted their slaves. In fact, within several years of the end of the War of Independence, most of the Eastern states had made provisions for the gradual emancipation of slaves.

17. Which of the following best states the central idea of the passage?
- (A) The War of Independence produced among many Black Americans a heightened consciousness of the inequities in American society.

- (B) The War of Independence strengthened the bonds of slavery of many Black Americans while intensifying their desire to be free.
  - (C) The War of Independence exposed to many Americans the contradiction of slavery in a country seeking its freedom and resulted in efforts to resolve that contradiction.
  - (D) The War of Independence provoked strong criticisms by many Americans of the institution of slavery, but produced little substantive action against it.
  - (E) The War of Independence renewed the efforts of many American groups toward achieving Black emancipation.
18. The passage contains information that would support which of the following statements about the colonies before the War of Independence?
- (A) They contained organized antislavery societies.
  - (B) They allowed individuals to own slaves.
  - (C) They prohibited religious groups from political action.
  - (D) They were inconsistent in their legal definitions of slave status.
  - (E) They encouraged abolitionist societies to expand their influence.
19. According to the passage, the War of Independence was embarrassing to some Americans for which of the following reasons?
- I. It involved a struggle for many of the same liberties that Americans were denying to others.
  - II. It involved a struggle for independence from the very nation that had founded the colonies.
  - III. It involved a struggle based on inconsistencies in the participants' conceptions of freedom.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II, and III
20. Which of the following statements regarding American society in the years immediately following the War of Independence is best supported by the passage?
- (A) The unexpected successes of the antislavery societies led to their gradual demise in the Eastern states.
  - (B) Some of the newly independent American states had begun to make progress toward abolishing slavery.
  - (C) Americans like Abigail Adams became disillusioned with the slow progress of emancipation and gradually abandoned the cause.
  - (D) Emancipated slaves gradually were accepted in the Eastern states as equal



members of American society.

- (E) The abolition of slavery in many Eastern states was the result of close cooperation between religious groups and free Blacks.

The evolution of sex ratios has produced, in most plants and animals with separate sexes, approximately equal numbers of males and females. Why should this be so? Two main kinds of answers have been offered. One is *couched* in terms of advantage to population. It is argued that the *sex ratio* will evolve so as to maximize the number of meetings between individuals of the opposite sex. This is essentially a “*group selection*” argument. The other, and in my view correct, type of answer was first put forward by Fisher in 1930. This “genetic” argument starts from the assumption that genes can influence the relative numbers of male and female offspring produced by an individual carrying the genes. That sex ratio will be favored which maximizes the number of descendants an individual will have and hence the number of gene copies transmitted. Suppose that the population consisted mostly of females: then an individual who produced sons only would have more grandchildren. In contrast, if the population consisted mostly of males, it would *pay* to have daughters. If, however, the population consisted of equal numbers of males and females, sons and daughters would be equally valuable. Thus a one-to-one sex ratio is the only stable ratio; it is an “evolutionarily stable strategy.” Although Fisher wrote before the mathematical theory of games had been developed, his theory incorporates the essential feature of a game—that the best strategy to adopt depends on what others are doing.

Since Fisher’s time, it has been realized that genes can sometimes influence the chromosome or gamete in which they find themselves so that the gamete will be more likely to participate in fertilization. If such a gene occurs on a sex-determining (X or Y) chromosome, then highly aberrant sex ratios can occur. But more immediately relevant to *game theory* are the sex ratios in certain parasitic wasp species that have a large excess of females. In these species, fertilized eggs develop into females and unfertilized eggs into males. A female stores sperm and can determine the sex of each egg she lays by fertilizing it or leaving it unfertilized. By Fisher’s argument, it should still pay a female to produce equal numbers of sons and daughters. Hamilton, noting that the eggs develop within their host—the larva of another insect—and that the newly emerged adult wasps mate immediately and disperse, offered a remarkably cogent analysis. Since only one female usually lays eggs in a given larva, it would pay her to produce one male only, because this one male could fertilize all his sisters on emergence. Like Fisher, Hamilton looked for an evolutionarily stable strategy, but he went a step further in *recognizing* that he was looking for a strategy.

21. The author suggests that the work of Fisher and Hamilton was similar in that both scientists
- (A) conducted their research at approximately the same time
  - (B) sought to manipulate the sex ratios of some of the animals they studied
  - (C) sought an explanation of why certain sex ratios exist and remain stable
  - (D) studied game theory, thereby providing important groundwork for the later development of strategy theory
  - (E) studied reproduction in the same animal species

22. It can be inferred from the passage that the author considers Fisher's work to be
- (A) fallacious and unprofessional
  - (B) definitive and thorough
  - (C) inaccurate but popular, compared with Hamilton's work
  - (D) admirable, but not as up-to-date as Hamilton's work
  - (E) accurate, but trivial compared with Hamilton's work
23. The passage contains information that would answer which of the following questions about wasps?
- I. How many eggs does the female wasp usually lay in a single host larva?
  - II. Can some species of wasp determine sex ratios among their offspring?
  - III. What is the approximate sex ratio among the offspring of parasitic wasps?
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) II and III only
24. It can be inferred that the author discusses the genetic theory in greater detail than the group selection theory primarily because he believes that the genetic theory is more
- (A) complicated
  - (B) accurate
  - (C) popular
  - (D) comprehensive
  - (E) accessible
25. According to the passage, successful game strategy depends on
- (A) the ability to adjust one's behavior in light of the behavior of others
  - (B) one's awareness that there is safety in numbers
  - (C) the degree of stability one can create in one's immediate environment
  - (D) the accuracy with which one can predict future events
  - (E) the success one achieves in conserving and storing one's resources
26. It can be inferred from the passage that the mathematical theory of games has been
- (A) developed by scientists with an interest in genetics
  - (B) adopted by Hamilton in his research
  - (C) helpful in explaining how genes can sometimes influence gametes
  - (D) based on animals studies conducted prior to 1930
  - (E) useful in explaining some biological phenomena

27. Which of the following is NOT true of the species of parasitic wasps discussed in the passage?
- (A) Adult female wasps are capable of storing sperm.
  - (B) Female wasps lay their eggs in the larvae of other insects.
  - (C) The adult female wasp can be fertilized by a male that was hatched in the same larva as herself.
  - (D) So few male wasps are produced that extinction is almost certain.
  - (E) Male wasps do not emerge from their hosts until they reach sexual maturity.

## SECTION B

Thomas Hardy's impulses as a writer, all of which he indulged in his novels, were numerous and divergent, and they did not always work together in harmony. Hardy was to some degree interested in exploring his characters' psychologies, though impelled less by curiosity than by sympathy. Occasionally he felt the impulse to comedy (in all its detached coldness) as well as the impulse to farce, but he was more often inclined to see tragedy and record it. He was also inclined to literary realism in the several senses of that phrase. He wanted to describe ordinary human beings; he wanted to speculate on their dilemmas rationally (and, unfortunately, even schematically); and he wanted to record precisely the material universe. Finally, he wanted to be more than a realist. He wanted to transcend what he considered to be the banality of solely recording things exactly and to express as well his awareness of the occult and the strange.

In his novels these various impulses were sacrificed to each other inevitably and often. Inevitably, because Hardy did not care in the way that novelists such as Flaubert or James cared, and therefore took paths of least resistance. Thus, one impulse often surrendered to a fresher one and, unfortunately, instead of exacting a compromise, simply disappeared. A desire to throw over reality a light that never was might give way abruptly to the desire on the part of what we might consider a novelist-scientist to record exactly and concretely the structure and texture of a flower. In this instance, the new impulse was at least an energetic one, and thus its indulgence did not result in a relaxed style. But on other occasions Hardy abandoned a perilous, risky, and highly energizing impulse in favor of what was for him the fatally relaxing impulse to classify and schematize abstractly. When a relaxing impulse was indulged, the style—that sure index of an author's literary worth—was certain to become verbose. Hardy's weakness derived from his apparent inability to control the comings and goings of these divergent impulses and from his unwillingness to cultivate and sustain the energetic and risky ones. He submitted to first one and then another, and the spirit blew where it listed; hence the unevenness of any one of his novels. His most controlled novel, *Under the Greenwood Tree*, prominently exhibits two different but reconcilable impulses—a desire to be a realist-historian and a desire to be a psychologist of love—but the slight interlockings of plot are not enough to bind the two completely together. Thus even this book splits into two distinct parts.

17. Which of the following is the most appropriate title for the passage, based on its content?
- (A) *Under the Greenwood Tree*: Hardy's Ambiguous Triumph

- (B) The Real and the Strange: The Novelist's Shifting Realms
  - (C) Energy *Versus* Repose: The Role of Ordinary People in Hardy's Fiction
  - (D) Hardy's Novelistic Impulses: The Problem of Control
  - (E) Divergent Impulses: The Issue of Unity in the Novel
18. The passage suggests that the author would be most likely to agree with which of the following statements about literary realism?
- (A) Literary realism is most concerned with the exploration of the internal lives of ordinary human beings.
  - (B) The term "literary realism" is susceptible to more than a single definition.
  - (C) Literary realism and an interest in psychology are likely to be at odds in a novelist's work.
  - (D) "Literary realism" is the term most often used by critics in describing the method of Hardy's novels.
  - (E) A propensity toward literary realism is a less interesting novelistic impulse than is an interest in the occult and the strange.
19. The author of the passage considers a writer's style to be
- (A) a reliable means by which to measure the writer's literary merit
  - (B) most apparent in those parts of the writer's work that are not realistic
  - (C) problematic when the writer attempts to follow perilous or risky impulses
  - (D) shaped primarily by the writer's desire to classify and schematize
  - (E) the most accurate index of the writer's literary reputation
20. Which of the following words could best be substituted for "relaxed" (line 37) without substantially changing the author's meaning?
- (A) informal
  - (B) confined
  - (C) risky
  - (D) wordy
  - (E) metaphoric
21. The passage supplies information to suggest that its author would be most likely to agree with which of the following statements about the novelists Flaubert and James?
- (A) They indulged more impulses in their novels than did Hardy in his novels.
  - (B) They have elicited a greater degree of favorable response from most literary critics than has Hardy.
  - (C) In the writing of their novels, they often took pains to effect a compromise among their various novelistic impulses.
  - (D) Regarding novelistic construction, they cared more about the opinions of other novelists than about the opinions of ordinary readers.

- (E) They wrote novels in which the impulse toward realism and the impulse away from realism were evident in equal measure.
22. Which of the following statements best describes the organization of lines 27 to 41 of the passage (“Thus...abstractly”)?
- (A) The author makes a disapproving observation and then presents two cases, one of which leads to a qualification of his disapproval and the other of which does not.
- (B) The author draws a conclusion from a previous statement, explains his conclusion in detail, and then gives a series of examples that have the effect of resolving an inconsistency.
- (C) The author concedes a point and then makes a counterargument, using an extended comparison and contrast that qualifies his original concession.
- (D) The author makes a judgment, points out an exception to his judgment, and then contradicts his original assertion.
- (E) The author summarizes and explains an argument and then advances a brief history of opposing arguments.
23. Which of the following statements about the use of comedy in Hardy’s novels is best supported by the passage?
- (A) Hardy’s use of comedy in his novels tended to weaken his literary style.
- (B) Hardy’s use of comedy in his novels was inspired by his natural sympathy.
- (C) Comedy appeared less frequently in Hardy’s novels than did tragedy.
- (D) Comedy played an important role in Hardy’s novels though that comedy was usually in the form of farce.
- (E) Comedy played a secondary role in Hardy’s more controlled novels only.
24. The author implies which of the following about *Under the Greenwood Tree* in relation to Hardy’s other novels?
- (A) It is Hardy’s most thorough investigation of the psychology of love.
- (B) Although it is his most controlled novel, it does not exhibit any harsh or risky impulses.
- (C) It, more than his other novels, reveals Hardy as a realist interested in the history of ordinary human beings.
- (D) In it Hardy’s novelistic impulses are managed somewhat better than in his other novels.
- (E) Its plot, like the plots of all of Hardy’s other novels, splits into two distinct parts.

Upwards of a billion stars in our galaxy have burnt up their internal energy sources, and so can no longer produce the heat a star needs to oppose the inward force of gravity. These stars, of more than a few solar masses, evolve, in general, much more rapidly than does a star like the Sun. Moreover, it is just these more massive stars whose collapse does not halt at intermediate stages (that is, as white dwarfs or neutron stars). Instead, the collapse continues until a

singularity (an infinitely dense concentration of matter) is reached.

It would be wonderful to observe a singularity and obtain direct evidence of the undoubtedly bizarre phenomena that occur near one. Unfortunately in most cases a distant observer cannot see the singularity; outgoing light rays are dragged back by gravity so forcefully that even if they could **start out** within a few kilometers of the singularity, they would **end up** in the singularity itself.

25. The author's primary purpose in the passage is to
- (A) describe the formation and nature of singularities
  - (B) explain why large numbers of stars become singularities
  - (C) compare the characteristics of singularities with those of stars
  - (D) explain what happens during the stages of a singularity's formation
  - (E) imply that singularities could be more easily studied if observers could get closer to them
26. The passage suggests which of the following about the Sun?
- I. The Sun could evolve to a stage of collapse that is less dense than a singularity.
  - II. In the Sun, the inward force of gravity is balanced by the generation of heat.
  - III. The Sun emits more observable light than does a white dwarf or a neutron star.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
27. Which of the following sentences would most probably follow the last sentence of the passage?
- (A) Thus, a physicist interested in studying phenomena near singularities would necessarily hope to find a singularity with a measurable gravitational field.
  - (B) Accordingly, physicists to date have been unable to observe directly any singularity.
  - (C) It is specifically this startling phenomenon that has allowed us to codify the scant information currently available about singularities.
  - (D) Moreover, the existence of this extraordinary phenomenon is implied in the extensive reports of several physicists.
  - (E) Although unanticipated, phenomena such as these are consistent with the structure of a singularity.



## SECTION A

The evolution of intelligence among early large mammals of the grasslands was due in great measure to the interaction between two ecologically synchronized groups of these animals, the hunting carnivores and the herbivores that they hunted. The interaction resulting from the differences between predator and prey led to a general improvement in brain functions; however, certain components of intelligence were improved far more than others.

The kind of intelligence favored by the interplay of increasingly smarter catchers and increasingly keener escapers is defined by attention—that aspect of mind carrying consciousness forward from one moment to the next. It ranges from a passive, free-floating awareness to a highly focused, active fixation. The range through these states is mediated by the arousal system, a network of tracts converging from sensory systems to integrating centers in the brain stem. From the more relaxed to the more vigorous levels, sensitivity to novelty is increased. The organism is more awake, more vigilant; this increased vigilance results in the apprehension of ever more subtle signals as the organism becomes more sensitive to its surroundings. The processes of arousal and concentration give attention its direction. Arousal is at first general, with a flooding of impulses in the brain stem; then gradually the activation is channeled. Thus begins concentration, the holding of consistent images. One meaning of intelligence is the way in which these images and other alertly searched information are used in the context of previous experience. Consciousness links past attention to the present and permits the integration of details with perceived ends and purposes.

The elements of intelligence and consciousness come together marvelously to produce different styles in predator and prey. Herbivores and carnivores develop different kinds of attention related to escaping or chasing. Although in both kinds of animal, arousal stimulates the production of adrenaline and norepinephrine by the adrenal glands, the effect in herbivores is primarily fear, whereas in carnivores the effect is primarily aggression. For both, arousal attunes the animal to what is ahead. Perhaps it does not experience forethought as we know it, but the animal does experience something like it. The predator is searchingly aggressive, innerdirected, tuned by the nervous system and the adrenal hormones, but aware in a sense closer to human consciousness than, say, a hungry lizard's instinctive snap at a passing beetle. Using past events as a framework, the large mammal predator is working out a relationship between movement and food, sensitive to possibilities in cold trails and distant sounds—and yesterday's unforgotten lessons. The herbivore prey is of a different mind. Its mood of wariness rather than searching and its attitude of general expectancy instead of anticipating are silk-thin veils of tranquility over an explosive endocrine system.

17. The author is primarily concerned with
- (A) disproving the view that herbivores are less intelligent than carnivores
  - (B) describing a relationship between animals' intelligence and their ecological roles
  - (C) establishing a direct link between early large mammals and their modern counterparts
  - (D) analyzing the ecological basis for the dominance of some carnivores over

- other carnivores
- (E) demonstrating the importance of hormones in mental activity
18. The author refers to a hungry lizard (line 55) primarily in order to
- (A) demonstrate the similarity between the hunting methods of mammals and those of nonmammals
- (B) broaden the application of his argument by including an insectivore as an example
- (C) make a distinction between higher and lower levels of consciousness
- (D) provide an additional illustration of the brutality characteristic of predators
- (E) offer an objection to suggestions that all animals lack consciousness
19. It can be inferred from the passage that in animals less intelligent than the mammals discussed in the passage
- (A) past experience is less helpful in ensuring survival
- (B) attention is more highly focused
- (C) muscular coordination is less highly developed
- (D) there is less need for competition among species
- (E) environment is more important in establishing the proper ratio of prey to predator
20. The sensitivity described in lines 56-61 is most clearly an example of
- (A) “free-floating awareness” (lines 16-17)
- (B) “flooding of impulses in the brain stem” (lines 29-30)
- (C) “the holding of consistent images” (lines 31-32)
- (D) “integration of details with perceived ends and purposes” (lines 37-38)
- (E) “silk-thin veils of tranquility” (line 64)
21. The author’s attitude toward the mammals discussed in the passage is best described as
- (A) superior and condescending
- (B) lighthearted and jocular
- (C) apologetic and conciliatory
- (D) wistful and tender
- (E) respectful and admiring
22. The author provides information that would answer which of the following questions?
- I. Why is an aroused herbivore usually fearful?
- II. What are some of the degrees of attention in large mammals?
- III. What occurs when the stimulus that causes arousal of a mammal is removed?

- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II and III
23. According to the passage, improvement in brain function among early large mammals resulted primarily from which of the following?
- (A) Interplay of predator and prey
  - (B) Persistence of free-floating awareness in animals of the grasslands
  - (C) Gradual dominance of warm-blooded mammals over cold-blooded reptiles
  - (D) Interaction of early large mammals with less intelligent species
  - (E) Improvement of the capacity for memory among herbivores and carnivores
24. According to the passage, as the process of arousal in an organism continues, all of the following may occur EXCEPT:
- (A) the production of adrenaline
  - (B) the production of norepinephrine
  - (C) a heightening of sensitivity to stimuli
  - (D) an increase in selectivity with respect to stimuli
  - (E) an expansion of the range of states mediated by the brain stem

Tocqueville, apparently, was wrong. Jacksonian America was not a fluid, egalitarian society where individual wealth and poverty were ephemeral conditions. At least so argues E. Pessen in his iconoclastic study of the very rich in the United States between 1825 and 1850.

Pessen does present a quantity of examples, together with some refreshingly intelligible statistics, to establish the existence of an inordinately wealthy class. Though active in commerce or the professions, most of the wealthy were not self-made, but had inherited family fortunes. In no sense mercurial, these great fortunes survived the financial panics that destroyed lesser ones. Indeed, in several cities the wealthiest one percent constantly increased its share until by 1850 it owned half of the community's wealth. Although these observations are true, Pessen overestimates their importance by concluding from them that the undoubted progress toward inequality in the late eighteenth century continued in the Jacksonian period and that the United States was a class-ridden, plutocratic society even before industrialization.

25. According to the passage, Pessen indicates that all of the following were true of the very wealthy in the United States between 1825 and 1850 EXCEPT:
- (A) They formed a distinct upper class.
  - (B) Many of them were able to increase their holdings.
  - (C) Some of them worked as professionals or in business.
  - (D) Most of them accumulated their own fortunes.
  - (E) Many of them retained their wealth in spite of financial upheavals.

26. The author's attitude toward Pessen's presentation of statistics can be best described as
- (A) disapproving
  - (B) shocked
  - (C) suspicious
  - (D) amused
  - (E) laudatory
27. Which of the following best states the author's main point?
- (A) Pessen's study has overturned the previously established view of the social and economic structure of early nineteenth-century America.
  - (B) Tocqueville's analysis of the United States in the Jacksonian era remains the definitive account of this period.
  - (C) Pessen's study is valuable primarily because it shows the continuity of the social system in the United States throughout the nineteenth century.
  - (D) The social patterns and political power of the extremely wealthy in the United States between 1825 and 1850 are well documented.
  - (E) Pessen challenges a view of the social and economic system in the United States from 1825 to 1850, but he draws conclusions that are incorrect.

## SECTION B

"I want to criticize the social system, and to show it at work, at its most intense." Virginia Woolf's provocative statement about her intentions in writing *Mrs. Dalloway* has regularly been ignored by the critics, since it highlights an aspect of her literary interests very different from the traditional picture of the "poetic" novelist concerned with examining states of reverie and vision and with following the intricate pathways of individual consciousness. But Virginia Woolf was a realistic as well as a poetic novelist, a satirist and social critic as well as a visionary: literary critics' cavalier dismissal of Woolf's social vision will not withstand scrutiny.

In her novels, Woolf is deeply engaged by the questions of how individuals are shaped (or deformed) by their social environments, how historical forces **impinge on** people's lives, how class, wealth, and gender help to determine people's fates. Most of her novels are rooted in a realistically rendered social setting and in a precise historical time.

Woolf's focus on society has not been generally recognized because of her intense antipathy to propaganda in art. The pictures of reformers in her novels are usually satiric or sharply critical. Even when Woolf is fundamentally sympathetic to their causes, she portrays people anxious to reform their society and possessed of a message or program as arrogant or dishonest, unaware of how their political ideas serve their own psychological needs. (Her *Writer's Diary* notes: "the only honest people are the artists," whereas "these social reformers and philanthropists...harbor...discreditable desires under the disguise of loving their kind...") Woolf detested what she called "preaching" in fiction, too, and criticized novelist D. H. Lawrence (among others) for working by this method.

Woolf's own social criticism is expressed in the language of observation rather than in direct commentary, since for her, fiction is a contemplative, not an active art. She describes phenomena and provides materials for a judgment about society and social issues; it is the reader's work to put the observations together and understand the coherent point of view behind them. As a moralist, Woolf works by indirection, subtly undermining officially accepted mores, mocking, suggesting, calling into question, rather than asserting, advocating, bearing witness: hers is the satirist's art.

Woolf's literary models were acute social observers like Chekhov and Chaucer. As she put it in *The Common Reader*, "It is safe to say that not a single law has been framed or one stone set upon another because of anything Chaucer said or wrote; and yet, as we read him, we are absorbing morality at every pore." Like Chaucer, Woolf chose to understand as well as to judge, to know her society root and branch—a decision crucial in order to produce art rather than polemic.

17. Which of the following would be the most appropriate title for the passage?
- (A) Poetry and Satire as Influences on the Novels of Virginia Woolf
  - (B) Virginia Woolf: Critic and Commentator on the Twentieth-Century Novel
  - (C) Trends in Contemporary Reform Movements as a Key to Understanding Virginia Woolf's Novels
  - (D) Society as Allegory for the Individual in the Novels of Virginia Woolf
  - (E) Virginia Woolf's Novels: Critical Reflections on the Individual and on Society
18. In the first paragraph of the passage, the author's attitude toward the literary critics mentioned can best be described as
- (A) disparaging
  - (B) ironic
  - (C) facetious
  - (D) skeptical but resigned
  - (E) disappointed but hopeful
19. It can be inferred from the passage that Woolf chose Chaucer as a literary model because she believed that
- (A) Chaucer was the first English author to focus on society as a whole as well as on individual characters
  - (B) Chaucer was an honest and forthright author, whereas novelists like D. H. Lawrence did not sincerely wish to change society
  - (C) Chaucer was more concerned with understanding his society than with calling its accepted mores into question
  - (D) Chaucer's writing was greatly, if subtly, effective in influencing the moral attitudes of his readers
  - (E) her own novels would be more widely read if, like Chaucer, she did not overtly and vehemently criticize contemporary society

20. It can be inferred from the passage that the most probable reason Woolf realistically described the social setting in the majority of her novels was that she
- (A) was aware that contemporary literary critics considered the novel to be the most realistic of literary genres
  - (B) was interested in the effect of a person's social milieu on his or her character and actions
  - (C) needed to be as attentive to detail as possible in her novels in order to support the arguments she advanced in them
  - (D) wanted to show that a painstaking fidelity in the representation of reality did not in any way hamper the artist
  - (E) wished to prevent critics from charging that her novels were written in an ambiguous and inexact style
21. Which of the following phrases best expresses the sense of the word "contemplative" as it is used in lines 43-44 of the passage?
- (A) Gradually elucidating the rational structures underlying accepted mores
  - (B) Reflecting on issues in society without prejudice or emotional commitment
  - (C) Avoiding the aggressive assertion of the author's perspective to the exclusion of the reader's judgment
  - (D) Conveying a broad view of society as a whole rather than focusing on an isolated individual consciousness
  - (E) Appreciating the world as the artist sees it rather than judging it in moral terms
22. The author implies that a major element of the satirist's art is the satirist's
- (A) consistent adherence to a position of lofty disdain when viewing the foibles of humanity
  - (B) insistence on the helplessness of individuals against the social forces that seek to determine an individual's fate
  - (C) cynical disbelief that visionaries can either enlighten or improve their societies
  - (D) fundamental assumption that some ambiguity must remain in a work of art in order for it to reflect society and social mores accurately
  - (E) refusal to indulge in polemic when presenting social mores to readers for their scrutiny
23. The passage supplies information for answering which of the following questions?
- (A) Have literary critics ignored the social criticism inherent in the works of Chekhov and Chaucer?
  - (B) Does the author believe that Woolf is solely an introspective and visionary novelist?



- (C) What are the social causes with which Woolf shows herself to be sympathetic in her writings?
- (D) Was D. H. Lawrence as concerned as Woolf was with creating realistic settings for his novels?
- (E) Does Woolf attribute more power to social environment or to historical forces as shapers of a person's life?

It is a popular misconception that nuclear fusion power is free of radioactivity; in fact, the deuterium-tritium reaction that nuclear scientists are currently exploring with such zeal produces both alpha particles and neutrons. (The neutrons are used to produce tritium from a lithium blanket surrounding the reactor.) Another common misconception is that nuclear fusion power is a virtually unlimited source of energy because of the enormous quantity of deuterium in the sea. Actually, its limits are set by the amount of available lithium, which is about as plentiful as uranium in the Earth's crust. Research should certainly continue on controlled nuclear fusion, but no energy program should be premised on its existence until it has proven practical. For the immediate future, we must continue to use hydroelectric power, nuclear fission, and fossil fuels to meet our energy needs. The energy sources already in major use are in major use for good reason.

24. The primary purpose of the passage is to
- (A) criticize scientists who believe that the deuterium-tritium fusion reaction can be made feasible as an energy source
  - (B) admonish scientists who have failed to correctly calculate the amount of lithium available for use in nuclear fusion reactors
  - (C) defend the continued short-term use of fossil fuels as a major energy source
  - (D) caution against uncritical embrace of nuclear fusion power as a major energy source
  - (E) correct the misconception that nuclear fusion power is entirely free of radioactivity
25. It can be inferred from the passage that the author believes which of the following about the current state of public awareness concerning nuclear fusion power?
- (A) The public has been deliberately misinformed about the advantages and disadvantages of nuclear fusion power.
  - (B) The public is unaware of the principal advantage of nuclear fusion over nuclear fission as an energy source.
  - (C) The public's awareness of the scientific facts concerning nuclear fusion power is somewhat distorted and incomplete.
  - (D) The public is not interested in increasing its awareness of the advantages and disadvantages of nuclear fusion power.
  - (E) The public is aware of the disadvantages of nuclear fusion power but not of its advantages.
26. The passage provides information that would answer which of the following

questions?

- (A) What is likely to be the principal source of deuterium for nuclear fusion power?
- (B) How much incidental radiation is produced in the deuterium tritium fusion reaction?
- (C) Why are scientists exploring the deuterium-tritium fusion reaction with such zeal?
- (D) Why must the tritium for nuclear fusion be synthesized from lithium?
- (E) Why does the deuterium-tritium reaction yield both alpha particles and neutrons?

27. Which of the following statements concerning nuclear scientists is most directly suggested in the passage?

- (A) Nuclear scientists are not themselves aware of all of the facts surrounding the deuterium-tritium fusion reaction.
- (B) Nuclear scientists exploring the deuterium-tritium reaction have overlooked key facts in their eagerness to prove nuclear fusion practical.
- (C) Nuclear scientists may have overestimated the amount of lithium actually available in the Earth's crust.
- (D) Nuclear scientists have not been entirely dispassionate in their investigation of the deuterium-tritium reaction.
- (E) Nuclear scientists have insufficiently investigated the lithium-to-tritium reaction in nuclear fusion.

No. 4-3

### SECTION A

Great comic art is never otherworldly, it does not seek to mystify us, and it does not deny ambiguity by branding as evil whatever differs from good. Great comic artists assume that truth may bear all lights, and thus they seek to accentuate contradictions in social action, not gloss over or transcend them by appeals to extrasocial symbols of divine ends, cosmic purpose, or laws of nature. The moment of transcendence in great comic art is a social moment, born out of the conviction that we are human, even though we try to be gods. The comic community to which artists address themselves is a community of reasoning, loving, joyful, compassionate beings, who are willing to assume the human risks of acting rationally. Without invoking gods or demons, great comic art arouses courage in reason, courage which grows out of trust in what human beings can do as humans.

17. The passage suggests that great comic art can be characterized as optimistic about the ability of humans to

- (A) rid themselves of pride
- (B) transcend the human condition

- (C) differentiate clearly between good and evil
  - (D) avoid social conflicts
  - (E) act rationally
18. It can be inferred from the passage that the author admires great comic artists primarily for their
- (A) ability to understand the frequently subtle differences between good and evil
  - (B) ability to reconcile the contradictions in human behavior
  - (C) ability to distinguish between rational and irrational behavior
  - (D) insistence on confronting the truth about the human condition
  - (E) insistence on condemning human faults and weaknesses
19. Which of the following is the most accurate description of the organization of the passage?
- (A) A sequence of observations leading to a prediction
  - (B) A list of inferences drawn from facts stated at the beginning of the passage
  - (C) A series of assertions related to one general subject
  - (D) A statement of the major idea, followed by specific examples
  - (E) A succession of ideas moving from specific to general

It has long been known that the rate of oxidative metabolism (the process that uses oxygen to convert food into energy) in any animal has a profound effect on its living patterns. The high metabolic rate of small animals, for example, gives them sustained power and activity per unit of weight, but **at the cost of** requiring constant consumption of food and water. Very large animals, with their relatively low metabolic rates, can survive well on a sporadic food supply, but can generate little metabolic energy per gram of body weight. If only oxidative metabolic rate is considered, therefore, one might assume that smaller, more active, animals could prey on larger ones, at least if they attacked in groups. Perhaps they could if it were not for anaerobic glycolysis, the great equalizer.

Anaerobic glycolysis is a process in which energy is produced, without oxygen, through the breakdown of muscle glycogen into lactic acid and adenosine triphosphate (ATP), the energy provider. The amount of energy that can be produced anaerobically is a function of the amount of glycogen present—in all vertebrates about 0.5 percent of their muscles' wet weight. Thus the anaerobic energy reserves of a vertebrate are proportional to the size of the animal. If, for example, some predators had attacked a 100-ton dinosaur, normally torpid, the dinosaur would have been able to generate almost instantaneously, via anaerobic glycolysis, the energy of 3,000 humans at maximum oxidative metabolic energy production. This explains how many large species have managed to compete with their more active neighbors: the compensation for a low oxidative metabolic rate is glycolysis.

There are limitations, however, to this compensation. The glycogen reserves of any animal are good, at most, for only about two minutes at maximum effort, after which only the normal oxidative metabolic source of energy remains. With the conclusion of a burst of activity, the lactic acid level is high in the body fluids, leaving the large animal vulnerable to attack until the

acid is reconverted, via oxidative metabolism, by the liver into glucose, which is then sent (in part) back to the muscles for glycogen resynthesis. During this process the enormous energy debt that the animal has **run up** through anaerobic glycolysis must be repaid, a debt that is proportionally much greater for the larger vertebrates than for the smaller ones. Whereas the tiny shrew can replace in minutes the glycogen used for maximum effort, for example, the gigantic dinosaur would have required more than three weeks. It might seem that this interminably long recovery time in a large vertebrate would prove a grave disadvantage for survival. Fortunately, muscle glycogen is used only when needed and even then only in whatever quantity is necessary. Only in times of panic or during mortal combat would the entire reserves be consumed.

20. The primary purpose of the passage is to
- (A) refute a misconception about anaerobic glycolysis
  - (B) introduce a new hypothesis about anaerobic glycolysis
  - (C) describe the limitations of anaerobic glycolysis
  - (D) analyze the chemistry of anaerobic glycolysis and its similarity to oxidative metabolism
  - (E) explain anaerobic glycolysis and its effects on animal survival
21. According to the author, glycogen is crucial to the process of anaerobic glycolysis because glycogen
- (A) increases the organism's need for ATP
  - (B) reduces the amount of ATP in the tissues
  - (C) is an inhibitor of the oxidative metabolic production of ATP
  - (D) ensures that the synthesis of ATP will occur speedily
  - (E) is the material from which ATP is derived
22. According to the author, a major limitation of anaerobic glycolysis is that it can
- (A) produce in large animals more lactic acid than the liver can safely reconvert
  - (B) necessitate a dangerously long recovery period in large animals
  - (C) produce energy more slowly than it can be used by large animals
  - (D) consume all of the available glycogen regardless of need
  - (E) reduce significantly the rate at which energy is produced by oxidative metabolism
23. The passage suggests that the total anaerobic energy reserves of a vertebrate are proportional to the vertebrate's size because
- (A) larger vertebrates conserve more energy than smaller vertebrates
  - (B) larger vertebrates use less oxygen per unit weight than smaller vertebrates
  - (C) the ability of a vertebrate to consume food is a function of its size
  - (D) the amount of muscle tissue in a vertebrate is directly related to its size
  - (E) the size of a vertebrate is proportional to the quantity of energy it can utilize

24. The author suggests that, on the basis of energy production, a 100-ton dinosaur would have been markedly vulnerable to which of the following?
- I. Repeated attacks by a single smaller, more active adversary
  - II. Sustained attack by numerous smaller, more active adversaries
  - III. An attack by an individual adversary of similar size
- (A) II only  
(B) I and II only  
(C) I and III only  
(D) II and III only  
(E) I, II, and III
25. It can be inferred from the passage that the time required to replenish muscle glycogen following anaerobic glycolysis is determined by which of the following factors?
- I. Rate of oxidative metabolism
  - II. Quantity of lactic acid in the body fluids
  - III. Percentage of glucose that is returned to the muscles
- (A) I only  
(B) III only  
(C) I and II only  
(D) I and III only  
(E) I, II, and III
26. The author is most probably addressing which of the following audiences?
- (A) College students in an introductory course on animal physiology
  - (B) Historians of science investigating the discovery of anaerobic glycolysis
  - (C) Graduate students with specialized training in comparative anatomy
  - (D) Zoologists interested in prehistoric animals
  - (E) Biochemists doing research on oxidative metabolism
27. Which of the following best states the central idea of the passage?
- (A) The disadvantage of a low oxidative metabolic rate in large animals can be offset by their ability to convert substantial amounts of glycogen into energy.
  - (B) The most significant problem facing animals that have used anaerobic glycolysis for energy is the resynthesis of its by-product, glucose, into glycogen.
  - (C) The benefits to animals of anaerobic glycolysis are offset by the profound costs that must be paid.
  - (D) The major factor ensuring that a large animal will triumph over a smaller animal is the large animal's ability to produce energy via anaerobic glycolysis.

- (E) The great differences that exist in metabolic rates between species of small animals and species of large animals can have important effects on the patterns of their activities.

## SECTION B

The dark regions in the starry night sky are not pockets in the universe that are devoid of stars as had long been thought. Rather, they are dark because of interstellar dust that hides the stars behind it. Although its visual effect is so pronounced, dust is only a minor constituent of the material, extremely low in density, that lies between the stars. Dust accounts for about one percent of the total mass of interstellar matter. The rest is hydrogen and helium gas, with small amounts of other elements. The interstellar material, rather like terrestrial clouds, comes in all shapes and sizes. The average density of interstellar material in the vicinity of our Sun is 1,000 to 10,000 times less than the best terrestrial laboratory vacuum. It is only because of the enormous interstellar distances that so little material per unit of volume becomes so significant. Optical astronomy is most directly affected, for although interstellar gas is perfectly transparent, the dust is not.

17. According to the passage, which of the following is a direct perceptual consequence of interstellar dust?
- (A) Some stars are rendered invisible to observers on Earth.
  - (B) Many visible stars are made to seem brighter than they really are.
  - (C) The presence of hydrogen and helium gas is revealed.
  - (D) The night sky appears dusty at all times to observers on Earth.
  - (E) The dust is conspicuously visible against a background of bright stars.
18. It can be inferred from the passage that the density of interstellar material is
- (A) higher where distances between the stars are shorter
  - (B) equal to that of interstellar dust
  - (C) unusually low in the vicinity of our Sun
  - (D) independent of the incidence of gaseous components
  - (E) not homogeneous throughout interstellar space
19. It can be inferred from the passage that it is because space is so vast that
- (A) little of the interstellar material in it seems substantial
  - (B) normal units of volume seem futile for measurements of density
  - (C) stars can be far enough from Earth to be obscured even by very sparsely distributed matter
  - (D) interstellar gases can, for all practical purposes, be regarded as transparent
  - (E) optical astronomy would be of little use even if no interstellar dust existed

In his 1976 study of slavery in the United States, Herbert Gutman, like Fogel, Engerman, and Genovese, has rightly stressed the slaves' achievements. But unlike these historians, Gutman gives plantation owners little credit for these achievements. Rather, Gutman argues



that one must look to the Black family and the slaves' extended kinship system to understand how crucial achievements, such as the maintenance of a cultural heritage and the development of a communal consciousness, were possible. His findings compel attention.

Gutman recreates the family and extended kinship structure mainly through an ingenious use of what any historian should draw upon, quantifiable data, derived in this case mostly from plantation birth registers. He also uses accounts of ex-slaves to probe the human reality behind his statistics. These sources indicate that the two-parent household predominated in slave quarters just as it did among freed slaves after emancipation. Although Gutman admits that forced separation by sale was frequent, he shows that the slaves' preference, revealed most clearly on plantations where sale was infrequent, was very much for stable monogamy. In less conclusive fashion Fogel, Engerman, and Genovese had already indicated the predominance of two-parent households; however, only Gutman emphasizes the preference for stable monogamy and points out what stable monogamy meant for the slaves' cultural heritage. Gutman argues convincingly that the stability of the Black family encouraged the transmission of—and so was crucial in sustaining—the Black heritage of folklore, music, and religious expression from one generation to another, a heritage that slaves were continually fashioning out of their African and American experiences.

Gutman's examination of other facets of kinship also produces important findings. Gutman discovers that cousins rarely married, an exogamous tendency that contrasted sharply with the endogamy practiced by the plantation owners. This preference for exogamy, Gutman suggests, may have derived from West African rules governing marriage, which, though they differed from one tribal group to another, all involved some kind of prohibition against unions with close kin. This taboo against cousins' marrying is important, argues Gutman, because it is one of many indications of a strong awareness among slaves of an extended kinship network. The fact that distantly related kin would care for children separated from their families also suggests this awareness. When blood relationships were few, as in newly created plantations in the Southwest, "fictive" kinship arrangements took their place until a new pattern of consanguinity developed. Gutman presents convincing evidence that this extended kinship structure—which he believes developed by the mid-to-late eighteenth century—provided the foundations for the strong communal consciousness that existed among slaves.

In sum, Gutman's study is significant because it offers a closely reasoned and original explanation of some of the slaves' achievements, one that correctly emphasizes the resources that slaves themselves possessed.

20. According to the passage, Fogel, Engerman, Genovese, and Gutman have all done which of the following?
- I. Discounted the influence of plantation owners on slaves' achievements.
  - II. Emphasized the achievements of slaves.
  - III. Pointed out the prevalence of the two-parent household among slaves.
  - IV. Showed the connection between stable monogamy and slaves' cultural heritage.
- (A) I and II only  
(B) I and IV only

- (C) II and III only
  - (D) I, III, and IV only
  - (E) II, III, and IV only
21. With which of the following statements regarding the resources that historians ought to use would the author of the passage be most likely to agree?
- (A) Historians ought to make use of written rather than oral accounts.
  - (B) Historians should rely primarily on birth registers.
  - (C) Historians should rely exclusively on data that can be quantified.
  - (D) Historians ought to make use of data that can be quantified.
  - (E) Historians ought to draw on earlier historical research but they should do so in order to refute it.
22. Which of the following statements about the formation of the Black heritage of folklore, music, and religious expression is best supported by the information presented in the passage?
- (A) The heritage was formed primarily out of the experiences of those slaves who attempted to preserve the stability of their families.
  - (B) The heritage was not formed out of the experiences of those slaves who married their cousins.
  - (C) The heritage was formed more out of the African than out of the American experiences of slaves.
  - (D) The heritage was not formed out of the experiences of only a single generation of slaves.
  - (E) The heritage was formed primarily out of slaves' experiences of interdependence on newly created plantations in the Southwest.
23. It can be inferred from the passage that, of the following, the most probable reason why a historian of slavery might be interested in studying the type of plantations mentioned in line 25 is that this type would
- (A) give the historian access to the most complete plantation birth registers
  - (B) permit the historian to observe the kinship patterns that had been most popular among West African tribes
  - (C) provide the historian with evidence concerning the preference of freed slaves for stable monogamy
  - (D) furnish the historian with the opportunity to discover the kind of marital commitment that slaves themselves chose to have
  - (E) allow the historian to examine the influence of slaves' preferences on the actions of plantation owners
24. According to the passage, all of the following are true of the West African rules governing marriage mentioned in lines 46-50 EXCEPT:
- (A) The rules were derived from rules governing fictive kinship arrangements.

- (B) The rules forbade marriages between close kin.
  - (C) The rules are mentioned in Herbert Gutman's study.
  - (D) The rules were not uniform in all respects from one West African tribe to another.
  - (E) The rules have been considered to be a possible source of slaves' marriage preferences.
25. Which of the following statements concerning the marriage practices of plantation owners during the period of Black slavery in the United States can most logically be inferred from the information in the passage?
- (A) These practices began to alter sometime around the mid-eighteenth century.
  - (B) These practices varied markedly from one region of the country to another.
  - (C) Plantation owners usually based their choice of marriage partners on economic considerations.
  - (D) Plantation owners often married earlier than slaves.
  - (E) Plantation owners often married their cousins.
26. Which of the following best describes the organization of the passage?
- (A) The author compares and contrasts the work of several historians and then discusses areas for possible new research.
  - (B) The author presents his thesis, draws on the work of several historians for evidence to support his thesis, and concludes by reiterating his thesis.
  - (C) The author describes some features of a historical study and then uses those features to put forth his own argument.
  - (D) The author summarizes a historical study, examines two main arguments from the study, and then shows how the arguments are potentially in conflict with one another.
  - (E) The author presents the general argument of a historical study, describes the study in more detail, and concludes with a brief judgments of the study's value.
27. Which of the following is the most appropriate title for the passage, based on its content?
- (A) The Influence of Herbert Gutman on Historians of Slavery in the United States
  - (B) Gutman's Explanation of How Slaves Could Maintain a Cultural Heritage and Develop a Communal Consciousness
  - (C) Slavery in the United States: New Controversy About an Old Subject
  - (D) The Black Heritage of Folklore, Music, and Religious Expression: Its Growing Influence
  - (E) The Black Family and Extended Kinship Structure: How They Were Important for the Freed Slave

## No. 5-1

## SECTION A

A Marxist sociologist has argued that racism stems from the class struggle that is unique to the capitalist system—that racial prejudice is generated by capitalists as a means of controlling workers. His thesis works relatively well when applied to discrimination against Blacks in the United States, but his definition of racial prejudice as “racially-based negative prejudgments against a group generally accepted as a race in any given region of ethnic competition,” can be interpreted as also including hostility toward such ethnic groups as the Chinese in California and the Jews in medieval Europe. However, since prejudice against these latter peoples was not inspired by capitalists, he has to reason that such antagonisms were not really based on race. He **disposes** thusly (albeit unconvincingly) **of** both the intolerance faced by Jews before the rise of capitalism and the early twentieth-century discrimination against Oriental people in California, which, inconveniently, was instigated by workers.

17. The passage supplies information that would answer which of the following questions?
- (A) What accounts for the prejudice against the Jews in medieval Europe?
  - (B) What conditions caused the discrimination against Oriental people in California in the early twentieth century?
  - (C) Which groups are not in ethnic competition with each other in the United States?
  - (D) What explanation did the Marxist sociologist give for the existence of racial prejudice?
  - (E) What evidence did the Marxist sociologist provide to support his thesis?
18. The author considers the Marxist sociologist's thesis about the origins of racial prejudice to be
- (A) unoriginal
  - (B) unpersuasive
  - (C) offensive
  - (D) obscure
  - (E) speculative
19. It can be inferred from the passage that the Marxist sociologist would argue that in a noncapitalist society racial prejudice would be
- (A) pervasive
  - (B) tolerated
  - (C) ignored
  - (D) forbidden
  - (E) nonexistent

20. According to the passage, the Marxist sociologist's chain of reasoning required him to assert that prejudice toward Oriental people in California was
- (A) directed primarily against the Chinese
  - (B) similar in origin to prejudice against the Jews
  - (C) understood by Oriental people as ethnic competition
  - (D) provoked by workers
  - (E) nonracial in character

By 1950, the results of attempts to relate brain processes to mental experience appeared rather discouraging. Such variations in size, shape, chemistry, conduction speed, excitation threshold, and the like as had been demonstrated in nerve cells remained negligible in significance for any possible correlation with the manifold dimensions of mental experience.

Near the turn of the century, it had been suggested by Hering that different modes of sensation, such as pain, taste, and color, might be correlated with the discharge of specific kinds of nervous energy. However, subsequently developed methods of recording and analyzing nerve potentials failed to reveal any such qualitative diversity. It was possible to demonstrate by other methods refined structural differences among neuron types; however, proof was lacking that the quality of the impulse or its condition was influenced by these differences, which seemed instead to influence the developmental patterning of the neural circuits. Although qualitative variance among nerve energies was never rigidly disproved, the doctrine was generally abandoned in favor of the opposing view, namely, that nerve impulses are essentially homogeneous in quality and are transmitted as "common currency" throughout the nervous system. According to this theory, it is not the quality of the sensory nerve impulses that determines the diverse conscious sensations they produce, but rather the different areas of the brain into which they discharge, and there is some evidence for this view. In one experiment, when an electric stimulus was applied to a given sensory field of the cerebral cortex of a conscious human subject, it produced a sensation of the appropriate modality for that particular locus, that is, a visual sensation from the visual cortex, an auditory sensation from the auditory cortex, and so on. Other experiments revealed slight variations in the size, number, arrangement, and interconnection of the nerve cells, but as far as psychoneural correlations were concerned, the obvious similarities of these sensory fields to each other seemed much more remarkable than any of the minute differences.

However, cortical locus, in itself, turned out to have little explanatory value. Studies showed that sensations as diverse as those of red, black, green, and white, or touch, cold, warmth, movement, pain, posture, and pressure apparently may arise through activation of the same cortical areas. What seemed to remain was some kind of differential patterning effects in the brain excitation: it is the difference in the central distribution of impulses that counts. In short, brain theory suggested a correlation between mental experience and the activity of relatively homogeneous nerve-cell units conducting essentially homogeneous impulses through homogeneous cerebral tissue. To match the multiple dimensions of mental experience psychologists could only point to a limitless variation in the spatiotemporal patterning of nerve impulses.

21. The author suggests that, by 1950, attempts to correlate mental experience with

- brain processes would probably have been viewed with
- (A) indignation
  - (B) impatience
  - (C) pessimism
  - (D) indifference
  - (E) defiance
22. The author mentions “common currency” in line 26 primarily in order to emphasize the
- (A) lack of differentiation among nerve impulses in human beings
  - (B) similarity of the sensations that all human beings experience
  - (C) similarities in the views of scientists who have studied the human nervous system
  - (D) continuous passage of nerve impulses through the nervous system
  - (E) recurrent questioning by scientists of an accepted explanation about the nervous system
23. The description in lines 32-38 of an experiment in which electric stimuli were applied to different sensory fields of the cerebral cortex tends to support the theory that
- (A) the simple presence of different cortical areas cannot account for the diversity of mental experience
  - (B) variation in spatiotemporal patterning of nerve impulses correlates with variation in subjective experience
  - (C) nerve impulses are essentially homogeneous and are relatively unaffected as they travel through the nervous system
  - (D) the mental experiences produced by sensory nerve impulses are determined by the cortical area activated
  - (E) variation in neuron types affects the quality of nerve impulses
24. According to the passage, some evidence exists that the area of the cortex activated by a sensory stimulus determines which of the following?
- I. The nature of the nerve impulse
  - II. The modality of the sensory experience
  - III. Qualitative differences within a modality
- (A) II only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II and III
25. The passage can most accurately be described as a discussion concerning



historical views of the

- (A) anatomy of the brain
- (B) manner in which nerve impulses are conducted
- (C) significance of different cortical areas in mental experience
- (D) mechanics of sense perception
- (E) physiological correlates of mental experience

26. Which of the following best summarizes the author's opinion of the suggestion that different areas of the brain determine perceptions produced by sensory nerve impulses?

- (A) It is a plausible explanation, but it has not been completely proved.
- (B) It is the best explanation of brain processes currently available.
- (C) It is disproved by the fact that the various areas of the brain are physiologically very similar.
- (D) There is some evidence to support it, but it fails to explain the diversity of mental experience.
- (E) There is experimental evidence that confirms its correctness.

27. It can be inferred from the passage that which of the following exhibit the LEAST qualitative variation?

- (A) Nerve cells
- (B) Nerve impulses
- (C) Cortical areas
- (D) Spatial patterns of nerve impulses
- (E) Temporal patterns of nerve impulses

## SECTION B

The transfer of heat and water vapor from the ocean to the air above it depends on a disequilibrium at the interface of the water and the air. Within about a millimeter of the water, air temperature is close to that of the **surface water**, and the air is nearly saturated with water vapor. But the differences, however small, are crucial, and the disequilibrium is maintained by air near the surface mixing with air higher up, which is typically appreciably cooler and lower in water-vapor content. The air is mixed by means of turbulence that depends on the wind for its energy. As wind speed increases, so does turbulence, and thus the rate of heat and moisture transfer. Detailed understanding of this phenomenon awaits further study. An interacting—and complicating—phenomenon is wind-to-water transfer of momentum that occurs when waves are formed. When the wind makes waves, it transfers important amounts of energy—energy that is therefore not available to provide turbulence.

17. The primary purpose of the passage is to

- (A) resolve a controversy
- (B) describe a phenomenon

- (C) outline a theory
  - (D) confirm research findings
  - (E) classify various observations
18. According to the passage, wind over the ocean generally does which of the following?
- I. Causes relatively cool, dry air to come into proximity with the ocean surface.
  - II. Maintains a steady rate of heat and moisture transfer between the ocean and the air.
  - III. Causes frequent changes in the temperature of the water at the ocean's surface.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
19. It can be inferred from the passage that the author regards current knowledge about heat and moisture transfer from the ocean to air as
- (A) revolutionary
  - (B) inconsequential
  - (C) outdated
  - (D) derivative
  - (E) incomplete
20. The passage suggests that if on a certain day the wind were to decrease until there was no wind at all which of the following would occur?
- (A) The air closest to the ocean surface would become saturated with water vapor.
  - (B) The air closest to the ocean surface would be warmer than the water.
  - (C) The amount of moisture in the air closest to the ocean surface would decrease.
  - (D) The rate of heat and moisture transfer would increase.
  - (E) The air closest to the ocean would be at the same temperature as air higher up.

Extraordinary creative activity has been characterized as revolutionary, flying in the face of what is established and producing not what is acceptable but what will become accepted. According to this formulation, highly creative activity transcends the limits of an existing form and establishes a new principle of organization. However, the idea that extraordinary creativity transcends established limits is misleading when it is applied to the arts, even though it may be valid for the sciences. Differences between highly creative art and highly creative science arise in part from a difference in their goals. For the sciences, a new theory is the goal and end result of the creative act. Innovative science produces new propositions in terms of which diverse phenomena can be related to one another in more coherent ways. Such phenomena as a

brilliant diamond or a nesting bird are relegated to the role of data, serving as the means for formulating or testing a new theory. The goal of highly creative art is very different: the phenomenon itself becomes the direct product of the creative act. Shakespeare's *Hamlet* is not a tract about the behavior of indecisive princes or the uses of political power; nor is Picasso's painting *Guernica* primarily a propositional statement about the Spanish Civil War or the evils of fascism. What highly creative artistic activity produces is not a new generalization that transcends established limits, but rather an aesthetic particular. Aesthetic particulars produced by the highly creative artist extend or exploit, in an innovative way, the limits of an existing form, rather than transcend that form.

This is not to deny that a highly creative artist sometimes establishes a new principle of organization in the history of an artistic field; the composer Monteverdi, who created music of the highest aesthetic value, comes to mind. More generally, however, **whether or not** a composition establishes a new principle in the history of music has little bearing on its aesthetic worth. Because they embody a new principle of organization, **some musical works**, such as the operas of the Florentine Camerata, are of signal historical importance, but few listeners or musicologists would include these among the great works of music. On the other hand, Mozart's *The Marriage of Figaro* is surely among the masterpieces of music even though its modest innovations are confined to extending existing means. It has been said of Beethoven that he toppled the rules and freed music from the stifling confines of convention. But a close study of his compositions reveals that Beethoven overturned no fundamental rules. Rather, he was an incomparable strategist who exploited limits—the rules, forms, and conventions that he inherited from predecessors such as Haydn and Mozart, Handel and Bach—in strikingly original ways.

21. The author considers a new theory that coherently relates diverse phenomena to one another to be the
- (A) basis for reaffirming a well-established scientific formulation
  - (B) byproduct of an aesthetic experience
  - (C) tool used by a scientist to discover a new particular
  - (D) synthesis underlying a great work of art
  - (E) result of highly creative scientific activity
22. The author implies that Beethoven's music was strikingly original because Beethoven
- (A) strove to outdo his predecessors by becoming the first composer to exploit limits
  - (B) fundamentally changed the musical forms of his predecessors by adopting a richly inventive strategy
  - (C) embellished and interwove the melodies of several of the great composers who preceded him
  - (D) manipulated the established conventions of musical composition in a highly innovative fashion
  - (E) attempted to create the illusion of having transcended the musical forms of his

predecessors

23. The passage states that the operas of the Florentine Camerata are
- (A) unjustifiably ignored by musicologists
  - (B) not generally considered to be of high aesthetic value even though they are important in the history of music
  - (C) among those works in which popular historical themes were portrayed in a musical production
  - (D) often inappropriately cited as examples of musical works in which a new principle of organization was introduced
  - (E) minor exceptions to the well-established generalization that the aesthetic worth of a composition determines its importance in the history of music
24. The passage supplies information for answering all of the following questions EXCEPT:
- (A) Has unusual creative activity been characterized as revolutionary?
  - (B) Did Beethoven work within a musical tradition that also included Handel and Bach?
  - (C) Is Mozart's *The Marriage of Figaro* an example of a creative work that transcended limits?
  - (D) Who besides Monteverdi wrote music that the author would consider to embody new principles of organization and to be of high aesthetic value?
  - (E) Does anyone claim that the goal of extraordinary creative activity in the arts differs from that of extraordinary creative activity in the sciences?
25. The author regards the idea that all highly creative artistic activity transcends limits with
- (A) deep skepticism
  - (B) strong indignation
  - (C) marked indifference
  - (D) moderate amusement
  - (E) sharp derision
26. The author implies that an innovative scientific contribution is one that
- (A) is cited with high frequency in the publications of other scientists
  - (B) is accepted immediately by the scientific community
  - (C) does not relegate particulars to the role of data
  - (D) presents the discovery of a new scientific fact
  - (E) introduces a new valid generalization
27. Which of the following statements would most logically concluded the last paragraph of the passage?
- (A) Unlike Beethoven, however, even the greatest of modern composers, such as

Stravinsky, did not transcend existing musical forms.

- (B) In similar fashion, existing musical forms were even further exploited by the next generation of great European composers.
- (C) Thus, many of the great composers displayed the same combination of talents exhibited by Monteverdi.
- (D) By contrast, the view that creativity in the arts exploits but does not transcend limits is supported in the field of literature.
- (E) Actually, Beethoven's most original works were largely unappreciated at the time that they were first performed.

## No. 5-2

### SECTION A

Visual recognition involves storing and retrieving memories. Neural activity, triggered by the eye, forms an image in the brain's memory system that constitutes an internal representation of the viewed object. When an object is encountered again, it is matched with its internal representation and thereby recognized. Controversy surrounds the question of whether recognition is a parallel, one-step process or a serial, step-by-step one. Psychologists of the Gestalt school maintain that objects are recognized as wholes in a parallel procedure: the internal representation is matched with the **retinal image** in a single operation. Other psychologists have proposed that internal representation features are matched serially with an object's features. Although some experiments show that, as an object becomes familiar, its internal representation becomes more holistic and the recognition process correspondingly more parallel, the weight of evidence seems to support the serial hypothesis, at least for objects that are not notably simple and familiar.

17. The author is primarily concerned with
- (A) explaining how the brain receives images
  - (B) synthesizing hypotheses of visual recognition
  - (C) examining the evidence supporting the serial recognition hypothesis
  - (D) discussing visual recognition and some hypotheses proposed to explain it
  - (E) reporting on recent experiments dealing with memory systems and their relationship to neural activity
18. According to the passage, Gestalt psychologists make which of the following suppositions about visual recognition?
- I. A retinal image is in exactly the same forms as its internal representation.
  - II. An object is recognized as a whole without any need for analysis into component parts.
  - III. The matching of an object with its internal representation occurs in only one step.
- (A) II only

- (B) III only
  - (C) I and III only
  - (D) II and III only
  - (E) I, II, and III
19. It can be inferred from the passage that the matching process in visual recognition is
- (A) not a neural activity
  - (B) not possible when an object is viewed for the very first time
  - (C) not possible if a feature of a familiar object is changed in some way
  - (D) only possible when a retinal image is received in the brain as a unitary whole
  - (E) now fully understood as a combination of the serial and parallel processes
20. In terms of its tone and form, the passage can best be characterized as
- (A) a biased exposition
  - (B) a speculative study
  - (C) a dispassionate presentation
  - (D) an indignant denial
  - (E) a dogmatic explanation

In large part as a consequence of the feminist movement, historians have focused a great deal of attention in recent years on determining more accurately the status of women in various periods. Although much has been accomplished for the modern period, premodern cultures have proved more difficult: sources are restricted in number, fragmentary, difficult to interpret, and often contradictory. Thus it is not particularly surprising that some earlier scholarship concerning such cultures has so far gone unchallenged. An example is Johann Bachofen's 1861 treatise on Amazons, women-ruled societies of questionable existence contemporary with ancient Greece.

Starting from the premise that mythology and legend preserve at least a nucleus of historical fact, Bachofen argued that women were dominant in many ancient societies. His work was based on a comprehensive survey of references in the ancient sources to Amazonian and other societies with matrilineal customs—societies in which descent and property rights are traced through the female line. Some support for his theory can be found in evidence such as that drawn from Herodotus, the Greek "historian" of the fifth century B. C., who speaks of an Amazonian society, the Sauromatae, where the women hunted and fought in wars. A woman in this society was not allowed to marry until she had killed a person in battle.

Nonetheless, this assumption that the first recorders of ancient myths have preserved facts is problematic. If one begins by examining why ancients refer to Amazons, it becomes clear that ancient Greek descriptions of such societies were meant not so much to represent observed historical fact—real Amazonian societies—but rather to offer "moral lessons" on the supposed outcome of women's rule in their own society. The Amazons were often characterized, for example, as the equivalents of giants and centaurs, enemies to be slain by Greek heroes. Their customs were presented not as those of a respectable society, but as the very antitheses



of ordinary Greek practices.

Thus, I would argue, the purpose of accounts of the Amazons for their male Greek recorders was didactic, to teach both male and female Greeks that all-female groups, formed by withdrawal from traditional society, are destructive and dangerous. Myths about the Amazons were used as arguments for the male-dominated status quo, in which groups composed exclusively of either sex were not permitted to segregate themselves permanently from society. Bachofen was thus misled in his reliance on myths for information about the status of women. The sources that will probably tell contemporary historians most about women in the ancient world are such social documents as gravestones, wills, and marriage contracts. Studies of such documents have already begun to show how mistaken we are when we try to derive our picture of the ancient world exclusively from literary sources, especially myths.

21. The primary purpose of the passage is to
- (A) compare competing new approaches to understanding the role of women in ancient societies
  - (B) investigate the ramifications of Bachofen's theory about the dominance of women in ancient societies
  - (C) explain the burgeoning interest among historians in determining the actual status of women in various societies
  - (D) analyze the nature of Amazonian society and uncover similarities between it and the Greek world
  - (E) criticize the value of ancient myths in determining the status of women in ancient societies
22. All of the following are stated by the author as problems connected with the sources for knowledge of premodern cultures EXCEPT:
- (A) partial completeness
  - (B) restricted accessibility
  - (C) difficulty of interpretation
  - (D) limited quantity
  - (E) tendency toward contradiction
23. Which of the following can be inferred from the passage about the myths recorded by the ancient Greeks?
- I. They sometimes included portrayals of women holding positions of power.
  - II. They sometimes contained elaborate explanations of inheritance customs.
  - III. They comprise almost all of the material available to historians about ancient Greece.
- (A) I only
  - (B) III only
  - (C) I and III only
  - (D) II and III only

- (E) I, II, and III
24. Which of the following is presented in the passage as evidence supporting the author's view of the ancient Greeks' descriptions of the Amazons?
- (A) The requirement that Sauromatae women kill in battle before marrying
- (B) The failure of historians to verify that women were ever governors of ancient societies
- (C) The classing of Amazons with giants and centaurs
- (D) The well-established unreliability of Herodotus as a source of information about ancient societies
- (E) The recent discovery of ancient societies with matrilineal customs
25. It can be inferred from the passage that the probable reactions of many males in ancient Greece to the idea of a society ruled by women could best be characterized as
- (A) confused and dismayed
- (B) wary and hostile
- (C) cynical and disinterested
- (D) curious but fearful
- (E) excited but anxious
26. The author suggests that the main reason for the persisting influence of Bachofen's work is that
- (A) feminists have shown little interest in ancient societies
- (B) Bachofen's knowledge of Amazonian culture is unparalleled
- (C) reliable information about the ancient world is difficult to acquire
- (D) ancient societies show the best evidence of women in positions of power
- (E) historians have been primarily interested in the modern period
27. The author's attitude toward Bachofen's treatise is best described as one of
- (A) qualified approval
- (B) profound ambivalence
- (C) studied neutrality
- (D) pointed disagreement
- (E) unmitigated hostility

## SECTION B

Initially the Vinaver theory that Malory's eight romances, once thought to be fundamentally unified, were in fact eight independent works produced both a sense of relief and an unpleasant shock. Vinaver's theory comfortably explained away the apparent contradictions of chronology and made each romance independently satisfying. It was, however, disagreeable to find that what had been thought of as one book was now eight books. Part of this response was

the natural reaction to the disturbance of set ideas. Nevertheless, even now, after lengthy consideration of the theory's refined but legitimate observations, one cannot avoid the conclusion that the eight romances are only one work. It is not quite a matter of disagreeing with the theory of independence, but of rejecting its implications: that the romances may be taken in any or no particular order, that they have no cumulative effect, and that they are as separate as the works of a modern novelist.

17. The primary purpose of the passage is to
- (A) discuss the validity of a hypothesis
  - (B) summarize a system of general principles
  - (C) propose guidelines for future argument
  - (D) stipulate conditions for acceptance of an interpretation
  - (E) deny accusations about an apparent contradiction
18. It can be inferred from the passage that the author believes which of the following about Malory's works?
- I. There are meaningful links between and among the romances.
  - II. The subtleties of the romances are obscured when they are taken as one work.
  - III. Any contradictions in chronology among the romances are less important than their overall unity.
- (A) I only
  - (B) III only
  - (C) I and III only
  - (D) II and III only
  - (E) I, II, and III
19. The author of the passage concedes which of the following about the Vinaver theory?
- (A) It gives a clearer understanding of the unity of Malory's romances.
  - (B) It demonstrates the irrationality of considering Malory's romances to be unified.
  - (C) It establishes acceptable links between Malory's romances and modern novels.
  - (D) It unifies earlier and later theories concerning the chronology of Malory's romances.
  - (E) It makes valid and subtle comments about Malory's romances.
20. It can be inferred from the passage that, in evaluating the Vinaver theory, some critics were
- (A) frequently misled by the inconsistencies in Malory's work
  - (B) initially biased by previous interpretations of Malory's work

- (C) conceptually displeased by the general interpretation that Vinaver rejected
- (D) generally in agreement with Vinaver's comparisons between Malory and modern novelists
- (E) originally skeptical about Vinaver's early conclusions with respect to modern novels

We can distinguish three different realms of matter, three levels on the quantum ladder. The first is the atomic realm, which includes the world of atoms, their interactions, and the structures that are formed by them, such as molecules, liquids and solids, and gases and plasmas. This realm includes all the phenomena of atomic physics, chemistry, and, in a certain sense, biology. The energy exchanges taking place in this realm are of a relatively low order. If these exchanges are below one electron volt, such as in the collisions between molecules of the air in a room, then atoms and molecules can be regarded as elementary particles. That is, they have "conditional elementarity" because they keep their identity and do not change in any collisions or in other processes at these low energy exchanges. If one goes to higher energy exchanges, say  $10^4$  electron volts, then atoms and molecules will decompose into nuclei and electrons; at this level, the latter particles must be considered as elementary. We find examples of structures and processes of this first rung of the quantum ladder on Earth, on planets, and on the surfaces of stars.

The next rung is the nuclear realm. Here the energy exchanges are much higher, on the order of millions of electron volts. As long as we are dealing with phenomena in the atomic realm, such amounts of energy are unavailable, and most nuclei are inert: they do not change. However, if one applies energies of millions of electron volts, nuclear reactions, fission and fusion, and the processes of radioactivity occur; our elementary particles then are protons, neutrons, and electrons. In addition, nuclear processes produce neutrinos, particles that have no detectable mass or charge. In the universe, energies at this level are available in the centers of stars and in star explosions. Indeed, the energy radiated by the stars is produced by nuclear reactions. The natural radioactivity we find on Earth is the long-lived remnant of the time when now-earthly matter was expelled into space by a major stellar explosion.

The third rung of the quantum ladder is the subnuclear realm. Here we are dealing with energy exchanges of many billions of electron volts. We encounter excited nucleons, new types of particles such as mesons, heavy electrons, quarks, and gluons, and also antimatter in large quantities. The gluons are the quanta, or smallest units, of the force (the strong force) that keeps the quarks together. As long as we are dealing with the atomic or nuclear realm, these new types of particles do not occur and the nucleons remain inert. But at subnuclear energy levels, the nucleons and mesons appear to be composed of quarks, so that the quarks and gluons figure as elementary particles.

21. The primary topic of the passage is which of the following?

- (A) The interaction of the realms on the quantum ladder
- (B) Atomic structures found on Earth, on other planets, and on the surfaces of stars
- (C) Levels of energy that are released in nuclear reactions on Earth and in stars
- (D) Particles and processes found in the atomic, nuclear, and subnuclear realms

- (E) New types of particles occurring in the atomic realm
22. According to the passage, radioactivity that occurs naturally on Earth is the result of
- (A) the production of particles that have no detectable mass or electric charge
  - (B) high energy exchanges on the nuclear level that occurred in an ancient explosion in a star
  - (C) processes that occur in the center of the Sun, which emits radiation to the Earth
  - (D) phenomena in the atomic realm that cause atoms and molecules to decompose into nuclei and electrons
  - (E) high-voltage discharges of electricity that took place in the atmosphere of the Earth shortly after the Earth was formed
23. The author organizes the passage by
- (A) making distinctions between two groups of particles, those that are elementary and those that are composite
  - (B) explaining three methods of transferring energy to atoms and to the smaller particles that constitute atoms
  - (C) describing several levels of processes, increasing in energy, and corresponding sets of particles, generally decreasing in size
  - (D) putting forth an argument concerning energy levels and then conceding that several qualifications of that argument are necessary
  - (E) making several successive refinements of a definition of elementarity on the basis of several groups of experimental results
24. According to the passage, which of the following can be found in the atomic realm?
- (A) More than one level of energy exchange
  - (B) Exactly one elementary particle
  - (C) Exactly three kinds of atomic structures
  - (D) Three levels on the quantum ladder
  - (E) No particles smaller than atoms
25. According to the author, gluons are not
- (A) considered to be detectable
  - (B) produced in nuclear reactions
  - (C) encountered in subnuclear energy exchanges
  - (D) related to the strong force
  - (E) found to be conditionally elementary
26. At a higher energy level than the subnuclear level described, if such a higher level exists, it can be expected on the basis of the information in the passage that there

would probably be

- (A) excited nucleons
- (B) elementary mesons
- (C) a kind of particle without detectable mass or charge
- (D) exchanges of energy on the order of millions of electron volts
- (E) another set of elementary particles

27. The passage speaks of particles as having conditional elementarity if they

- (A) remain unchanged at given level of energy exchange
- (B) cannot be decomposed into smaller constituents
- (C) are mathematically simpler than some other set of particles
- (D) release energy at a low level in collisions
- (E) belong to the nuclear level on the quantum ladder

No. 5-3

### SECTION A

The belief that art originates in intuitive rather than rational faculties was worked out historically and philosophically in the somewhat wearisome volumes of Benedetto Croce, who is usually considered the originator of a new aesthetic. Croce was, in fact, expressing a very old idea. Long before the Romantics stressed intuition and self-expression, the frenzy of inspiration was regarded as fundamental to art, but philosophers had always assumed it must be controlled by law and by the intellectual power of putting things into harmonious order. This general philosophic concept of art was supported by technical necessities. It was necessary to master certain laws and to use intellect in order to build Gothic cathedrals, or set up the stained glass windows of Chartres. When this bracing element of craftsmanship ceased to dominate artists' outlook, new technical elements had to be adopted to maintain the intellectual element in art. Such were **linear perspective** and anatomy.

17. The passage suggests that which of the following would most likely have occurred if linear perspective and anatomy had not come to influence artistic endeavor?

- (A) The craftsmanship that shaped Gothic architecture would have continued to dominate artists' outlooks.
- (B) Some other technical elements would have been adopted to discipline artistic inspiration.
- (C) Intellectual control over artistic inspiration would not have influenced painting as it did architecture.
- (D) The role of intuitive inspiration would not have remained fundamental to theories of artistic creation.
- (E) The assumptions of aesthetic philosophers before Croce would have been



invalidated.

18. The passage supplies information for answering which of the following questions?
- (A) Does Romantic art exhibit the triumph of intuition over intellect?
  - (B) Did an emphasis on linear perspective and anatomy dominate Romantic art?
  - (C) Are the intellectual and intuitive faculties harmoniously balanced in post-Romantic art?
  - (D) Are the effects of the rational control of artistic inspiration evident in the great works of pre-Romantic eras?
  - (E) Was the artistic craftsmanship displayed in Gothic cathedrals also an element in paintings of this period?
19. The passage implies that which of the following was a traditional assumption of aesthetic philosophers?
- (A) Intellectual elements in art exert a necessary control over artistic inspiration.
  - (B) Architecture has never again reached the artistic greatness of the Gothic cathedrals.
  - (C) Aesthetic philosophy is determined by the technical necessities of art.
  - (D) Artistic craftsmanship is more important in architectural art than in pictorial art.
  - (E) Paintings lacked the intellectual element before the invention of linear perspective and anatomy.
20. The author mentions “linear perspective and anatomy” in the last sentence in order to do which of the following?
- (A) Expand his argument to include painting as well as architecture
  - (B) Indicate his disagreement with Croce’s theory of the origins of art
  - (C) Support his point that rational order of some kind has often seemed to discipline artistic inspiration
  - (D) Explain the rational elements in Gothic painting that corresponded to craftsmanship in Gothic architecture
  - (E) Show the increasing sophistication of artists after the Gothic period

(The passage below is drawn from an article published in 1962.)

Computer programmers often remark that computing machines, with a perfect lack of discrimination, will do any foolish thing they are told to do. The reason for this lies, of course, in the narrow fixation of the computing machine’s “intelligence” on the details of its own perceptions—its inability to be guided by any large context. In a psychological description of the computer intelligence, three related adjectives come to mind: single-minded, literal-minded, and simpleminded. Recognizing this, we should at the same time recognize that this single-mindedness, literal-mindedness, and simplemindedness also characterizes theoretical mathematics, though to a lesser extent.

Since science tries to deal with reality, even the most precise sciences normally work with more or less imperfectly understood approximations toward which scientists must maintain an appropriate skepticism. Thus, for instance, it may come as a shock to mathematicians to learn that the **Schrodinger equation** for the hydrogen atom is not a literally correct description of this atom, but only an approximation to a somewhat more correct equation taking account of spin, **magnetic dipole**, and relativistic effects; and that this corrected equation is itself only an imperfect approximation to an infinite set of quantum field-theoretical equations. Physicists, looking at the original Schrodinger equation, learn to sense in it the presence of many invisible terms in addition to the differential terms visible, and this sense inspires an entirely appropriate disregard for the purely technical features of the equation. This very healthy skepticism is foreign to the mathematical approach.

Mathematics must deal with well-defined situations. Thus, mathematicians depend on an intellectual effort outside of mathematics for the crucial specification of the approximation that mathematics is to take literally. Give mathematicians a situation that is the least bit ill-defined, and they will make it well-defined, perhaps appropriately, but perhaps inappropriately. In some cases, the mathematicians' literal-mindedness may have unfortunate consequences. The mathematicians turn the scientists' theoretical assumptions, that is, their convenient points of analytical emphasis, into axioms, and then take these axioms literally. This brings the danger that they may also persuade the scientists to take these axioms literally. The question, central to the scientific investigation but intensely disturbing in the mathematical context—what happens if the axioms are relaxed?—is thereby ignored.

The physicist rightly dreads precise argument, since an argument that is convincing only if it is precise loses all its force if the assumptions on which it is based are slightly changed, whereas an argument that is convincing though imprecise may well be stable under small perturbations of its underlying assumptions.

21. The author discusses computing machines in the first paragraph primarily in order to do which of the following?
- (A) Indicate the dangers inherent in relying to a great extent on machines
  - (B) Illustrate his views about the approach of mathematicians to problem solving
  - (C) Compare the work of mathematicians with that of computer programmers
  - (D) Provide one definition of intelligence
  - (E) Emphasize the importance of computers in modern technological society
22. According to the passage, scientists are skeptical toward their equations because scientists
- (A) work to explain real, rather than theoretical or simplified, situations
  - (B) know that well-defined problems are often the most difficult to solve
  - (C) are unable to express their data in terms of multiple variables
  - (D) are unwilling to relax the axioms they have developed
  - (E) are unable to accept mathematical explanations of natural phenomena
23. It can be inferred from the passage that scientists make which of the following

assumptions about scientific arguments?

- (A) The literal truth of the arguments can be made clear only in a mathematical context.
- (B) The arguments necessarily ignore the central question of scientific investigation.
- (C) The arguments probably will be convincing only to other scientists.
- (D) The conclusions of the arguments do not necessarily follow from their premises.
- (E) The premises on which the arguments are based may change.

24. According to the passage, mathematicians present a danger to scientists for which of the following reasons?

- (A) Mathematicians may provide theories that are incompatible with those already developed by scientists.
- (B) Mathematicians may define situation in a way that is incomprehensible to scientists.
- (C) Mathematicians may convince scientists that theoretical assumptions are facts.
- (D) Scientists may come to believe that axiomatic statements are untrue.
- (E) Scientists may begin to provide arguments that are convincing but imprecise.

25. The author suggests that the approach of physicists to solving scientific problems is which of the following?

- (A) Practical for scientific purposes
- (B) Detrimental to scientific progress
- (C) Unimportant in most situations
- (D) Expedient, but of little long-term value
- (E) Effective, but rarely recognized as such

26. The author suggests that a mathematician asked to solve a problem in an ill-defined situation would first attempt to do which of the following?

- (A) Identify an analogous situation
- (B) Simplify and define the situation
- (C) Vary the underlying assumptions of a description of the situation
- (D) Determine what use would be made of the solution provided
- (E) Evaluate the theoretical assumptions that might explain the situation

27. The author implies that scientists develop a healthy skepticism because they are aware that

- (A) mathematicians are better able to solve problems than are scientists
- (B) changes in axiomatic propositions will inevitably undermine scientific arguments

- (C) well-defined situations are necessary for the design of reliable experiments
- (D) mathematical solutions can rarely be applied to real problems
- (E) some factors in most situations must remain unknown

## SECTION B

In eighteenth-century France and England, reformers rallied around egalitarian ideals, but few reformers advocated higher education for women. Although the public decried women's lack of education, it did not encourage learning for its own sake for women. In spite of the general prejudice against learned women, there was one place where women could exhibit their erudition: the literary salon. Many writers have defined the woman's role in the salon as that of an intelligent hostess, but the salon had more than a social function for women. It was an informal university, too, where women exchanged ideas with educated persons, read their own works and heard those of others, and received and gave criticism.

In the 1750's, when salons were firmly established in France, some English women, who called themselves "Bluestocking," followed the example of the *salonnières* (French salon hostesses) and formed their own salons. Most Bluestockings did not wish to mirror the *salonnières*; they simply desired to adapt a proven formula to their own purpose—the elevation of women's status through moral and intellectual training. Differences in social orientation and background can account perhaps for differences in the nature of French and English salons. The French salon incorporated aristocratic attitudes that exalted courtly pleasure and emphasized artistic accomplishments. The English Bluestockings, originating from a more modest background, emphasized learning and work over pleasure. Accustomed to the regimented life of court circles, *salonnières* tended toward formality in their salons. The English women, though somewhat puritanical, were more casual in their approach.

At first, the Bluestockings did imitate the *salonnières* by including men in their circles. However, as they gained cohesion, the Bluestockings came to regard themselves as a women's group and to possess a sense of female solidarity lacking in the *salonnières*, who remained isolated from one another by the primacy each held in her own salon. In an atmosphere of mutual support, the Bluestockings went beyond the salon experience. They traveled, studied, worked, wrote for publication, and by their activities challenged the stereotype of the passive woman. Although the *salonnières* were aware of sexual inequality, the narrow boundaries of their world kept their intellectual pursuits within conventional limits. Many *salonnières*, in fact, camouflaged their nontraditional activities behind the role of hostess and deferred to men in public.

Though the Bluestockings were trailblazers when compared with the *salonnières*, they were not feminists. They were too traditional, too hemmed in by their generation to demand social and political rights. Nonetheless, in their desire for education, their willingness to go beyond the confines of the salon in pursuing their interests, and their championing of unity among women, the Bluestockings began the process of questioning women's role in society.

17. Which of the following best states the central idea of the passage?

- (A) The establishment of literary salons was a response to reformers' demands for social rights for women.

- (B) Literary salons were originally intended to be a meeting ground for intellectuals of both sexes, but eventually became social gatherings with little educational value.
- (C) In England, as in France, the general prejudice against higher education for women limited women's function in literary salons to a primarily social one.
- (D) The literary salons provided a sounding board for French and English women who called for access to all the educational institutions in their societies on an equal basis with men.
- (E) For women, who did not have access to higher education as men did, literary salons provided an alternate route to learning and a challenge to some of society's basic assumptions about women.
18. According to the passage, a significant distinction between the *salonnières* and Bluestockings was in the way each group regarded which of the following?
- (A) The value of acquiring knowledge
- (B) The role of pleasure in the activities of the literary salon
- (C) The desirability of a complete break with societal traditions
- (D) The inclusion of women of different backgrounds in the salons
- (E) The attainment of full social and political equality with men
19. The author refers to differences in social background between *salonnières* and Bluestockings in order to do which of the following?
- (A) Criticize the view that their choices of activities were significantly influenced by male salon members
- (B) Discuss the reasons why literary salons in France were established before those in England
- (C) Question the importance of the Bluestockings in shaping public attitudes toward educated women
- (D) Refute the argument that the French salons had little influence over the direction the English salons took
- (E) Explain the differences in atmosphere and style in their salons
20. Which of the following statements is most compatible with the principles of the *salonnières* as described in the passage?
- (A) Women should aspire to be not only educated but independent as well.
- (B) The duty of the educated women is to provide an active political model for less educated women.
- (C) Devotion to pleasure and art is justified in itself.
- (D) Substance, rather than form, is the most important consideration in holding a literary salon.
- (E) Men should be excluded from groups of women's rights supporters.
21. The passage suggests that the Bluestockings might have had a more significant

impact on society if it had not been for which of the following?

- (A) Competitiveness among their salons
  - (B) Their emphasis on individualism
  - (C) The limited scope of their activities
  - (D) Their acceptance of the French salon as a model for their own salons
  - (E) Their unwillingness to defy aggressively the conventions of their age
22. Which of the following could best be considered a twentieth-century counterpart of an eighteenth century literary salon as it is described in the passage?
- (A) A social sorority
  - (B) A community center
  - (C) A lecture course on art
  - (D) A humanities study group
  - (E) An association of moral reformers
23. To an assertion that Bluestockings were feminists, the author would most probably respond with which of the following?
- (A) Admitted uncertainty
  - (B) Qualified disagreement
  - (C) Unquestioning approval
  - (D) Complete indifference
  - (E) Strong disparagement
24. Which of the following titles best describes the content of the passage?
- (A) Eighteenth-Century Egalitarianism
  - (B) Feminists of the Eighteenth Century
  - (C) Eighteenth-Century Precursors of Feminism
  - (D) Intellectual Life in the Eighteenth Century
  - (E) Female Education Reform in the Eighteenth Century

When the same parameters and quantitative theory are used to analyze both termite colonies and troops of rhesus macaques, we will have a unified science of sociobiology. Can this ever really happen? As my own studies have advanced, I have been increasingly impressed with the functional similarities between insect and vertebrate societies and less so with the structural differences that seem, **at first glance**, to constitute such an immense gulf between them. Consider **for a moment** termites and macaques. Both form cooperative groups that occupy territories. In both kinds of society there is a well-marked **division of labor**. Members of both groups communicate to each other hunger, alarm, hostility, caste status or rank, and reproductive status. From the specialist's point of view, this comparison may at first seem facile—or worse. But it is out of such deliberate oversimplification that the beginnings of a general theory are made.

25. Which of the following best summarizes the author's main point?



- (A) Oversimplified comparisons of animal societies could diminish the likelihood of developing a unified science of sociobiology.
- (B) Understanding the ways in which animals as different as termites and rhesus macaques resemble each other requires train in both biology and sociology.
- (C) Most animals organize themselves into societies that exhibit patterns of group behavior similar to those of human societies.
- (D) Animals as different as termites and rhesus macaques follow certain similar and predictable patterns of behavior.
- (E) A study of the similarities between insect and vertebrate societies could provide the basis for a unified science of sociobiology.
26. The author's attitude toward the possibility of a unified theory in sociobiology is best described as which of the following?
- (A) Guarded optimism
- (B) Unqualified enthusiasm
- (C) Objective indifference
- (D) Resignation
- (E) Dissatisfaction
27. In discussing insect and vertebrate societies, the author suggests which of the following?
- (A) A distinguishing characteristic of most insect and vertebrate societies is a well-marked division of labor.
- (B) The caste structure of insect societies is similar to that of vertebrate societies.
- (C) Most insect and vertebrate societies form cooperative groups in order to occupy territory.
- (D) The means of communication among members of insect societies is similar to that among members of vertebrate societies.
- (E) There are significant structural differences between insect and vertebrate societies.

No. 6-1

## SECTION A

A mysterious phenomenon is the ability of over-water migrants to travel on course. Birds, bees, and other species can **keep track of** time without any sensory cues from the outside world, and such "biological clocks" clearly contribute to their "compass sense." For example, they can use the position of the Sun or stars, along with **the time of day**, to find north. But compass sense alone cannot explain how birds navigate the ocean: after a flock traveling east is blown far south by a storm, it will assume the proper northeasterly course to compensate. Perhaps, some scientists thought, migrants determine their geographic position on Earth by celestial

navigation, almost as human navigators use stars and planets, but this would demand of the animals a fantastic map sense. Researchers now know that some species have a magnetic sense, which might allow migrants to determine their geographic location by detecting variations in the strength of the Earth's magnetic field.

17. The main idea of the passage is that
- (A) migration over land requires a simpler explanation than migration over water does
  - (B) the means by which animals migrate over water are complex and only partly understood
  - (C) the ability of migrant animals to keep track of time is related to their magnetic sense
  - (D) knowledge of geographic location is essential to migrants with little or no compass sense
  - (E) explanations of how animals migrate tend to replace, rather than build on, one another
18. It can be inferred from the passage that if the flock of birds described in lines 8-12 were navigating by compass sense alone, they would, after the storm, fly
- (A) east
  - (B) north
  - (C) northwest
  - (D) south
  - (E) southeast
19. In maintaining that migrating animals would need "a fantastic map sense" (line 17) to determine their geographic position by celestial navigation, the author intends to express
- (A) admiration for the ability of the migrants
  - (B) skepticism about celestial navigation as an explanation
  - (C) certainty that the phenomenon of migration will remain mysterious
  - (D) interest in a new method of accounting for over-water migration
  - (E) surprise that animals apparently navigate in much the same way that human beings do
20. Of the following descriptions of migrating animals, which most strongly suggests that the animals are depending on magnetic cues to orient themselves?
- (A) Pigeons can properly readjust their course even when flying long distances through exceedingly dense fogs.
  - (B) Bison are able to reach their destination by passing through a landscape that has been partially altered by a recent fire.
  - (C) Elephants are able to find grounds that some members of the herd have never seen before.

- (D) Swallows are able to return to a given spot at the same time every year.
- (E) Monarch butterflies coming from different parts of North America are able to arrive at the same location each winter.

Roger Rosenblatt's book *Black Fiction*, in attempting to apply literary rather than sociopolitical criteria to its subject, successfully alters the approach taken by most previous studies. As Rosenblatt notes, criticism of Black writing has often served as a pretext for expounding on Black history. Addison Gayle's recent work, for example, judges the value of Black fiction by overtly political standards, rating each work according to the notions of Black identity which it propounds.

Although fiction assuredly springs from political circumstances, its authors react to those circumstances in ways other than ideological, and talking about novels and stories primarily as instruments of ideology circumvents much of the fictional enterprise. Rosenblatt's literary analysis discloses affinities and connections among works of Black fiction which solely political studies have overlooked or ignored.

Writing acceptable criticism of Black fiction, however, presupposes giving satisfactory answers to a number of questions. First of all, is there a sufficient reason, other than the racial identity of the authors, to group together works by Black authors? Second, how does Black fiction make itself distinct from other modern fiction with which it is largely contemporaneous? Rosenblatt shows that Black fiction constitutes a distinct body of writing that has an identifiable, coherent literary tradition. Looking at novels written by Blacks over the last eighty years, he discovers recurring concerns and designs independent of chronology. These structures are thematic, and they spring, not surprisingly, from the central fact that the Black characters in these novels exist in a predominantly White culture, whether they try to conform to that culture of **rebel against** it.

*Black Fiction* does leave some aesthetic questions open. Rosenblatt's thematic analysis permits considerable objectivity; he even explicitly states that it is not his intention to judge the merit of the various works—yet his reluctance seems misplaced, especially since an attempt to appraise might have led to interesting results. For instance, some of the novels appear to be structurally diffuse. Is this a defect, or are the authors working out of, or trying to forge, a different kind of aesthetic? In addition, the style of some Black novels, like Jean Toomer's *Cane*, **verges on** expressionism or surrealism; does this technique provide a **counterpoint** to the prevalent theme that portrays the fate against which Black heroes are pitted, a theme usually conveyed by more naturalistic modes of expression?

In spite of such omissions, what Rosenblatt does include in his discussion makes for an astute and worthwhile study. *Black Fiction* surveys a wide variety of novels, bringing to our attention in the process some fascinating and little-known works like James Weldon Johnson's *Autobiography of an Ex-Colored Man*. Its argument is tightly constructed, and its forthright, lucid style exemplifies levelheaded and penetrating criticism.

21. The author of the passage objects to criticism of Black fiction like that by Addison Gayle because it
- (A) emphasizes purely literary aspects of such fiction
  - (B) misinterprets the ideological content of such fiction

- (C) misunderstands the notions of Black identity contained in such fiction
  - (D) substitutes political for literary criteria in evaluating such fiction
  - (E) ignores the interplay between Black history and Black identity displayed in such fiction
22. The author of the passage is primarily concerned with
- (A) evaluating the soundness of a work of criticism
  - (B) comparing various critical approaches to a subject
  - (C) discussing the limitations of a particular kind of criticism
  - (D) summarizing the major points made in a work of criticism
  - (E) explaining the theoretical background of a certain kind of criticism
23. The author of the passage believes that *Black Fiction* would have been improved had Rosenblatt
- (A) evaluated more carefully the ideological and historical aspects of Black fiction
  - (B) attempted to be more objective in his approach to novels and stories by Black authors
  - (C) explored in greater detail the recurrent thematic concerns of Black fiction throughout its history
  - (D) established a basis for placing Black fiction within its own unique literary tradition
  - (E) assessed the relative literary merit of the novels he analyzes thematically
24. The author's discussion of *Black Fiction* can be best described as
- (A) pedantic and contentious
  - (B) critical but admiring
  - (C) ironic and deprecating
  - (D) argumentative but unfocused
  - (E) stilted and insincere
25. It can be inferred that the author of the passage would be LEAST likely to approve of which of the following?
- (A) An analysis of the influence of political events on the personal ideology of Black writers
  - (B) A critical study that applies sociopolitical criteria to autobiographies by Black authors
  - (C) A literary study of Black poetry that appraises the merits of poems according to the political acceptability of their themes
  - (D) An examination of the growth of a distinct Black literary tradition within the context of Black history
  - (E) A literary study that attempts to isolate aesthetic qualities unique to Black

fiction

26. The author of the passage uses all of the following in the discussion of Rosenblatt's book EXCEPT
- (A) rhetorical questions
  - (B) specific examples
  - (C) comparison and contrast
  - (D) definition of terms
  - (E) personal opinion
27. The author of the passage refers to James Weldon Johnson's *Autobiography of an Ex-Colored Man* most probably in order to
- (A) point out affinities between Rosenblatt's method of thematic analysis and earlier criticism
  - (B) clarify the point about expressionistic style made earlier in the passage
  - (C) qualify the assessment of Rosenblatt's book made in the first paragraph of the passage
  - (D) illustrate the affinities among Black novels disclosed by Rosenblatt's literary analysis
  - (E) give a specific example of one of the accomplishments of Rosenblatt's work

## SECTION B

The molecules of carbon dioxide in the Earth's atmosphere affect the heat balance of the Earth by acting as a one-way screen. Although these molecules allow radiation at visible wavelengths, where most of the energy of sunlight is concentrated, to pass through, they absorb some of the longer-wavelength, infrared emissions radiated from the Earth's surface, radiation that would otherwise be transmitted back into space. For the Earth to maintain a constant average temperature, such emissions from the planet must balance incoming solar radiation. If there were no carbon dioxide in the atmosphere, heat would escape from the Earth much more easily. The surface temperature would be so much lower that the oceans might be a **solid mass** of ice.

Today, however, the potential problem is too much carbon dioxide. The burning of fossil fuels and the clearing of forests have increased atmospheric carbon dioxide by about 15 percent in the last hundred years, and we continue to add carbon dioxide to the atmosphere. Could the increase in carbon dioxide cause a global rise in average temperature, and could such a rise have serious consequences for human society? Mathematical models that allow us to calculate the rise in temperature as a function of the increase indicate that the answer is probably yes.

Under present conditions a temperature of  $-18^{\circ}\text{C}$  can be observed at an altitude of 5 to 6 kilometers above the Earth. Below this altitude (called the radiating level), the temperature increases by about  $6^{\circ}\text{C}$  per kilometer approaching the Earth's surface, where the average temperature is about  $15^{\circ}\text{C}$ . An increase in the amount of carbon dioxide means that there are

more molecules of carbon dioxide to absorb infrared radiation. As the capacity of the atmosphere to absorb infrared radiation increases, the radiating level and the temperature of the surface must rise.

One mathematical model predicts that doubling the atmospheric carbon dioxide would raise the global mean surface temperature by  $2.5^{\circ}\text{C}$ . This model assumes that the atmosphere's **relative humidity** remains constant and the temperature decreases with altitude at a rate of  $6.5^{\circ}\text{C}$  per kilometer. The assumption of constant relative humidity is important, because water vapor in the atmosphere is another efficient absorber of radiation at infrared wavelengths. Because warm air can hold more moisture than cool air, the relative humidity will be constant only if the amount of water vapor in the atmosphere increases as the temperature rises. Therefore, more infrared radiation would be absorbed and reradiated back to the Earth's surface. The resultant warming at the surface could be expected to melt snow and ice, reducing the Earth's reflectivity. More solar radiation would then be absorbed, leading to a further increase in temperature.

17. The primary purpose of the passage is to
- (A) warn of the dangers of continued burning of fossil fuels
  - (B) discuss the significance of increasing the amount of carbon dioxide in the atmosphere
  - (C) explain how a constant temperature is maintained on the Earth's surface
  - (D) describe the ways in which various atmospheric and climatic conditions contribute to the Earth's weather
  - (E) demonstrate the usefulness of mathematical models in predicting long-range climatic change
18. According to the passage, the greatest part of the solar energy that reaches the Earth is
- (A) concentrated in the infrared spectrum
  - (B) concentrated at visible wavelengths
  - (C) absorbed by carbon dioxide molecules
  - (D) absorbed by atmospheric water vapor
  - (E) reflected back to space by snow and ice
19. According to the passage, atmospheric carbon dioxide performs all of the following functions EXCEPT:
- (A) absorbing radiation at visible wavelengths
  - (B) absorbing infrared radiation
  - (C) absorbing outgoing radiation from the Earth
  - (D) helping to retain heat near the Earth's surface
  - (E) helping to maintain a constant average temperature on the Earth's surface
20. Which of the following best describes the author's attitude toward the increasing amount of carbon dioxide in the atmosphere and its consequences?



- (A) Incredulous
  - (B) Completely detached
  - (C) Interested but skeptical
  - (D) Angry yet resigned
  - (E) Objective yet concerned
21. It can be concluded from information contained in the passage that the average temperature at an altitude of 1 kilometer above the Earth is about
- (A) 15°C
  - (B) 9°C
  - (C) 2.5°C
  - (D) -12°C
  - (E) -18°C
22. It can be inferred from the passage that the construction of the mathematical model mentioned in the passage involved the formulation of which of the following?
- (A) An assumption that the amount of carbon dioxide added to the atmosphere would in reality steadily increase
  - (B) An assumption that human activities are the only agencies by which carbon dioxide is added to the atmosphere
  - (C) Assumptions about the social and political consequences of any curtailment of the use of fossil fuels
  - (D) Assumptions about the physical conditions that are likely to prevail during the period for which the model was made
  - (E) Assumptions about the differential behavior of carbon dioxide molecules at the various levels of temperature calculated in the model
23. According to the passage, which of the following is true of the last hundred years?
- (A) Fossil fuels were burned for the first time.
  - (B) Greater amounts of land were cleared than at any time before.
  - (C) The average temperature at the Earth's surface has become 2°C cooler.
  - (D) The amount of carbon dioxide in the atmosphere has increased measurably.
  - (E) The amount of farmland worldwide has doubled.

Some modern anthropologists hold that biological evolution has shaped not only human morphology but also human behavior. The role those anthropologists ascribe to evolution is not of dictating the details of human behavior but one of imposing constraints—ways of feeling, thinking, and acting that “come naturally” in archetypal situations in any culture. Our “frailties”—emotions and motives such as rage, fear, greed, gluttony, joy, lust, love—may be a very mixed assortment, but they share at least one immediate quality: we are, as we say, “in the grip” of them. And thus they give us our sense of constraints.

Unhappily, some of those frailties—our need for ever-increasing security among them—are presently maladaptive. Yet beneath the overlay of cultural detail, they, too, are said to be biological in direction, and therefore as natural to us as are our appendixes. We would need to comprehend thoroughly their adaptive origins in order to understand how badly they guide us now. And we might then begin to resist their pressure.

24. The primary purpose of the passage is to present
- (A) a position on the foundations of human behavior and on what those foundations imply
  - (B) a theory outlining the parallel development of human morphology and of human behavior
  - (C) a diagnostic test for separating biologically determined behavior patterns from culture-specific detail
  - (D) a practical method for resisting the pressures of biologically determined drives
  - (E) an overview of those human emotions and motives that impose constraints on human behavior
25. The author implies that control to any extent over the “frailties” that constrain our behavior is thought to presuppose
- (A) that those frailties are recognized as currently beneficial and adaptive
  - (B) that there is little or no overlay of cultural detail that masks their true nature
  - (C) that there are cultures in which those frailties do not “come naturally” and from which such control can be learned
  - (D) a full understanding of why those frailties evolved and of how they function now
  - (E) a thorough grasp of the principle that cultural detail in human behavior can differ arbitrarily from society to society
26. Which of the following most probably provides an appropriate analogy from human morphology for the “details” versus “constraints” distinction made in the passage in relation to human behavior?
- (A) The ability of most people to see all the colors of the visible spectrum as against most people’s inability to name any but the primary colors
  - (B) The ability of even the least fortunate people to show compassion as against people’s inability to mask their feelings completely
  - (C) The ability of some people to dive to great depths as against most people’s inability to swim long distances
  - (D) The psychological profile of those people who are able to delay gratification as against people’s inability to control their lives completely
  - (E) The greater lung capacity of mountain peoples that helps them live in oxygen-poor air as against people’s inability to fly without special apparatus

27. It can be inferred that in his discussion of maladaptive frailties the author assumes that
- (A) evolution does not favor the emergence of adaptive characteristics over the emergence of maladaptive ones
  - (B) any structure or behavior not positively adaptive is regarded as transitory in evolutionary theory
  - (C) maladaptive characteristics, once fixed, make the emergence of other maladaptive characteristics more likely
  - (D) the designation of a characteristic as being maladaptive must always remain highly tentative
  - (E) changes in the total human environment can outpace evolutionary change

No. 6-2

### SECTION A

Whether the languages of the ancient American peoples were used for expressing abstract universal concepts can be clearly answered in the case of Nahuatl. Nahuatl, like Greek and German, is a language that allows the formation of extensive compounds. By the combination of radicals or semantic elements, single compound words can express complex conceptual relations, often of an abstract universal character.

The *tlamatinime* ("those who know") were able to use this rich stock of abstract terms to express the nuances of their thought. They also availed themselves of other forms of expression with metaphorical meaning, some probably original, some derived from Toltec coinages. Of these forms the most characteristic in Nahuatl is the juxtaposition of two words that, because they are synonyms, associated terms, or even contraries, complement each other to evoke one single idea. Used as metaphor, the juxtaposed terms connote specific or essential traits of the being they refer to, introducing a mode of poetry as an almost habitual form of expression.

17. A main purpose of the passage is to
- (A) delineate the function of the *tlamatinime* in Nahuatl society
  - (B) explain the abstract philosophy of the Nahuatl thinkers
  - (C) argue against a theory of poetic expression by citing evidence about the Nahuatl
  - (D) explore the rich metaphorical heritage the Nahuatl received from the Toltecs
  - (E) describe some conceptual and aesthetic resources of the Nahuatl language
18. According to the passage, some abstract universal ideas can be expressed in Nahuatl by
- (A) taking away from a word any reference to particular instances
  - (B) removing a word from its associations with other words

- (C) giving a word a new and opposite meaning
  - (D) putting various meaningful elements together in one word
  - (E) turning each word of a phrase into a poetic metaphor
19. It can be inferred solely from the information in the passage that
- (A) there are many languages that, like Greek or German, allow extensive compounding
  - (B) all abstract universal ideas are ideas of complex relations
  - (C) some record or evidence of the thought of the *tlamatinime* exists
  - (D) metaphors are always used in Nahuatl to express abstract conceptual relationships
  - (E) the abstract terms of the Nahuatl language are habitually used in poetry

Many theories have been formulated to explain the role of grazers such as zooplankton in controlling the amount of planktonic algae (phytoplankton) in lakes. The first theories of such grazer control were merely based on observations of negative correlations between algal and zooplankton numbers. A low number of algal cells in the presence of a high number of grazers suggested, but did not prove, that the grazers had removed most of the algae. The converse observation, of the absence of grazers in areas of high phytoplankton concentration, led Hardy to propose his principle of animal exclusion, which hypothesized that phytoplankton produced a repellent that excluded grazers from regions of high phytoplankton concentration. This was the first suggestion of algal defenses against grazing.

Perhaps the fact that many of these first studies considered only algae of a size that could be collected in a net (net phytoplankton), a practice that overlooked the smaller phytoplankton (nannoplankton) that we now know grazers are most likely to feed on, led to a de-emphasis of the role of grazers in subsequent research. Increasingly, as in the individual studies of Lund, Round, and Reynolds, researchers began to stress the importance of environmental factors such as temperature, light, and water movements in controlling algal numbers. These environmental factors were amenable to field monitoring and to simulation in the laboratory. Grazing was believed to have some effect on algal numbers, especially after phytoplankton growth rates declined at the end of bloom periods, but grazing was considered a minor component of models that predicted algal **population dynamics**.

The potential magnitude of grazing pressure on freshwater phytoplankton has only recently been determined empirically. Studies by Hargrave and Geen estimated natural community grazing rates by measuring feeding rates of individual zooplankton species in the laboratory and then computing community grazing rates for field conditions using the known population density of grazers. The high estimates of grazing pressure postulated by these researchers were not fully accepted, however, until the grazing rates of zooplankton were determined directly in the field, by means of new experimental techniques. Using a specially prepared feeding chamber, Haney was able to record zooplankton grazing rates in natural field conditions. In the periods of peak zooplankton abundance, that is, in the late spring and in the summer, Haney recorded maximum daily community grazing rates, for nutrient-poor lakes and bog lakes, respectively, of 6.6 percent and 114 percent of daily phytoplankton production. Cladocerans had higher grazing rates than copepods, usually accounting for 80 percent of the

community grazing rate. These rates varied seasonally, reaching the lowest point in the winter and early spring. Haney's thorough research provides convincing field evidence that grazers can exert significant pressure on phytoplankton population.

20. The author most likely mentions Hardy's principle of animal exclusion in order to
- (A) give an example of one theory about the interaction of grazers and phytoplankton
  - (B) defend the first theory of algal defenses against grazing
  - (C) support the contention that phytoplankton numbers are controlled primarily by environmental factors
  - (D) demonstrate the superiority of laboratory studies of zooplankton feeding rates to other kinds of studies of such rates
  - (E) refute researchers who believed that low numbers of phytoplankton indicated the grazing effect of low numbers of zooplankton
21. It can be inferred from the passage that the "first theories" of grazer control mentioned in line 4 would have been more convincing if researchers had been able to
- (A) observe high phytoplankton numbers under natural lake conditions
  - (B) discover negative correlations between algae and zooplankton numbers from their field research
  - (C) understand the central importance of environmental factors in controlling the growth rates of phytoplankton
  - (D) make verifiable correlations of cause and effect between zooplankton and phytoplankton numbers
  - (E) invent laboratory techniques that would have allowed them to bypass their field research concerning grazer control
22. Which of the following, if true, would call into question Hardy's principle of animal exclusion?
- (A) Zooplankton are not the only organisms that are affected by phytoplankton repellents.
  - (B) Zooplankton exclusion is unrelated to phytoplankton population density.
  - (C) Zooplankton population density is higher during some parts of the year than during others.
  - (D) Net phytoplankton are more likely to exclude zooplankton than are nannoplankton.
  - (E) Phytoplankton numbers can be strongly affected by environmental factors.
23. The author would be likely to agree with which of the following statements regarding the pressure of grazers on phytoplankton numbers?
- I. Grazing pressure can vary according to the individual type of zooplankton.
  - II. Grazing pressure can be lower in nutrient-poor lakes than in bog lakes.

- III. Grazing tends to exert about the same pressure as does temperature.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
24. The passage supplies information to indicate that Hargrave and Geen's conclusion regarding the grazing pressure exerted by zooplankton on phytoplankton numbers was most similar to the conclusion regarding grazing pressure reached by which of the following researchers?
- (A) Hardy
  - (B) Lund
  - (C) Round
  - (D) Reynolds
  - (E) Haney
25. It can be inferred from the passage that one way in which many of the early researchers on grazer control could have improved their data would have been to
- (A) emphasize the effects of temperature, rather than of light, on phytoplankton
  - (B) disregard nannoplankton in their analysis of phytoplankton numbers
  - (C) collect phytoplankton of all sizes before analyzing the extent of phytoplankton concentration
  - (D) recognize that phytoplankton other than net phytoplankton could be collected in a net
  - (E) understand the crucial significance of net phytoplankton in the diet of zooplankton
26. According to the passage, Hargrave and Geen did which of the following in their experiments?
- (A) They compared the grazing rates of individual zooplankton species in the laboratory with the natural grazing rates of these species.
  - (B) They hypothesized about the population density of grazers in natural habitats by using data concerning the population density of grazers in the laboratory.
  - (C) They estimated the community grazing rates of zooplankton in the laboratory by using data concerning the natural community grazing rates of zooplankton.
  - (D) They estimated the natural community grazing rates of zooplankton by using data concerning the known population density of phytoplankton.
  - (E) They estimated the natural community grazing rates of zooplankton by using laboratory data concerning the grazing rates of individual zooplankton species.



27. Which of the following is a true statement about the zooplankton numbers and zooplankton grazing rates observed in Haney's experiments?
- (A) While zooplankton numbers began to decline in August, zooplankton grazing rates began to increase.
  - (B) Although zooplankton numbers were high in May, grazing rates did not become high until January.
  - (C) Both zooplankton numbers and grazing rates were higher in December than in November.
  - (D) Both zooplankton numbers and grazing rates were lower in March than in June.
  - (E) Both zooplankton numbers and grazing rates were highest in February.

## SECTION B

Hydrogeology is a science dealing with the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere. The hydrologic cycle, a major topic in this science, is the complete cycle of phenomena through which water passes, beginning as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along and into the ground surface, and finally again returning to the form of atmospheric water vapor by means of evaporation and transpiration.

The term "geohydrology" is sometimes erroneously used as a synonym for "hydrogeology." Geohydrology is concerned with underground water. There are many formations that contain water but are not part of the hydrologic cycle because of geologic changes that have isolated them underground. These systems are properly termed geohydrologic but not hydrogeologic. Only when a system possesses natural or artificial boundaries that associate the water within it with the hydrologic cycle may the entire system properly be termed hydrogeologic.

17. The author's primary purpose is most probably to
- (A) present a hypothesis
  - (B) refute an argument
  - (C) correct a misconception
  - (D) predict an occurrence
  - (E) describe an enigma
18. It can be inferred that which of the following is most likely to be the subject of study by a geohydrologist?
- (A) Soft, porous rock being worn away by a waterfall
  - (B) Water depositing minerals on the banks of a gorge through which the water runs
  - (C) The trapping of water in a sealed underground rock cavern through the action of an earthquake
  - (D) Water becoming unfit to drink through the release of pollutants into it from a manufacturing plant

- (E) The changing course of a river channel as the action of the water wears away the rocks past which the river flows

19. The author refers to “many formations” (line 16) primarily in order to

- (A) clarify a distinction  
(B) introduce a subject  
(C) draw an analogy  
(D) emphasize a similarity  
(E) resolve a conflict

The historian Frederick J. Turner wrote in the 1890's that the agrarian discontent that had been developing steadily in the United States since about 1870 had been precipitated by the closing of the internal frontier—that is, the depletion of available new land needed for further expansion of the American farming system. Not only was Turner's thesis influential at the time, it was later adopted and elaborated by other scholars, such as John D. Hicks in *The Populist Revolt* (1931). Actually, however, new lands were taken up for farming in the United States throughout and beyond the nineteenth century. In the 1890's, when agrarian discontent had become most acute, 1,100,000 new farms were settled, which was 500,000 more than had been settled during the previous decade. After 1890, under the terms of the Homestead Act and its successors, more new land was taken up for farming than had been taken up for this purpose in the United States up until that time. It is true that a high proportion of the newly farmed land was suitable only for grazing and dry farming, but agricultural practices had become sufficiently advanced to make it possible to increase the profitability of farming by utilizing even these relatively barren lands.

The emphasis given by both scholars and statesmen to the presumed disappearance of the American frontier helped to obscure the great importance of changes in the conditions and consequences of international trade that occurred during the second half of the nineteenth century. In 1869 the Suez Canal was opened and the first transcontinental railroad in the United States was completed. An extensive network of telegraph and telephone communications was spun: Europe was connected by submarine cable with the United States in 1866 and with South America in 1874. By about 1870 improvements in agricultural technology made possible the full exploitation of areas that were most suitable for **extensive farming** on a mechanized basis. Huge tracts of land were being settled and farmed in Argentina, Australia, Canada, and in the American West, and these areas were joined with one another and with the countries of Europe into an interdependent market system. As a consequence, agrarian depressions no longer were local or national in scope, and they struck several nations whose internal frontiers had not vanished or were not about to vanish. Between the early 1870's and the 1890's, the mounting agrarian discontent in America paralleled the almost uninterrupted decline in the prices of American agricultural products on foreign markets. Those staple-growing farmers in the United States who exhibited the greatest discontent were those who had become most dependent on foreign markets for the sale of their products. **Insofar as** Americans had been deterred from taking up new land for farming, it was because market conditions had made this period a perilous time in which to do so.

20. The author is primarily concerned with

- (A) showing that a certain interpretation is better supported by the evidence than is an alternative explanation
  - (B) developing an alternative interpretation by using sources of evidence that formerly had been unavailable
  - (C) questioning the accuracy of the evidence that most scholars have used to counter the author's own interpretation
  - (D) reviewing the evidence that formerly had been thought to obscure a valid interpretation
  - (E) presenting evidence in support of a controversial version of an earlier interpretation
21. According to the author, changes in the conditions of international trade resulted in an
- (A) underestimation of the amount of new land that was being farmed in the United States
  - (B) underutilization of relatively small but rich plots of land
  - (C) overexpansion of the world transportation network for shipping agricultural products
  - (D) extension of agrarian depressions beyond national boundaries
  - (E) emphasis on the importance of market forces in determining the prices of agricultural products
22. The author implies that the change in the state of the American farmer's morale during the latter part of the nineteenth century was traceable to the American farmer's increasing perception that the
- (A) costs of cultivating the land were prohibitive within the United States
  - (B) development of the first transcontinental railroad in the United States occurred at the expense of the American farmer
  - (C) American farming system was about to run out of the new farmland that was required for its expansion
  - (D) prices of American agricultural products were deteriorating especially rapidly on domestic markets
  - (E) proceeds from the sales of American agricultural products on foreign markets were unsatisfactory
23. According to the passage, which of the following occurred prior to 1890?
- (A) Frederick J. Turner's thesis regarding the American frontier became influential.
  - (B) The Homestead Act led to an increase in the amount of newly farmed land in the United States.
  - (C) The manufacturers of technologically advanced agricultural machinery rapidly increased their marketing efforts.

- (D) Direct lines of communication were constructed between the United States and South America.
- (E) Technological advances made it fruitful to farm extensively on a mechanized basis.
24. The author implies that, after certain territories and countries had been joined into an interdependent market system in the nineteenth century, agrarian depressions within that system
- (A) spread to several nations, excluding those in which the internal frontier remained open
- (B) manifested themselves in several nations, including those in which new land remained available for farming
- (C) slowed down the pace of new technological developments in international communications and transportation
- (D) affected the local and national prices of the nonagricultural products of several nations
- (E) encouraged several nations to sell more of their agricultural products on foreign markets
25. The author provides information concerning newly farmed lands in the United States (lines 11-27) as evidence in direct support of which of the following?
- (A) A proposal by Frederick J. Turner that was later disputed by John D. Hicks
- (B) An elaboration by John D. Hicks of a thesis that formerly had been questioned by Frederick J. Turner
- (C) The established view that was disputed by those scholars who adopted the thesis of Frederick J. Turner
- (D) The thesis that important changes occurred in the nature of international trade during the second half of the nineteenth century
- (E) The view that the American frontier did not become closed during the nineteenth century or soon thereafter
26. The author implies that the cause of the agrarian discontent was
- (A) masked by the vagueness of the official records on newly settled farms
- (B) overshadowed by disputes on the reliability of the existing historical evidence
- (C) misidentified as a result of influential but erroneous theorizing
- (D) overlooked because of a preoccupation with market conditions
- (E) undetected because visible indications of the cause occurred so gradually and sporadically
27. The author's argument implies that, compared to the yearly price changes that actually occurred on foreign agricultural markets during the 1880's, American farmers would have most preferred yearly price changes that were
- (A) much smaller and in the same direction

- (B) much smaller but in the opposite direction
- (C) slightly smaller and in the same direction
- (D) similar in size but in the opposite direction
- (E) slightly greater and in the same direction

### No. 6-3

## SECTION A

The use of heat pumps has been held back largely by skepticism about advertisers' claims that heat pumps can provide as many as two units of thermal energy for each unit of electrical energy used, thus apparently contradicting the principle of **energy conservation**. Heat pumps circulate a fluid refrigerant that cycles alternatively from its liquid phase to its vapor phase in a **closed loop**. The refrigerant, starting as a low-temperature, low-pressure vapor, enters a compressor driven by an electric motor. The refrigerant leaves the compressor as a hot, dense vapor and flows through a heat exchanger called the condenser, which transfers heat from the refrigerant to a body of air. Now the refrigerant, as a high-pressure, cooled liquid, confronts a flow restriction which causes the pressure to drop. As the pressure falls, the refrigerant expands and partially vaporizes, becoming chilled. It then passes through a second heat exchanger, the evaporator, which transfers heat from the air to the refrigerant, reducing the temperature of this second body of air. Of the two heat exchangers, one is located inside, and the other one outside the house, so each is in contact with a different body of air: room air and outside air, respectively.

The flow direction of refrigerant through a heat pump is controlled by valves. When the refrigerant flow is reversed, the heat exchangers switch function. This flow-reversal capability allows heat pumps either to heat or cool room air. Now, if under certain conditions a heat pump puts out more thermal energy than it consumes in electrical energy, has the law of energy conservation been challenged? No, not even remotely: the additional input of thermal energy into the circulating refrigerant via the evaporator accounts for the difference in the energy equation.

Unfortunately, there is one real problem. The heating capacity of a heat pump decreases as the outdoor temperature falls. The drop in capacity is caused by the lessening amount of refrigerant mass moved through the compressor at one time. The heating capacity is proportional to this mass flow rate: the less the mass of refrigerant being compressed, the less the thermal load it can transfer through the heat-pump cycle. The volume flow rate of refrigerant vapor through the single-speed rotary compressor used in heat pumps is approximately constant. But cold refrigerant vapor entering a compressor is at lower pressure than warmer vapor. Therefore, the mass of cold refrigerant—and thus the thermal energy it carries—is less than if the refrigerant vapor were warmer before compression.

Here, then, lies a genuine drawback of heat pumps: in extremely cold climates—where the most heat is needed—heat pumps are least able to supply enough heat.

17. The primary purpose of the passage is to

- (A) explain the differences in the working of a heat pump when the outdoor temperature changes
  - (B) contrast the heating and the cooling modes of heat pumps
  - (C) describe heat pumps, their use, and factors affecting their use
  - (D) advocate the more widespread use of heat pumps
  - (E) expose extravagant claims about heat pumps as false
18. The author resolves the question of whether heat pumps run counter to the principle of energy conservation by
- (A) carefully qualifying the meaning of that principle
  - (B) pointing out a factual error in the statement that gives rise to this question
  - (C) supplying additional relevant facts
  - (D) denying the relevance of that principle to heat pumps
  - (E) explaining that heat pumps can cool, as well as heat, room air
19. It can be inferred from the passage that, in the course of a heating season, the heating capacity of a heat pump is greatest when
- (A) heating is least essential
  - (B) electricity rates are lowest
  - (C) its compressor runs the fastest
  - (D) outdoor temperatures hold steady
  - (E) the heating demand surges
20. If the author's assessment of the use of heat pumps (lines 1-6) is correct, which of the following best expresses the lesson that advertisers should learn from this case?
- (A) Do not make exaggerated claims about the products you are trying to promote.
  - (B) Focus your advertising campaign on vague analogies and veiled implications instead of on facts.
  - (C) Do not use facts in your advertising that will strain the prospective client's ability to believe.
  - (D) Do not assume in your advertising that the prospective clients know even the most elementary scientific principles.
  - (E) Concentrate your advertising firmly on financially relevant issues such as price discounts and efficiency of operation.
21. The passage suggests that heat pumps would be used more widely if
- (A) they could also be used as air conditioners
  - (B) they could be moved around to supply heat where it is most needed
  - (C) their heat output could be thermostatically controlled
  - (D) models with truly superior cooling capacity were advertised more effectively



- (E) people appreciated the role of the evaporator in the energy equation
22. According to the passage, the role of the flow restriction (lines 16-17) in a heat pump is to
- (A) measure accurately the flow rate of the refrigerant mass at that point
  - (B) compress and heat the refrigerant vapor
  - (C) bring about the evaporation and cooling of refrigerant
  - (D) exchange heat between the refrigerant and the air at that point
  - (E) reverse the direction of refrigerant flow when needed
23. The author regards the notion that heat pumps have a genuine drawback as a
- (A) cause for regret
  - (B) sign of premature defeatism
  - (C) welcome challenge
  - (D) case of sloppy thinking
  - (E) focus for an educational campaign

All of Francoise Duparc's surviving paintings blend portraiture and genre. Her subjects appear to be acquaintances whom she has asked to pose; she has captured both their self-consciousness and the spontaneity of their everyday activities, the depiction of which characterizes genre painting. But genre painting, especially when it portrayed members of the humblest classes, was never popular in eighteenth-century France. The Le Nain brothers and Georges de La Tour, who also chose such themes, were largely ignored. Their present high standing is due to a different, more democratic political climate and to different aesthetic values: we no longer require artists to provide ideal images of humanity for our moral edification but rather regard such idealization as a falsification of the truth. Duparc gives no improving message and discreetly refrains from judging her subjects. In brief, her works neither elevate nor instruct. This restraint largely explains her lack of popular success during her lifetime, even if her talent did not go completely unrecognized by her eighteenth-century French contemporaries.

24. According to the passage, modern viewers are not likely to value which of the following qualities in a painting?
- (A) The technical elements of the painting
  - (B) The spontaneity of the painting
  - (C) The moral lesson imparted by the painting
  - (D) The degree to which the painting realistically depicts its subject
  - (E) The degree to which the artist's personality is revealed in the painting
25. If the history of Duparc's artistic reputation were to follow that of the Le Nain brothers and Georges de La Tour, present-day assessments of her work would be likely to contain which of the following?
- (A) An evaluation that accords high status to her work
  - (B) Acknowledgement of her technical expertise but dismissal of her subject

- matter as trivial
- (C) Agreement with assessments made in her own time but acknowledgements of the exceptional quality of a few of her paintings
- (D) Placement of her among the foremost artists of her century
- (E) A reclassification of her work as portraiture rather than genre painting
26. It can be inferred from the passage that the term “genre painting” would most likely apply to which of the following?
- (A) A painting depicting a glorious moment of victory following a battle
- (B) A painting illustrating a narrative from the Bible
- (C) A portrayal of a mythological Greek goddess
- (D) A portrayal of a servant engaged in his work
- (E) A formal portrait of an eighteenth-century king
27. The argument of the passage best supports which of the following contentions concerning judgments of artistic work?
- (A) Aesthetic judgments can be influenced by the political beliefs of those making the judgment.
- (B) Judgments of the value of an artist’s work made by his or her contemporaries must be discounted before a true judgment can be made.
- (C) Modern aesthetic taste is once again moving in the direction of regarding idealistic painting as the most desirable form of painting.
- (D) In order to be highly regarded, an artist cannot be solely identified with one particular kind of painting.
- (E) Spontaneity is the most valuable quality a portrait painter can have.

## SECTION B

**Mycorrhizal fungi** infect more plants than do any other fungi and are necessary for many plants to thrive, but they have escaped widespread investigation until recently for two reasons. First, the symbiotic association is so well-balanced that the roots of host plants show no damage even when densely infected. Second, the fungi cannot **as yet** be cultivated in the absence of a living root. Despite these difficulties, there has been important new work that suggests that this symbiotic association can be harnessed to achieve more economical use of costly **superphosphate fertilizer** and to permit better exploitation of cheaper, less soluble rock phosphate. Mycorrhizal benefits are not limited to improved phosphate uptake in host plants. In legumes, mycorrhizal inoculation has increased nitrogen fixation beyond levels achieved by adding **phosphate fertilizer** alone. Certain symbiotic associations also increase the host plant’s resistance to harmful root fungi. Whether this resistance results from exclusion of harmful fungi through competition for sites, from metabolic change involving antibiotic production, or from increased vigor is undetermined.

17. Which of the following most accurately describes the passage?

- (A) A description of a replicable experiment
  - (B) A summary report of new findings
  - (C) A recommendation for abandoning a difficult area of research
  - (D) A refutation of an earlier hypothesis
  - (E) A confirmation of earlier research
18. The level of information in the passage above is suited to the needs of all of the following people EXCEPT:
- (A) a researcher whose job is to identify potentially profitable areas for research and product development
  - (B) a state official whose position requires her to alert farmers about possible innovations in farming
  - (C) an official of a research foundation who identifies research projects for potential funding
  - (D) a biologist attempting to keep up with scientific developments in an area outside of his immediate area of specialization
  - (E) a botanist conducting experiments to determine the relationship between degree of mycorrhizal infection and expected uptake of phosphate
19. It can be inferred from the passage that which of the following has been a factor influencing the extent to which research on mycorrhizal fungi has progressed?
- (A) Lack of funding for such research
  - (B) Lack of immediate application of such research
  - (C) Lack of a method for identifying mycorrhizal fungi
  - (D) Difficulties surrounding laboratory production of specimens for study
  - (E) Difficulties ensuing from the high cost and scarcity of superphosphate fertilizers
20. The passage suggests which of the following about the increased resistance to harmful root fungi that some plants infected with mycorrhizal fungi seem to exhibit?
- (A) There are at least three hypotheses that might account for the increase.
  - (B) An explanation lies in the fact that mycorrhizal fungi increase more rapidly in number than harmful root fungi do.
  - (C) The plants that show increased resistance also exhibit improved nitrogen fixation.
  - (D) Such increases may be independent of mycorrhizal infection.
  - (E) It is unlikely that a satisfactory explanation can be found to account for the increase.

In the early 1950's, historians who studied preindustrial Europe (which we may define here as Europe in the period from roughly 1300 to 1800) began, for the first time in large numbers, to investigate more of the preindustrial European population than the 2 or 3 percent who

comprised the political and social elite: the kings, generals, judges, nobles, bishops, and local magnates who had hitherto usually filled history books. One difficulty, however, was that few of the remaining 97 percent recorded their thoughts or had them chronicled by contemporaries. Faced with this situation, many historians based their investigations on the only records that seemed to exist: birth, marriage, and death records. As a result, much of the early work on the nonelite was aridly statistical in nature; reducing the vast majority of the population to a set of numbers was hardly more enlightening than ignoring them altogether. Historians still did not know what these people thought or felt.

One way out of this dilemma was to turn to the records of legal courts, for here the voices of the nonelite can most often be heard, as witnesses, plaintiffs, and defendants. These documents have acted as "a point of entry into the mental world of the poor." Historians such as Le Roy Ladurie have used the documents to extract case histories, which have illuminated the attitudes of different social groups (these attitudes include, but are not confined to, attitudes toward crime and the law) and have revealed how the authorities administered justice. It has been societies that have had a developed police system and practiced Roman law, with its written depositions, whose court records have yielded the most data to historians. In Anglo-Saxon countries hardly any of these benefits obtain, but it has still been possible to glean information from the study of legal documents.

The extraction of case histories is not, however, the only use to which court records may be put. Historians who study preindustrial Europe have used the records to establish a series of categories of crime and to quantify indictments that were issued over a given number of years. This use of the records does yield some information about the nonelite, but this information gives us little insight into the mental lives of the nonelite. We also know that the number of indictments in preindustrial Europe bears little relation to the number of actual criminal acts, and we strongly suspect that the relationship has varied widely over time. In addition, aggregate population estimates are very shaky, which makes it difficult for historians to compare rates of crime per thousand in one decade of the preindustrial period with rates in another decade. Given these inadequacies, it is clear why the case history use of court records is to be preferred.

21. The author suggests that, before the early 1950's, most historians who studied preindustrial Europe did which of the following?
- (A) Failed to make distinctions among members of the preindustrial European political and social elite.
  - (B) Used investigatory methods that were almost exclusively statistical in nature.
  - (C) Inaccurately estimated the influence of the preindustrial European political and social elite.
  - (D) Confined their work to a narrow range of the preindustrial European population.
  - (E) Tended to rely heavily on birth, marriage, and death records.
22. According to the passage, the case histories extracted by historians have
- (A) scarcely illuminated the attitudes of the political and social elite

- (B) indicated the manner in which those in power apportioned justice
  - (C) focused almost entirely on the thoughts and feelings of different social groups toward crime and the law
  - (D) been considered the first kind of historical writing that utilized the records of legal courts
  - (E) been based for the most part on the trial testimony of police and other legal authorities
23. It can be inferred from the passage that much of the early work by historians on the European nonelite of the preindustrial period might have been more illuminating if these historians had
- (A) used different methods of statistical analysis to investigate the nonelite
  - (B) been more successful in identifying the attitudes of civil authorities, especially those who administered justice, toward the nonelite
  - (C) been able to draw on more accounts, written by contemporaries of the nonelite, that described what this nonelite thought
  - (D) relied more heavily on the personal records left by members of the European political and social elite who lived during the period in question
  - (E) been more willing to base their research on the birth, marriage, and death records of the nonelite
24. The author mentions Le Roy Ladurie (line 26) in order to
- (A) give an example of a historian who has made one kind of use of court records
  - (B) cite a historian who has based case histories on the birth, marriage, and death records of the nonelite
  - (C) identify the author of the quotation cited in the previous sentence
  - (D) gain authoritative support for the view that the case history approach is the most fruitful approach to court records
  - (E) point out the first historian to realize the value of court records in illuminating the beliefs and values of the nonelite
25. According to the passage, which of the following is true of indictments for crime in Europe in the preindustrial period?
- (A) They have, in terms of their numbers, remained relatively constant over time.
  - (B) They give the historian important information about the mental lives of those indicted.
  - (C) They are not a particularly accurate indication of the extent of actual criminal activity.
  - (D) Their importance to historians of the nonelite has been generally overestimated.
  - (E) Their problematic relationship to actual crime has not been acknowledged by most historians.

26. It can be inferred from the passage that a historian who wished to compare crime rates per thousand in a European city in one decade of the fifteenth century with crime rates in another decade of that century would probably be most aided by better information about which of the following?
- (A) The causes of unrest in the city during the two decades
  - (B) The aggregate number of indictments in the city nearest to the city under investigation during the two decades
  - (C) The number of people who lived in the city during each of the decades under investigation
  - (D) The mental attitudes of criminals in the city, including their feelings about authority, during each of the decades under investigation
  - (E) The possibilities for a member of the city's nonelite to become a member of the political and social elite during the two decades
27. The passage would be most likely to appear as part of
- (A) a book review summarizing the achievements of historians of the European aristocracy
  - (B) an essay describing trends in the practice of writing history
  - (C) a textbook on the application of statistical methods in the social sciences
  - (D) a report to the historical profession on the work of early-twentieth-century historians
  - (E) an article urging the adoption of historical methods by the legal profession

No. 7-1

## SECTION A

Our visual perception depends on the reception of energy reflecting or radiating from that which we wish to perceive. If our eyes could receive and measure infinitely delicate sense-data, we could perceive the world with infinite precision. The natural limits of our eyes have, of course, been extended by mechanical instruments; telescopes and microscopes, for example, expand our capabilities greatly. There is, however, an ultimate limit beyond which no instrument can take us; this limit is imposed by our inability to receive sense-data smaller than those conveyed by an individual quantum of energy. Since these quanta are believed to be indivisible packages of energy and so cannot be further refined, we reach a point beyond which further resolution of the world is not possible. It is like a drawing a child might make by sticking indivisible discs of color onto a canvas.

We might think that we could avoid this limitation by using quanta with extremely long wavelengths; such quanta would be sufficiently sensitive to convey extremely delicate sense-data. And these quanta would be useful, as long as we only wanted to measure energy, but a completely accurate perception of the world will depend also on the exact measurement of the lengths and positions of what we wish to perceive. For this, quanta of extremely long



wavelengths are useless. To measure a length accurately to within a millionth of an inch, we must have a measure graduated in millionths of an inch; a yardstick graduated in inches is useless. Quanta with a wavelength of one inch would be, in a sense, measures that are graduated in inches. Quanta of extremely long wavelength are useless in measuring anything except extremely large dimensions.

Despite these difficulties, quanta have important theoretical implications for physics. It used to be supposed that, in the observation of nature, the universe could be divided into two distinct parts, a perceiving subject and a perceived object. In physics, subject and object were supposed to be entirely distinct, so that a description of any part of the universe would be independent of the observer. The quantum theory, however, suggests otherwise, for every observation involves the passage of a complete quantum from the object to the subject, and it now appears that this passage constitutes an important coupling between observer and observed. We can no longer make a sharp division between the two in an effort to observe nature objectively. Such an attempt at objectivity would distort the crucial interrelationship of observer and observed as parts of a single whole. But, even for scientists, it is only in the world of atoms that this new development makes any appreciable difference in the explanation of observations.

17. The primary purpose of the passage is to
- (A) discuss a problem that hinders precise perception of the world
  - (B) point out the inadequacies of accepted units of measurement
  - (C) criticize attempts to distinguish between perceiving subjects and perceived objects
  - (D) compare and contrast rival scientific hypotheses about how the world should be measured and observed
  - (E) suggest the limited function of sensory observation
18. According to the passage, quanta with an extremely long wavelength cannot be used to give complete information about the physical world because they
- (A) exist independently of sense-data
  - (B) are graduated only in inches
  - (C) have an insignificant amount of energy
  - (D) cannot, with present-day instruments, be isolated from quanta of shorter wavelength
  - (E) provide an insufficiently precise means of measuring length and position
19. Which of the following describes a situation most analogous to the situation discussed in lines 9-13?
- (A) A mathematician can only solve problems the solution of which can be deduced from known axiom.
  - (B) An animal can respond to no command that is more complicated syntactically than any it has previously received.
  - (C) A viewer who has not learned, at least intuitively, the conventions of painting,

- cannot understand perspective in a drawing.
- (D) A sensitized film will record no detail on a scale that is smaller than the grain of the film.
- (E) A shadow cast on a screen by an opaque object will have sharp edge only if the light source is small or very distant.
20. The author uses the analogy of the child's drawing (lines 17-19) primarily in order to
- (A) illustrate the ultimate limitation in the precision of sense-data conveyed by quanta
- (B) show the sense of helplessness scientists feel in the face of significant observational problems
- (C) anticipate the objections of those scientists who believe that no instrumental aid to observation is entirely reliable
- (D) exemplify the similarities between packages of energy and varieties of color
- (E) disparage those scientists who believe that measurement by means of quanta offers an accurate picture of the world
21. The author implies that making a sharp division between subject and object in physics is
- (A) possible in a measurement of object's length and position, but not in a measurement of its energy
- (B) still theoretically possible in the small-scale world of atoms and electrons
- (C) possible in the case of observations involving the passage of a complete quantum
- (D) no longer an entirely accurate way to describe observation of the universe
- (E) a goal at which scientists still aim
22. The author's use of the phrase "in a sense" (line 34) implies which of the following?
- (A) Quanta of extremely long wavelength are essentially graduated in inches.
- (B) quanta of one-inch wavelength are not precisely analogous to yardsticks graduated in inches.
- (C) Quanta of extremely long wavelength, in at least one respect, resemble quanta of shorter wavelength.
- (D) quanta of one-inch wavelength and quanta of extremely long wavelength do not differ only in their wavelengths.
- (E) quanta of one-inch wavelength must be measured by different standards than quanta of extremely long wavelength.
23. According to the passage, the quantum theory can be distinguished from previous theories of physics by its
- (A) insistence on scrupulously precise mathematical formulations

- (B) understanding of the inherent interrelationship of perceiver and perceived
- (C) recognition of the need for sophisticated instruments of measurement
- (D) emphasis on small-scale rather than on large-scale phenomena
- (E) regard for philosophical issues as well as for strictly scientific ones

Tillie Olsen's fiction and essays have been widely and rightly acknowledged as major contributions to American literature. Her work has been particularly valued by contemporary feminists. Yet few of Olsen's readers realize the extent to which her vision and choice of subject are rooted in an earlier literary heritage—the tradition of radical political thought, mostly socialist and anarchist, of the 1910's and 1920's, and the Old Left tradition of the 1930's. I do not mean that one can adequately explain the eloquence of her work in terms of its political origins, or that left-wing politics were the single most important influence on it. My point is that its central consciousness—its profound understanding of class and gender as shaping influences on people's lives—owes much to that earlier literary heritage, a heritage that, in general, has not been sufficiently valued by most contemporary literary critics.

24. The primary purpose of the passage is to
- (A) argue that Olsen's understanding of class and gender is her greatest gift as a writer
  - (B) acknowledge Olsen's importance as the leading spokesperson for a radical literary heritage
  - (C) point out a literary heritage to which Olsen's work is related
  - (D) urge literary critics to investigate the origins of a literary heritage
  - (E) suggest that Olsen's work has been placed in a literary heritage to which it does not belong
25. According to the author, which of the following is true of the heritage mentioned in the passage?
- (A) It emphasizes gender as the determinate influence on people's lives.
  - (B) It has been the most important influence on Olsen's work.
  - (C) It includes political traditions that span three decades of the twentieth century.
  - (D) It explains the eloquence but not the subject matter of Olsen's work.
  - (E) It reflects primarily the development of socialist political thought in the early twentieth century.
26. In the sentence "I do not ... influence on it" (lines 10-14), the author does which of the following?
- (A) Broadens an existing classification.
  - (B) Contradicts the passage's central thesis.
  - (C) Qualifies a commonly accepted point of view.
  - (D) Presents conflicting explanations for a phenomenon.
  - (E) Denies possible interpretations of an earlier assertion.

27. According to the author, Olsen's work has been
- (A) rightly acknowledged for its contribution to political thought
  - (B) thought to represent the beginning of new literary tradition
  - (C) a needed impetus for social change
  - (D) most clearly influenced by feminism
  - (E) deservedly admired by readers

## SECTION B

Currently, the paramount problem in the field of biomaterials, the science of replacing diseased tissue with human-made implants, is control over the interface, or surface, between implanted biomaterials and living tissues. The physical properties of most tissues can be matched by careful selection of raw materials: metals, ceramics, or several varieties of polymer materials. Even the requirement that biomaterials processed from these materials be nontoxic to host tissue can be met by techniques derived from studying the reactions of tissue cultures to biomaterials or from short-term implants. But achieving necessary matches in physical properties across interfaces between living and non-living matter requires knowledge of which molecules control the bonding of cells to each other—an area that we have not yet explored thoroughly. Although recent research has allowed us to stabilize the tissue-biomaterial interface by controlling either the chemical reactions or the microstructure of the biomaterial, our fundamental understanding of how implant devices adhere to tissues remains woefully incomplete.

17. According to the passage, the major problem currently facing scientists in the field of biomaterials is
- (A) assessing and regulating the bonding between host tissue and implants
  - (B) controlling the transfer of potentially toxic materials across the interface of tissue and implant
  - (C) discovering new materials from which to construct implant devices
  - (D) deciding in what situations implants are needed
  - (E) determining the importance of short-term implants to long-term stability of tissue-implant interfaces
18. The passage suggests which of the following about the recent research mentioned in lines 19-25?
- (A) It has solved one set of problems but has created another.
  - (B) It has concentrated on secondary concerns but has ignored primary concerns.
  - (C) It has improved practical applications of biomaterial technology without providing a complete theoretical explanation of that improvement.
  - (D) It has thoroughly investigated properties of biomaterials but has paid little attention to relevant characteristics of human tissue.
  - (E) It has provided considerable information on short-term implant technology but little on long-term implant technology.

19. The author's primary purpose is to
- (A) answer a theoretical question in the field of biomaterials
  - (B) discuss the current state of technology in the field of biomaterials
  - (C) resolve a research dispute in the field of biomaterial
  - (D) predict an ethical crisis for biomaterials researchers
  - (E) suggest some practical benefits of biomaterial implants

Islamic law is a particularly instructive example of "sacred law." Islamic law is a phenomenon so different from all other forms of law—notwithstanding, of course, a considerable and inevitable number of coincidences with one or the other of them as far as subject matter and positive enactments are concerned—that its study is indispensable in order to appreciate adequately the full range of possible legal phenomena. Even the two other representatives of sacred law that are historically and geographically nearest to it, Jewish law and Roman Catholic **canon law**, are perceptibly different.

Both Jewish law and canon law are more uniform than Islamic law. Though historically there is a discernible break between Jewish law of the sovereign state of ancient Israel and of the Diaspora (the dispersion of Jewish people after the conquest of Israel), the spirit of the legal matter in later parts of the Old Testament is very close to that of the Talmud, one of the primary codifications of Jewish law in the Diaspora. Islam, on the other hand, represented a radical breakaway from the Arab paganism that preceded it; Islamic law is the result of an examination, from a religious angle, of legal subject matter that was far from uniform, comprising as it did the various components of the laws of pre-Islamic Arabia and numerous legal elements taken over from the non-Arab peoples of the conquered territories. All this was unified by being subjected to the same kind of religious scrutiny, the impact of which varied greatly, being almost nonexistent in some fields, and in others originating novel institutions. This central duality of legal subject matter and religious norm is additional to the variety of legal, ethical, and ritual rules that is typical of sacred law.

In its relation to the secular state, Islamic law differed from both Jewish and canon law. Jewish law was buttressed by the cohesion of the community, reinforced by pressure from outside; its rules are the direct expression of this feeling of cohesion, tending toward the accommodation of dissent. Canon and Islamic law, on the contrary, were dominated by the dualism of religion and state, where the state was not, in contrast with Judaism, an alien power but the political expression of the same religion. But the conflict between state and religion took different forms; in Christianity it appeared as the struggle for political power on the part of a tightly organized ecclesiastical hierarchy, and canon law was one of its political weapons. Islamic law, on the other hand, was never supported by an organized institution; consequently, there never developed an overt trial of strength. There merely existed discordance between application of the sacred law and many of the regulations framed by Islamic states; this antagonism varied according to place and time.

20. The author's purpose in comparing Islamic law to Jewish law and canon law is most probably to
- (A) contend that traditional legal subject matter does not play a large role in Islamic law

- (B) support his argument that Islamic law is a unique kind of legal phenomenon
  - (C) emphasize the variety of forms that can all be considered sacred law
  - (D) provide an example of how he believes comparative institutional study should be undertaken
  - (E) argue that geographical and historical proximity does not necessarily lead to parallel institutional development
21. The passage provides information to answer which of the following questions?
- (A) Does Islamic law depend on sources other than Arab legal principles?
  - (B) What secular practices of Islamic states conflicted with Islamic law?
  - (C) Are Jewish law and canon law the most typical examples of sacred law?
  - (D) Is Jewish law more uniform than canon law?
  - (E) What characterized Arab law of the pre-Islamic era?
22. According to the passage, which of the following statements about sacred law is correct?
- (A) The various systems of sacred law originated in a limited geographical area.
  - (B) The various systems of sacred law have had marked influence on one another.
  - (C) Systems of sacred law usually rely on a wide variety of precedents.
  - (D) Systems of sacred law generally contain prescriptions governing diverse aspects of human activity.
  - (E) Systems of sacred law function most effectively in communities with relatively small populations.
23. It can be inferred from the passage that the application of Islamic law in Islamic states has
- (A) systematically been opposed by groups who believe it is contrary to their interests
  - (B) suffered irreparably from the lack of firm institutional backing
  - (C) frequently been at odds with the legal activity of government institutions
  - (D) remained unaffected by the political forces operating alongside it
  - (E) benefited from the fact that it never experienced a direct confrontation with the state
24. Which of the following most accurately describes the organization of the passage?
- (A) A universal principle is advanced and then discussed in relation to a particular historical phenomenon.
  - (B) A methodological innovation is suggested and then examples of its efficacy are provided.
  - (C) A traditional interpretation is questioned and then modified to include new data.



- (D) A general opinion is expressed and then supportive illustrations are advanced.
- (E) A controversial viewpoint is presented and then both supportive evidence and contradictory evidence are cited.
25. The passage implies that the relationship of Islamic, Jewish, and canon law is correctly described by which of the following statements?
- I. Because each constitutes an example of sacred law, they necessarily share some features.
  - II. They each developed in reaction to the interference of secular political institutions.
  - III. The differences among them result partly from their differing emphasis on purely ethical rules.
- (A) I only
- (B) III only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III
26. The passage suggests that canon law differs from Islamic law in that only canon law
- (A) contains prescriptions that nonsacred legal systems might regard as properly legal
  - (B) concerns itself with the duties of a person in regard to the community as a whole
  - (C) was affected by the tension of the conflict between religion and state
  - (D) developed in a political environment that did not challenge its fundamental existence
  - (E) played a role in the direct confrontation between institutions vying for power
27. All of the following statements about the development of Islamic law are implied in the passage EXCEPT:
- (A) Pre-Islamic legal principles were incorporated into Islamic law with widely differing degrees of change.
  - (B) Diverse legal elements were joined together through the application of a purely religious criterion.
  - (C) Although some of the sources of Islamic law were pagan, its integrity as a sacred law was not compromised by their incorporation.
  - (D) There was a fundamental shared characteristic in all pre-Islamic legal matter taken over by Islamic law.
  - (E) Although Islam emerged among the Arabs, Islamic law was influenced by ethnically diverse elements.

## No. 7-2

## SECTION A

Eight percent of the Earth's crust is aluminum, and there are hundreds of aluminum-bearing minerals and vast quantities of the rocks that contain them. The best aluminum ore is bauxite, defined as aggregates of aluminous minerals, more or less impure, in which aluminum is present as hydrated oxides. Bauxite is the richest of all those aluminous rocks that occur in large quantities, and it yields alumina, the intermediate product required for the production of aluminum. Alumina also occurs naturally as the mineral corundum, but corundum is not found in large deposits of high purity, and therefore it is an impractical source for making aluminum. Most of the many abundant nonbauxite aluminous minerals are silicates, and, like all silicate minerals, they are refractory, resistant to analysis, and extremely difficult to process. The aluminum silicates are therefore generally unsuitable alternatives to bauxite because considerably more energy is required to extract alumina from them.

17. The author implies that a mineral must either be or readily supply which of the following in order to be classified as an aluminum ore?
- (A) An aggregate
  - (B) Bauxite
  - (C) Alumina
  - (D) Corundum
  - (E) An aluminum silicate
18. The passage supplies information for answering all of the following questions regarding aluminous minerals EXCEPT:
- (A) What percentage of the aluminum in the Earth's crust is in the form of bauxite?
  - (B) Are aluminum-bearing nonbauxite minerals plentiful?
  - (C) Do the aluminous minerals found in bauxite contain hydrated oxides?
  - (D) Are aluminous hydrated oxides found in rocks?
  - (E) Do large quantities of bauxite exist?
19. The author implies that corundum would be used to produce aluminum if
- (A) corundum could be found that is not contaminated by silicates
  - (B) the production of alumina could be eliminated as an intermediate step in manufacturing aluminum
  - (C) many large deposits of very high quality corundum were to be discovered
  - (D) new technologies were to make it possible to convert corundum to a silicate
  - (E) manufacturers were to realize that the world's supply of bauxite is not unlimited

Traditionally, the study of history has had fixed boundaries and focal points—periods,

countries, dramatic events, and great leaders. It also has had clear and firm notions of scholarly procedure: how one inquires into a historical problem, how one presents and documents one's findings, what constitutes admissible and adequate proof.

Anyone who has followed recent historical literature can testify to the revolution that is taking place in historical studies. The currently fashionable subjects come directly from the sociology catalog: childhood, work, leisure. The new subjects are accompanied by new methods. Where history once was primarily narrative, it is now entirely analytic. The old questions "What happened?" and "How did it happen?" have given way to the question "Why did it happen?" Prominent among the methods used to answer the question "Why" is psychoanalysis, and its use has given rise to psychohistory.

Psychohistory does not merely use psychological explanations in historical contexts. Historians have always used such explanations when they were appropriate and when there was sufficient evidence for them. But this pragmatic use of psychology is not what psychohistorians intend. They are committed, not just to psychology in general, but to Freudian psychoanalysis. This commitment precludes a commitment to history as historians have always understood it. Psychohistory derives its "facts" not from history, the detailed records of events and their consequences, but from psychoanalysis of the individuals who made history, and deduces its theories not from this or that instance in their lives, but from a view of human nature that transcends history. It denies the basic criterion of historical evidence: that evidence be publicly accessible to, and therefore assessable by, all historians. And it violates the basic tenet of historical method: that historians be alert to the negative instances that would refute their theses. Psychohistorians, convinced of the absolute rightness of their own theories, are also convinced that theirs is the "deepest" explanation of any event, that other explanations fall short of the truth.

Psychohistory is not content to violate the discipline of history (in the sense of the proper mode of studying and writing about the past); it also violates the past itself. It denies to the past an integrity and will of its own, in which people acted out of a variety of motives and in which events had a multiplicity of causes and effects. It imposes upon the past the same determinism that it imposes upon the present, thus robbing people and events of their individuality and of their complexity. Instead of respecting the particularity of the past, it assimilates all events, past and present, into a single deterministic schema that is presumed to be true at all times and in all circumstances.

20. Which of the following best states the main point of the passage?
- (A) The approach of psychohistorians to historical study is currently in vogue even though it lacks the rigor and verifiability of traditional historical method.
  - (B) Traditional historians can benefit from studying the techniques and findings of psychohistorians.
  - (C) Areas of sociological study such as childhood and work are of little interest to traditional historians.
  - (D) The psychological assessment of an individual's behavior and attitudes is more informative than the details of his or her daily life.

- (E) History is composed of unique and nonrepeating events that must be individually analyzed on the basis of publicly verifiable evidence.
21. It can be inferred from the passage that one way in which traditional history can be distinguished from psychohistory is that traditional history usually
- (A) views past events as complex and having their own individuality
  - (B) relies on a single interpretation of human behavior to explain historical events
  - (C) interprets historical events in such a way that their specific nature is transcended
  - (D) turns to psychological explanations in historical contexts to account for events
  - (E) relies strictly on data that are concrete and quantifiable
22. It can be inferred from the passage that the methods used by psychohistorians probably prevent them from
- (A) presenting their material in chronological order
  - (B) producing a one-sided picture of an individual's personality and motivations
  - (C) uncovering alternative explanations that might cause them to question their own conclusions
  - (D) offering a consistent interpretation of the impact of personality on historical events
  - (E) recognizing connections between a government's political actions and the aspirations of government leaders
23. The passage supplies information for answering which of the following questions?
- (A) What are some specific examples of the use of psychohistory in historical interpretation?
  - (B) When were the conventions governing the practice of traditional history first established?
  - (C) When do traditional historians consider psychological explanations of historical developments appropriate?
  - (D) What sort of historical figure is best suited for psychohistorical analysis?
  - (E) What is the basic criterion of historical evidence required by traditional historians?
24. The author mentions which of the following as a characteristic of the practice of psychohistorians?
- (A) The lives of historical figures are presented in episodic rather than narrative form.
  - (B) Archives used by psychohistorians to gather material are not accessible to other scholars.
  - (C) Past and current events are all placed within the same deterministic schema.

- (D) Events in the adult life of a historical figure are seen to be more consequential than are those in the childhood of the figure.
- (E) Analysis is focused on group behavior rather than on particular events in an individual's life.
25. The author of the passage suggests that psychohistorians view history primarily as
- (A) a report of events, causes, and effects that is generally accepted by historians but which is, for the most part, unverifiable
- (B) an episodic account that lacks cohesion because records of the role of childhood, work, and leisure in the lives of historical figures are rare
- (C) an uncharted sea of seemingly unexplainable events that have meaning only when examined as discrete units
- (D) a record of the way in which a closed set of immutable psychological laws seems to have shaped events
- (E) a proof of the existence of intricate causal interrelationships between past and present events
26. The author of the passage puts the word "deepest" (line 44) in quotation marks most probably in order to
- (A) signal her reservations about the accuracy of psychohistorians' claims for their work
- (B) draw attention to a contradiction in the psychohistorians' method
- (C) emphasize the major difference between the traditional historians' method and that of psychohistorians
- (D) disassociate her opinion of the psychohistorians' claims from her opinion of their method
- (E) question the usefulness of psychohistorians' insights into traditional historical scholarship
27. In presenting her analysis, the author does all of the following EXCEPT:
- (A) Make general statement without reference to specific examples.
- (B) Describe some of the criteria employed by traditional historians.
- (C) Question the adequacy of the psychohistorians' interpretation of events.
- (D) Point out inconsistencies in the psychohistorians' application of their methods.
- (E) Contrast the underlying assumptions of psychohistorians with those of traditional historians.

## SECTION B

Jean Wagner's most enduring contribution to the study of Afro-American poetry is his insistence that it be analyzed in a religious, as well as secular, frame of reference. The

appropriateness of such an approach may seem self-evident for a tradition commencing with spirituals and owing its early forms, rhythms, vocabulary, and evangelical fervor to Wesleyan hymnals. But before Wagner a secular outlook that analyzed Black poetry solely within the context of political and social protest was dominant in the field.

It is Wagner who first demonstrated the essential fusion of racial and religious feeling in Afro-American poetry. The two, he argued, form a symbiotic union in which religious feelings are often applied to racial issues and racial problems are often projected onto a metaphysical plane. Wagner found this most eloquently illustrated in the Black spiritual, where the desire for freedom in this world and the hope for salvation in the next are inextricably intertwined.

17. The primary purpose of the passage is to
- (A) contrast the theories of Jean Wagner with those of other contemporary critics
  - (B) document the influence of Jean Wagner on the development of Afro-American poetry
  - (C) explain the relevance of Jean Wagner's work to the study of Afro-American religion
  - (D) indicate the importance of Jean Wagner's analysis of Afro-American poetry
  - (E) present the contributions of Jean Wagner to the study of Black spirituals
18. All of the following aspects of Afro-American poetry are referred to in the passage as having been influenced by Wesleyan hymnals EXCEPT:
- (A) subject matter
  - (B) word choice
  - (C) rhythm
  - (D) structure
  - (E) tone
19. It can be inferred from the passage that, before Wagner, most students of Afro-American poetry did which of the following?
- (A) Contributed appreciably to the transfer of political protest from Afro-American poetry to direct political action.
  - (B) Ignored at least some of the historical roots of Afro-American poetry.
  - (C) Analyzed fully the aspects of social protest to be found in such traditional forms of Afro-American poetry as the Black spiritual.
  - (D) Regarded as unimportant the development of fervent emotionalism in a portion of Afro-American poetry.
  - (E) Concentrated on the complex relations between the technical elements in Afro-American poetry and its political content.

Two relatively recent independent developments **stand behind** the current major research effort on nitrogen fixation, the process by which bacteria symbiotically render leguminous plants independent of nitrogen fertilizer. The one development has been the rapid, sustained increase in the price of **nitrogen fertilizer**. The other development has been the rapid growth of



knowledge of and technical sophistication in genetic engineering. Fertilizer prices, largely tied to the price of natural gas, huge amounts of which go into the manufacture of fertilizer, will continue to represent an enormous and escalating economic burden on modern agriculture, spurring the search for alternatives to synthetic fertilizers. And genetic engineering is just the sort of fundamental breakthrough that opens up prospects of wholly novel alternatives. One such novel idea is that of inserting into the chromosomes of plants discrete genes that are not a part of the plants' natural constitution: specifically, the idea of inserting into nonleguminous plants the genes, if they can be identified and isolated, that fit the leguminous plants to be hosts for nitrogen-fixing bacteria. Hence, the intensified research on legumes.

Nitrogen fixation is a process in which certain bacteria use atmospheric nitrogen gas, which green plants cannot directly utilize, to produce ammonia, a nitrogen compound plants can use. It is one of nature's great ironies that the availability of nitrogen in the soil frequently sets an upper limit on plant growth even though the plants' leaves are bathed in a sea of nitrogen gas. The leguminous plants—among them crop plants such as soybeans, peas, alfalfa, and clover—have solved the nitrogen supply problem by entering into a symbiotic relationship with the bacterial genus *Rhizobium*; as a matter of fact, there is a specific strain of *Rhizobium* for each species of legume. The host plant supplies the bacteria with food and a protected habitat and receives surplus ammonia in exchange. Hence, legumes can thrive in nitrogen-depleted soil.

Unfortunately, most of the major food crops—including maize, wheat, rice, and potatoes—cannot. On the contrary, many of the high-yielding hybrid varieties of these food crops bred during the Green Revolution of the 1960's were selected specifically to give high yields in response to generous applications of nitrogen fertilizer. This poses an additional, formidable challenge to plant geneticists: they must work on enhancing fixation within the existing symbioses. Unless they succeed, the yield gains of the Green Revolution will be largely lost even if the genes in legumes that equip those plants to enter into a symbiosis with nitrogen fixers are identified and isolated, and even if the transfer of those gene complexes, once they are found, becomes possible. The overall task looks forbidding, but the stakes are too high not to undertake it.

20. The primary purpose of the passage is to
- (A) expose the fragile nature of the foundations on which the high yields of modern agriculture rest
  - (B) argue that genetic engineering promises to lead to even higher yields than are achievable with synthetic fertilizers
  - (C) argue that the capacity for nitrogen-fixing symbioses is transferable to nonleguminous plants
  - (D) explain the reasons for and the objectives of current research on nitrogen-fixing symbioses
  - (E) describe the nature of the genes that regulate the symbiosis between legumes and certain bacteria
21. According to the passage, there is currently no strain of *Rhizobium* that can enter into a symbiosis with

- (A) alfalfa
  - (B) clover
  - (C) maize
  - (D) peas
  - (E) soybeans
22. The passage implies that which of the following is true of the bacterial genus *Rhizobium*?
- (A) *Rhizobium* bacteria are found primarily in nitrogen-depleted soils.
  - (B) Some strains of *Rhizobium* are not capable of entering into a symbiosis with any plant.
  - (C) Newly bred varieties of legumes cannot be hosts to any strain of *Rhizobium*.
  - (D) *Rhizobium* bacteria cannot survive outside the protected habitat provided by host plants.
  - (E) *Rhizobium* bacteria produce some ammonia for their own purposes.
23. It can be inferred from the passage that which of the following was the most influential factor in bringing about intensified research on nitrogen fixation?
- (A) The high yields of the Green Revolution
  - (B) The persistent upward surge in natural gas prices
  - (C) The variety of *Rhizobium* strains
  - (D) The mechanization of modern agriculture
  - (E) The environmental ill effects of synthetic fertilizers
24. Which of the following situations is most closely analogous to the situation described by the author as one of nature's great ironies (lines 28-32)?
- (A) That of a farmer whose crops have failed because the normal midseason rains did not materialize and no preparations for irrigation had been made
  - (B) That of a long-distance runner who loses a marathon race because of a wrong turn that cost him twenty seconds
  - (C) That of shipwrecked sailors at sea in a lifeboat, with one flask of drinking water to share among them
  - (D) That of a motorist who runs out of gas a mere five miles from the nearest gas station
  - (E) That of travelers who want to reach their destination as fast and as cheaply as possible, but find that cost increases as travel speed increases
25. According to the passage, the ultimate goal of the current research on nitrogen fixation is to develop
- (A) strains of *Rhizobium* that can enter into symbioses with existing varieties of wheat, rice, and other nonlegumes
  - (B) strains of *Rhizobium* that produce more ammonia for leguminous host plants

- than do any of the strains presently known
- (C) varieties of wheat, rice, and other nonlegumes that yield as much as do existing varieties, but require less nitrogen
  - (D) varieties of wheat, rice, and other nonlegumes that maintain an adequate symbiotic relationship with nitrogen-fixing bacteria and produce high yields
  - (E) high-yielding varieties of wheat, rice, and other nonlegumes that are genetically equipped to fix nitrogen from the air without the aid of bacteria
26. The author regards the research program under discussion as
- (A) original and extensive but ill-defined as to method
  - (B) necessary and ambitious but vulnerable to failure
  - (C) cogent and worthwhile but severely under-funded
  - (D) prohibitively expensive but conceptually elegant
  - (E) theoretically fascinating but practically useless
27. Most nearly parallel, in its fundamental approach, to the research program described in the passage would be a program designed to
- (A) achieve greater frost resistance in frost-tender food plants by means of selective breeding, thereby expanding those plants' area of cultivation
  - (B) achieve greater yields from food plants by interplanting crop plants that are mutually beneficial
  - (C) find inexpensive and abundant natural substances that could, without reducing yields, be substituted for expensive synthetic fertilizers
  - (D) change the genetic makeup of food plants that cannot live in water with high salinity, using genes from plants adapted to salt water
  - (E) develop, through genetic engineering, a genetic configuration for the major food plants that improves the storage characteristics of the edible portion of the plants

No. 7-3

## SECTION A

Of Homer's two epic poems, the *Odyssey* has always been more popular than the *Iliad*, perhaps because it includes more features of mythology that are accessible to readers. Its subject (to use Maynard Mack's categories) is "life-as-spectacle," for readers, diverted by its various incidents, observe its hero Odysseus primarily from without; the tragic *Iliad*, however, presents "life-as-experience": readers are asked to identify with the mind of Achilles, whose motivations render him a not particularly likable hero. In addition, the *Iliad*, more than the *Odyssey*, suggests the complexity of the gods' involvement in human actions, and to the extent that modern readers find this complexity a needless complication, the *Iliad* is less satisfying than the *Odyssey*, with its simpler scheme of divine justice. Finally, since the *Iliad* presents a historically verifiable action, Troy's siege, the poem raises historical questions that are absent

from the *Odyssey's* blithely imaginative world.

17. The author uses Mack's "categories" (lines 4-5) most probably in order to
- (A) argue that the *Iliad* should replace the *Odyssey* as the more popular poem
  - (B) indicate Mack's importance as a commentator on the *Iliad* and the *Odyssey*
  - (C) suggest one way in which the *Iliad* and the *Odyssey* can be distinguished
  - (D) point out some of the difficulties faced by readers of the *Iliad* and the *Odyssey*
  - (E) demonstrate that the *Iliad* and the *Odyssey* can best be distinguished by comparing their respective heroes
18. The author suggests that the variety of incidents in the *Odyssey* is likely to deter the reader from
- (A) concentrating on the poem's mythological features
  - (B) concentrating on the psychological states of the poem's central character
  - (C) accepting the explanation that have been offered for the poem's popularity
  - (D) accepting the poem's scheme of divine justice
  - (E) accepting Maynard Mack's theory that the poem's subject is "life-as-spectacle"
19. The passage is primarily concerned with
- (A) distinguishing arguments
  - (B) applying classifications
  - (C) initiating a debate
  - (D) resolving a dispute
  - (E) developing a contrast
20. It can be inferred from the passage that a reader of the *Iliad* is likely to have trouble identifying with the poem's hero for which of the following reasons?
- (A) The hero is eventually revealed to be unheroic.
  - (B) The hero can be observed by the reader only from without.
  - (C) The hero's psychology is not historically verifiable.
  - (D) The hero's emotions often do not seem appealing to the reader.
  - (E) The hero's emotions are not sufficiently various to engage the reader's attention.

Flatfish, such as the flounder, are among the few vertebrates that lack approximate bilateral symmetry (symmetry in which structures to the left and right of the body's midline are mirror images). Most striking among the many asymmetries evident in an adult flatfish is eye placement: before maturity one eye migrates, so that in an adult flatfish both eyes are on the same side of the head. While in most species with asymmetries virtually all adults share the same asymmetry, members of the **starry flounder** species can be either left-eyed (both eyes on the left side of head) or right-eyed. In the waters between the United States and Japan, the

starry flounder populations vary from about 50 percent left-eyed off the United States West Coast, through about 70 percent left-eyed halfway between the United States and Japan, to nearly 100 percent left-eyed off the Japanese coast.

Biologists call this kind of gradual variation over a certain geographic range a “cline” and interpret clines as strong indications that the variation is adaptive, a response to environmental differences. For the starry flounder this interpretation implies that a geometric difference (between fish that are mirror images of one another) is adaptive, that left-eyedness in the Japanese starry flounder has been selected for, which provokes a perplexing questions: what is the selective advantage in having both eyes on one side rather than on the other?

The ease with which a fish can reverse the effect of the sidedness of its eye asymmetry simply by turning around has caused biologists to study internal anatomy, especially the optic nerves, for the answer. In all flatfish the optic nerves cross, so that the right optic nerve is joined to the brain’s left side and vice versa. This crossing introduces an asymmetry, as one optic nerve must cross above or below the other. G. H. Parker reasoned that if, for example, a flatfish’s left eye migrated when the right optic nerve was on top, there would be a twisting of nerves, which might be mechanically disadvantageous. For starry flounders, then, the left-eyed variety would be selected against, since in a starry flounder the left optic nerve is uppermost.

The problem with the above explanation is that the Japanese starry flounder population is almost exclusively left-eyed, an natural selection never promotes a purely less advantageous variation. As other explanations proved equally untenable, biologists concluded that there is no important adaptive difference between left-eyedness and right-eyedness, and that the two characteristics are genetically associated with some other adaptively significant characteristic. This situation is one commonly encountered by evolutionary biologists, who must often decide whether a characteristic is adaptive or selectively neutral. As for the left-eyed and right-eyed flatfish, their difference, however striking, appears to be an evolutionary red herring.

21. According to the passage, starry flounder differ from most other species of flatfish in that starry flounder
- (A) are not basically bilaterally symmetric
  - (B) do not become asymmetric until adulthood
  - (C) do not all share the same asymmetry
  - (D) have both eyes on the same side of the head
  - (E) tend to cluster in only certain geographic regions
22. The author would be most likely to agree with which of the following statements about left-eyedness and right-eyedness in the starry flounder?
- I. They are adaptive variations by the starry flounder to environmental differences.
  - II. They do not seem to give obvious selective advantages to the starry flounder.
  - III. They occur in different proportions in different locations.
- (A) I only
  - (B) II only

- (C) I and III only
  - (D) II and III only
  - (E) I, II, and III
23. According to the passage, a possible disadvantage associated with eye migration in flatfish is that the optic nerves can
- (A) adhere to one another
  - (B) detach from the eyes
  - (C) cross
  - (D) stretch
  - (E) twist
24. Which of the following best describes the organization of the passage as a whole?
- (A) A phenomenon is described and an interpretation presented and rejected.
  - (B) A generalization is made and supporting evidence is supplied and weighed.
  - (C) A contradiction is noted and a resolution is suggested and then modified.
  - (D) A series of observations is presented and explained in terms of the dominant theory.
  - (E) A hypothesis is introduced and corroborated in the light of new evidence.
25. The passage supplies information for answering which of the following questions?
- (A) Why are Japanese starry flounder mostly left-eyed?
  - (B) Why should the eye-sidedness in starry flounder be considered selectively neutral?
  - (C) Why have biologists recently become interested in whether a characteristic is adaptive or selectively neutral?
  - (D) How do the eyes in flatfish migrate?
  - (E) How did Parker make his discoveries about the anatomy of optic nerves in flatfish?
26. Which of the following is most clearly similar to a cline as it is described in the second paragraph of the passage?
- (A) A vegetable market in which the various items are grouped according to place of origin
  - (B) A wheat field in which different varieties of wheat are planted to yield a crop that will bring the maximum profit
  - (C) A flower stall in which the various species of flowers are arranged according to their price
  - (D) A housing development in which the length of the front struts supporting the porch of each house increases as houses are built up the hill
  - (E) A national park in which the ranger stations are placed so as to be



inconspicuous, and yet as easily accessible as possible

27. Which of the following phrases from the passage best expresses the author's conclusion about the meaning of the difference between left-eyed and right-eyed flatfish?
- (A) "Most striking" (line 4)
  - (B) "variation is adaptive" (line 19)
  - (C) "mechanically disadvantageous" (lines 37-38)
  - (D) "adaptively significant" (lines 48-49)
  - (E) "evolutionary red herring" (line 54)

## SECTION B

If a supernova (the explosion of a massive star) triggered star formation from dense clouds of gas and dust, and if the most massive star to be formed from the cloud evolved into a supernova and triggered a new round of star formation, and so on, then a chain of star-forming regions would result. If many such chains were created in a differentially rotating galaxy, the distribution of stars would resemble the observed distribution in a spiral galaxy.

This line of reasoning underlies an exciting new theory of spiral-galaxy structure. A computer simulation based on this theory has reproduced the appearance of many spiral galaxies without assuming an underlying density wave, the hallmark of the most widely accepted theory of the large-scale structure of spiral galaxies. That theory maintains that a density wave of spiral form sweeps through the central plane of a galaxy, compressing clouds of gas and dust, which collapse into stars that form a spiral pattern.

17. The primary purpose of the passage is to
- (A) describe what results when a supernova triggers the creation of chains of star-forming regions
  - (B) propose a modification in the most widely accepted theory of spiral-galaxy structure
  - (C) compare and contrast the roles of clouds of gas and dust in two theories of spiral-galaxy structure
  - (D) describe a new theory of spiral-galaxy structure and contrast it with the most widely accepted theory
  - (E) describe a new theory of spiral-galaxy structure and discuss a reason why it is inferior to the most widely accepted theory
18. The passage implies that, according to the new theory of spiral-galaxy structure, a spiral galaxy can be created by supernovas when the supernovas are
- (A) producing an underlying density wave
  - (B) affected by a density wave of spiral form
  - (C) distributed in a spiral pattern
  - (D) located in the central plane of a galaxy

- (E) located in a differentially rotating galaxy
19. Which of the following, if true, would most discredit the new theory as described in the passage?
- (A) The exact mechanism by which a star becomes a supernova is not yet completely known and may even differ for different stars.
  - (B) Chains of star-forming regions like those postulated in the new theory have been observed in the vicinity of dense clouds of gas and dust.
  - (C) The most massive stars formed from supernova explosions are unlikely to evolve into supernovas.
  - (D) Computer simulations of supernovas provide a poor picture of what occurs just before a supernova explosion.
  - (E) A density wave cannot compress clouds of gas and dust to a density high enough to create a star.
20. The author's attitude toward the new theory of spiral-galaxy structure can best be described as
- (A) euphoric
  - (B) enthusiastic
  - (C) concerned
  - (D) critical
  - (E) disputatious

The first mention of slavery in the statutes of the English colonies of North America does not occur until after 1660—some forty years after the importation of the first Black people. Lest we think that slavery existed in fact before it did in law, Oscar and Mary Handlin assure us that the status of Black people **down to** the 1660's was that of servants. A critique of the Handlins' interpretation of why legal slavery did not appear until the 1660's suggests that assumptions about the relation between slavery and racial prejudice should be reexamined, and that explanations for the different treatment of Black slaves in North and South America should be expanded.

The Handlins explain the appearance of legal slavery by arguing that, during the 1660's, the position of White servants was improving relative to that of Black servants. Thus, the Handlins contend, Black and White servants, heretofore treated alike, each attained a different status. There are, however, important objections to this argument. First, the Handlins cannot adequately demonstrate that the White servant's position was improving during and after the 1660's; several acts of the Maryland and Virginia legislatures indicate otherwise. Another flaw in the Handlins' interpretation is their assumption that prior to the establishment of legal slavery there was no discrimination against Black people. It is true that before the 1660's Black people were rarely called slaves. But this should not overshadow evidence from the 1630's on that points to racial discrimination without using the term slavery. Such discrimination sometimes stopped short of lifetime servitude or inherited status—the two attributes of true slavery—yet in other cases it included both. The Handlins' argument excludes the real possibility that Black people in the English colonies were never treated as the equals of White people.

This possibility has important ramifications. If from the outset Black people were discriminated against, then legal slavery should be viewed as a reflection and an extension of racial prejudice rather than, as many historians including the Handlins have argued, the cause of prejudice. In addition, the existence of discrimination before the advent of legal slavery offers a further explanation for the harsher treatment of Black slaves in North than in South America. Freyre and Tannenbaum have rightly argued that the lack of certain traditions in North America—such as a Roman conception of slavery and a Roman Catholic emphasis on equality—explains why the treatment of Black slaves was more severe there than in the Spanish and Portuguese colonies of South America. But this cannot be the whole explanation since it is merely negative, based only on a lack of something. A more compelling explanation is that the early and sometimes extreme racial discrimination in the English colonies helped determine the particular nature of the slavery that followed.

21. Which of the following statements best describes the organization of lines 1-8 of the passage?
- (A) A historical trend is sketched and an exception to that trend is cited.
  - (B) Evidence for a historical irregularity is mentioned and a generalization from that evidence is advanced.
  - (C) A paradox about the origins of an institution is pointed out and the author's explanation of the paradox is expounded.
  - (D) A statement about a historical phenomenon is offered and a possible misinterpretation of that statement is addressed.
  - (E) An interpretation of the rise of an institution is stated and evidence for that interpretation is provided.
22. Which of the following is the most logical inference to be drawn from the passage about the effects of "several acts of the Maryland and Virginia legislatures" (lines 22-23) passed during and after the 1660's?
- (A) The acts negatively affected the pre-1660's position of Black as well as of White servants.
  - (B) The acts had the effect of impairing rather than improving the position of White servants relative to what it had been before the 1660's.
  - (C) The acts had a different effect on the position of White servants than did many of the acts passed during this time by the legislatures of other colonies.
  - (D) The acts, at the very least, caused the position of White servants to remain no better than it had been before the 1660's.
  - (E) The acts, at the very least, tended to reflect the attitudes toward Black servants that already existed before the 1660's.
23. With which of the following statements regarding the status of Black people in the English colonies of North America before the 1660's would the author be LEAST likely to agree?
- (A) Although Black people were not legally considered to be slaves, they were often called slaves.

- (B) Although subject to some discrimination, Black people had a higher legal status than they did after the 1660's.
- (C) Although sometimes subject to lifetime servitude, Black people were not legally considered to be slaves.
- (D) Although often not treated the same as White people, Black people, like many White people, possessed the legal status of servants.
- (E) Although apparently subject to more discrimination after 1630 than before 1630, Black people from 1620 to the 1660's were legally considered to be servants.
24. According to the passage, the Handlins have argued which of the following about the relationship between racial prejudice and the institution of legal slavery in the English colonies of North America?
- (A) Racial prejudice and the institution of slavery arose simultaneously.
- (B) Racial prejudice most often took the form of the imposition of inherited status, one of the attributes of slavery.
- (C) The source of racial prejudice was the institution of slavery.
- (D) Because of the influence of the Roman Catholic church, racial prejudice sometimes did not result in slavery.
- (E) Although existing in a lesser form before the 1660's, racial prejudice increased sharply after slavery was legalized.
25. The passage suggests that the existence of a Roman conception of slavery in Spanish and Portuguese colonies had the effect of
- (A) extending rather than causing racial prejudice in these colonies
- (B) hastening the legalization of slavery in these colonies
- (C) mitigating some of the conditions of slavery for Black people in these colonies
- (D) delaying the introduction of slavery into the English colonies
- (E) bringing about an improvement in the treatment of Black slaves in the English colonies
26. The author considers the explanation put forward by Freyre and Tannenbaum for the treatment accorded Black slaves in the English colonies of North America to be
- (A) ambitious but misguided
- (B) valid but limited
- (C) popular but suspect
- (D) anachronistic and controversial
- (E) premature and illogical
27. With which of the following statements regarding the reason for the introduction of legal slavery in the English colonies of North America would the author be

most likely to agree?

- (A) The introduction is partly to be explained by reference to the origins of slavery, before the 1660's, in the Spanish and Portuguese colonies.
- (B) The introduction is to be explained by reference to a growing consensus beginning in the 1630's about what were the attributes of true slavery.
- (C) The introduction is more likely to be explained by reference to a decline than to an improvement in the position of White servants in the colonies during and after the 1660's.
- (D) The introduction is more likely to be explained by reference to the position of Black servants in the colonies in the 1630's than by reference to their position in the 1640's and 1650's.
- (E) The introduction is more likely to be explained by reference to the history of Black people in the colonies before 1660 than by reference to the improving position of White servants during and after the 1660's.

No. 8-1

## SECTION A

Geologists have long known that the Earth's mantle is heterogeneous, but its spatial arrangement remains unresolved—is the mantle essentially layered or irregularly heterogeneous? The best evidence for the layered mantle thesis is the well-established fact that volcanic rocks found on oceanic islands, islands believed to result from mantle **plumes** arising from the lower mantle, are composed of material fundamentally different from that of the midocean ridge system, whose source, most geologists contend, is the upper mantle.

Some geologists, however, on the basis of observations concerning mantle xenoliths, argue that the mantle is not layered, but that heterogeneity is created by fluids rich in "incompatible elements" (elements tending toward liquid rather than solid state) percolating upward and transforming portions of the upper mantle irregularly, according to the vagaries of the fluids' pathways. We believe, perhaps unimaginatively, that this debate can be resolved through further study, and that the underexplored midocean ridge system is the key.

17. Which of the following best expresses the main idea of the passage?
- (A) Current theories regarding the structure of the Earth's mantle cannot account for new discoveries regarding the composition of mantle xenoliths.
  - (B) There are conflicting hypotheses about the heterogeneity of the Earth's mantle because few mantle elements have been thoroughly studied.
  - (C) Further research is needed to resolve the debate among geologists over the composition of the midocean ridge system.
  - (D) There is clear-cut disagreement within the geological community over the structure of the Earth's mantle.
  - (E) There has recently been a strong and exciting challenge to geologists'

long-standing belief in the heterogeneity of the Earth's mantle.

18. According to the passage, it is believed that oceanic islands are formed from
- (A) the same material as mantle xenoliths
  - (B) the same material as the midocean ridge system
  - (C) volcanic rocks from the upper mantle
  - (D) incompatible elements percolating up from the lower mantle
  - (E) mantle plumes arising from the lower mantle
19. It can be inferred from the passage that the supporters of the “layered-mantle” theory believe which of the following?
- I. The volcanic rocks on oceanic islands are composed of material derived from the lower part of the mantle.
  - II. The materials of which volcanic rocks on oceanic islands and midocean ridges are composed are typical of the layers from which they are thought to originate.
  - III. The differences in composition between volcanic rocks on oceanic islands and the midocean ridges are a result of different concentrations of incompatible elements.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
20. The authors suggest that their proposal for determining the nature of the mantle's heterogeneity might be considered by many to be
- (A) pedestrian
  - (B) controversial
  - (C) unrealistic
  - (D) novel
  - (E) paradoxical

Many literary detectives have pored over a great puzzle concerning the writer Marcel Proust: what happened in 1909? How did *Contre Saint-Beuve*, an essay attacking the methods of the critic Saint Beuve, turn into the start of the novel *Remembrance of Things Past*? A recently published letter from Proust to the editor Vallette confirms that Fallois, the editor of the 1954 edition of *Contre Saint-Beuve*, made an essentially correct guess about the relationship of the essay to the novel. Fallois proposed that Proust had tried to begin a novel in 1908, abandoned it for what was to be a long demonstration of Saint-Beuve's blindness to the real nature of great writing, found the essay giving rise to personal memories and fictional developments, and allowed these to take over in a steadily developing novel.

Draft passages in Proust's 1909 notebooks indicate that the transition from essay to novel



began in *Contre Saint-Beuve*, when Proust introduced several examples to show the powerful influence that involuntary memory exerts over the creative imagination. In effect, in trying to demonstrate that the imagination is more profound and less submissive to the intellect than Saint-Beuve assumed, Proust elicited vital memories of his own and, finding subtle connections between them, began to amass the material for *Remembrance*. By August, Proust was writing to Vallette, informing him of his intention to develop the material as a novel. Maurice Bardeche, in *Marcel Proust, romancier*, has shown the importance in the drafts of *Remembrance* of spontaneous and apparently random associations of Proust's subconscious. As incidents and reflections occurred to Proust, he continually inserted new passages altering and expanding his narrative. But he found it difficult to control the drift of his inspiration. The very richness and complexity of the meaningful relationships that kept presenting and rearranging themselves on all levels, from abstract intelligence to profound dreamy feelings, made it difficult for Proust to set them out coherently. The beginning of control came when he saw how to connect the beginning and the end of his novel.

Intrigued by Proust's claim that he had "begun and finished" *Remembrance* at the same time, Henri Bonnet discovered that parts of *Remembrance's* last book were actually started in 1909. Already in that year, Proust had drafted descriptions of his novel's characters in their old age that would appear in the final book of *Remembrance*, where the permanence of art is set against the ravages of time. The letter to Vallette, drafts of the essay and novel, and Bonnet's researches establish in broad outline the process by which Proust generated his novel out of the ruins of his essay. But those of us who hoped, with Kolb, that Kolb's newly published complete edition of Proust's correspondence for 1909 would document the process in greater detail are disappointed. For until Proust was confident that he was at last in sight of a viable structure for *Remembrance*, he told few correspondents that he was producing anything more ambitious than *Contre Saint-Beuve*.

21. The passage is primarily concerned with
- (A) the role of involuntary memory in Proust's writing
  - (B) evidence concerning the genesis of Proust's novel *Remembrance of Things Past*
  - (C) conflicting scholarly opinions about the value of studying the drafts of *Remembrance of Things Past*
  - (D) Proust's correspondence and what it reveals about *Remembrance of Things Past*
  - (E) the influence of Saint-Beuve's criticism on Proust's novel *Remembrance of Things Past*
22. It can be inferred from the passage that all of the following are literary detectives who have tried, by means of either scholarship or criticism, to help solve the "great puzzle" mentioned in lines 1-2 EXCEPT:
- (A) Bardeche
  - (B) Bonnet
  - (C) Fallois

- (D) Kolb  
(E) Vallette
23. According to the passage, in drafts of *Contre Saint Beuve* Proust set out to show that Saint-Beuve made which of the following mistakes as a critic?
- I. Saint-Beuve made no effort to study the development of a novel through its drafts and revisions.
  - II. Saint-Beuve assigned too great a role in the creative process to a writer's conscious intellect.
  - III. Saint-Beuve concentrated too much on plots and not enough on imagery and other elements of style.
- (A) II only  
(B) III only  
(C) I and II only  
(D) I and III only  
(E) I, II, and III
24. Which of the following best states the author's attitude toward the information that scholars have gathered about Proust's writing in 1909?
- (A) The author is disappointed that no new documents have come to light since Fallois's speculations.
  - (B) The author is dissatisfied because there are too many gaps and inconsistencies in the drafts.
  - (C) The author is confident that Fallois's 1954 guess has been proved largely correct, but regrets that still more detailed documentation concerning Proust's transition from the essay to the novel has not emerged.
  - (D) The author is satisfied that Fallois's judgment was largely correct, but feels that Proust's early work in designing and writing the novel was probably far more deliberate than Fallois's description of the process would suggest.
  - (E) The author is satisfied that the facts of Proust's life in 1909 have been thoroughly established, but believes such documents as drafts and correspondence are only of limited value in a critical assessment of Proust's writing.
25. The author of the passage implies that which of the following would be the LEAST useful source of information about Proust's transition from working on *Contre Saint-Beuve* to having a viable structure for *Remembrance of Things Past*?
- (A) Fallois's comments in the 1954 edition of *Contre Saint-Beuve*
  - (B) Proust's 1909 notebooks, including the drafts of *Remembrance of Things Past*
  - (C) Proust's 1909 correspondence, excluding the letter to Vallette
  - (D) Bardeche's Marcel Proust, romancier
  - (E) Bonnet's researches concerning Proust's drafts of the final book of

*Remembrance of Things Past*

26. The passage offers information to answer which of the following questions?
- (A) Precisely when in 1909 did Proust decide to abandon *Contre Saint-Beuve*?
  - (B) Precisely when in 1909 did Proust decide to connect the beginning and the end of *Remembrance of Things Past*?
  - (C) What was the subject of the novel that Proust attempted in 1908?
  - (D) What specific criticisms of Saint-Beuve appear, in fictional form, in *Remembrance of Things Past*?
  - (E) What is a theme concerning art that appears in the final book of *Remembrance of Things Past*?
27. Which of the following best describes the relationship between *Contre Saint-Beuve* and *Remembrance of Things Past* as it is explained in the passage?
- (A) Immediately after abandoning *Contre Saint-Beuve*, at Vallette's suggestion, Proust started *Remembrance* as a fictional demonstration that Saint-Beuve was wrong about the imagination.
  - (B) Immediately after abandoning *Contre Saint-Beuve*, at Vallette's suggestion, Proust turned his attention to *Remembrance*, starting with incidents that had occurred to him while planning the essay.
  - (C) Despondent that he could not find a coherent structure for *Contre Saint-Beuve*, an essay about the role of memory in fiction, Proust began instead to write *Remembrance*, a novel devoted to important early memories.
  - (D) While developing his argument about the imagination in *Contre Saint-Beuve*, Proust described and began to link together personal memories that became a foundation for *Remembrance*.
  - (E) While developing his argument about memory and imagination in *Contre Saint-Beuve*, Proust created fictional characters to embody the abstract themes in his essay.

## SECTION B

Traditional research has confronted only Mexican and United States interpretations of Mexican-American culture. Now we must also examine the culture as we Mexican Americans have experienced it, passing from a sovereign people to compatriots with newly arriving settlers to, finally, a conquered people—a **charter** minority on our own land.

When the Spanish first came to Mexico, they intermarried with and absorbed the culture of the indigenous Indians. This policy of colonization through acculturation was continued when Mexico acquired Texas in the early 1800's and brought the indigenous Indians into Mexican life and government. In the 1820's, United States citizens migrated to Texas, attracted by land suitable for cotton. As their numbers became more substantial, their policy of acquiring land by subduing native populations began to dominate. The two ideologies clashed repeatedly, culminating in a military conflict that led to victory for the United States. Thus, suddenly

deprived of our parent culture, we had to evolve uniquely Mexican-American modes of thought and action in order to survive.

17. The author's purpose in writing this passage is primarily to
- (A) suggest the motives behind Mexican and United States intervention in Texas
  - (B) document certain early objectives of Mexican-American society
  - (C) provide a historical perspective for a new analysis of Mexican-American culture
  - (D) appeal to both Mexican and United States scholars to give greater consideration to economic interpretations of history
  - (E) bring to light previously overlooked research on Mexican Americans
18. The author most probably uses the phrase "charter minority" (lines 6-7) to reinforce the idea that Mexican Americans
- (A) are a native rather than an immigrant group in the United States
  - (B) played an active political role when Texas first became part of the United States
  - (C) recognized very early in the nineteenth century the need for official confirmation of their rights of citizenship
  - (D) have been misunderstood by scholars trying to interpret their culture
  - (E) identify more closely with their Indian heritage than with their Spanish heritage
19. According to the passage, a major difference between the colonization policy of the United States and that of Mexico in Texas in the 1800's was the
- (A) degree to which policies were based on tradition
  - (B) form of economic interdependency between different cultural groups
  - (C) number of people who came to settle new areas
  - (D) treatment of the native inhabitants
  - (E) relationship between the military and the settlers
20. Which of the following statements most clearly contradicts the information in this passage?
- (A) In the early 1800's, the Spanish committed more resources to settling California than to developing Texas.
  - (B) While Texas was under Mexican control, the population of Texas quadrupled, in spite of the fact that Mexico discouraged immigration from the United States.
  - (C) By the time Mexico acquired Texas, many Indians had already married people of Spanish heritage.
  - (D) Many Mexicans living in Texas returned to Mexico after Texas was annexed by the United States.

- (E) Most Indians living in Texas resisted Spanish acculturation and were either killed or enslaved.

This passage was adapted from an article published in 1982.

Until about five years ago, the very idea that peptide hormones might be made anywhere in the brain besides the hypothalamus was astounding. Peptide hormones, scientists thought, were made by endocrine glands and the hypothalamus was thought to be the brains' only endocrine gland. What is more, because peptide hormones cannot cross the blood-brain barrier, researchers believed that they never got to any part of the brain other than the hypothalamus, where they were simply produced and then released into the bloodstream.

But these beliefs about peptide hormones were questioned as laboratory after laboratory found that antisera to peptide hormones, when injected into the brain, bind in places other than the hypothalamus, indicating that either the hormones or substances that cross-react with the antisera are present. The immunological method of detecting peptide hormones by means of antisera, however, is imprecise. Cross-reactions are possible and this method cannot determine whether the substances detected by the antisera really are the hormones, or merely close relatives. Furthermore, this method cannot be used to determine the location in the body where the detected substances are actually produced.

New techniques of molecular biology, however, provide a way to answer these questions. It is possible to make specific complementary DNA's (cDNA's) that can serve as molecular probes to seek out the messenger RNA's (mRNA's) of the peptide hormones. If brain cells are making the hormones, the cells will contain these mRNA's. If the products the brain cells make resemble the hormones but are not identical to them, then the cDNA's should still bind to these mRNA's, but should not bind as tightly as they would to mRNA's for the true hormones. The cells containing these mRNA's can then be isolated and their mRNA's decoded to determine just what their protein products are and how closely the products resemble the true peptide hormones.

The molecular approach to detecting peptide hormones using cDNA probes should also be much faster than the immunological method because it can take years of tedious purifications to isolate peptide hormones and then develop antisera to them. Roberts, expressing the sentiment of many researchers, states: "I was trained as an endocrinologist. But it became clear to me that the field of endocrinology needed molecular biology input. The process of grinding out protein purifications is just too slow."

If, as the initial tests with cDNA probes suggest, peptide hormones really are made in the brain in areas other than the hypothalamus, a theory must be developed that explains their function in the brain. Some have suggested that the hormones are all growth regulators, but Rosen's work on rat brains indicates that this cannot be true. A number of other researchers propose that they might be used for intercellular communication in the brain.

21. Which of the following titles best summarizes the passage?

- (A) Is Molecular Biology the Key to Understanding Intercellular Communication in the Brain?
- (B) Molecular Biology: Can Researchers Exploit Its Techniques to Synthesize Peptide Hormones?
- (C) The Advantages and Disadvantages of the Immunological Approach to

## Detecting Peptide Hormones

- (D) Peptide Hormones: How Scientists Are Attempting to Solve Problems of Their Detection and to Understand Their Function
- (E) Peptide Hormones: The Role Played by Messenger RNA's in Their Detection
22. The passage suggests that a substance detected in the brain by use of antisera to peptide hormones may
- (A) have been stored in the brain for a long period of time
  - (B) play no role in the functioning of the brain
  - (C) have been produced in some part of the body other than the brain
  - (D) have escaped detection by molecular methods
  - (E) play an important role in the functioning of the hypothalamus
23. According to the passage, confirmation of the belief that peptide hormones are made in the brain in areas other than the hypothalamus would force scientists to
- (A) reject the theory that peptide hormones are made by endocrine glands
  - (B) revise their beliefs about the ability of antisera to detect peptide hormones
  - (C) invent techniques that would allow them to locate accurately brain cells that produce peptide hormones
  - (D) search for techniques that would enable them to distinguish peptide hormones from their close relatives
  - (E) develop a theory that explains the role played by peptide hormones in the brain
24. Which of the following is mentioned in the passage as a drawback of the immunological method of detecting peptide hormones?
- (A) It cannot be used to detect the presence of growth regulators in the brain.
  - (B) It cannot distinguish between the peptide hormones and substances that are very similar to them.
  - (C) It uses antisera that are unable to cross the blood-brain barrier.
  - (D) It involves a purification process that requires extensive training in endocrinology.
  - (E) It involves injecting foreign substances directly into the bloodstream.
25. The passage implies that, in doing research on rat brains, Rosen discovered that
- (A) peptide hormones are used for intercellular communication
  - (B) complementary DNA's do not bind to cells producing peptide hormones
  - (C) products closely resembling peptide hormones are not identical to peptide hormones
  - (D) some peptide hormones do not function as growth regulators
  - (E) antisera cross-react with substances that are not peptide hormones



26. Which of the following is a way in which the immunological method of detecting peptide hormones differs from the molecular method?
- (A) The immunological method uses substances that react with products of hormone-producing cells, whereas the molecular method uses substances that react with a specific component of the cells themselves.
  - (B) The immunological method has produced results consistent with long-held beliefs about peptide hormones, whereas the molecular method has produced results that upset these beliefs.
  - (C) The immunological method requires a great deal of expertise, whereas the molecular method has been used successfully by nonspecialists.
  - (D) The immunological method can only be used to test for the presence of peptide hormones within the hypothalamus, whereas the molecular method can be used throughout the brain.
  - (E) The immunological method uses probes that can only bind with peptide hormones, whereas the molecular method uses probes that bind with peptide hormones and substances similar to them.
27. The idea that the field of endocrinology can gain from developments in molecular biology is regarded by Roberts with
- (A) incredulity
  - (B) derision
  - (C) indifference
  - (D) pride
  - (E) enthusiasm

No. 8-2

## SECTION A

Ragtime is a musical form that synthesizes folk melodies and musical techniques into a brief quadrille-like structure, designed to be played—exactly as written—on the piano. A strong analogy exists between European composers like Ralph Vaughan Williams, Edvard Grieg, and Anton Dvorak who combined folk tunes and their own original materials in larger compositions and the pioneer ragtime composers in the United States. Composers like Scott Joplin and James Scott were in a sense collectors or musicologists, collecting dance and folk music in Black communities and consciously shaping it into brief suites or anthologies called piano rags.

It has sometimes been charged that ragtime is mechanical. For instance, Wilfred Mellers comments, “rags were transferred to the pianola roll and, even if not played by a machine, should be played like a machine, with meticulous precision.” However, there is no reason to assume that ragtime is inherently mechanical simply because commercial manufacturers applied a mechanical recording method to ragtime, the only way to record pianos at that date. Ragtime’s is not a mechanical precision, and it is not precision limited to the style of

performance. It arises from ragtime's following a well-defined form and obeying simple rules within that form.

The classic formula for the piano rag disposes three to five themes in sixteen-bar strains, often organized with repeats. The rag opens with a bright, memorable strain or theme, followed by a similar theme, leading to a trio of marked lyrical character, with the structure concluded by a lyrical strain that parallels the rhythmic developments of the earlier themes. The aim of the structure is to rise from one theme to another in a stair-step manner, ending on a note of triumph or exhilaration. Typically, each strain is divided into two 8-bar segments that are essentially alike, so the rhythmic-melodic unit of ragtime is only eight bars of 2/4 measure. Therefore, themes must be brief with clear, sharp melodic figures. Not concerned with development of musical themes, the ragtime composer instead sets a theme down intact, in finished form, and links it to various related themes. Tension in ragtime compositions arises from a polarity between two basic ingredients: a continuous bass—called by jazz musicians a boom-chick bass—in the pianist's left hand, and its melodic, syncopated counterpart in the right hand.

Ragtime remains distinct from jazz both as an instrumental style and as a genre. Ragtime style stresses a pattern of repeated rhythms, not the constant inventions and variations of jazz. As a genre, ragtime requires strict attention to structure, not inventiveness or virtuosity. It exists as a tradition, a set of conventions, a body of written scores, separate from the individual players associated with it. In this sense ragtime is more akin to folk music of the nineteenth century than to jazz.

17. Which of the following best describes the main purpose of the passage?
- (A) To contrast ragtime music and jazz
  - (B) To acknowledge and counter significant adverse criticisms of ragtime music
  - (C) To define ragtime music as an art form and describe its structural characteristics
  - (D) To review the history of ragtime music and analyze ragtime's effect on listeners
  - (E) To explore the similarities between ragtime music and certain European musical compositions
18. According to the passage, each of the following is a characteristic of ragtime compositions that follow the classic ragtime formula EXCEPT:
- (A) syncopation
  - (B) well-defined melodic figures
  - (C) rising rhythmic-melodic intensity
  - (D) full development of musical themes
  - (E) a bass line distinct from the melodic line
19. According to the passage, Ralph Vaughan Williams, Anton Dvorak, and Scott Joplin are similar in that they all
- (A) conducted research into musicological history

- (B) wrote original compositions based on folk tunes  
(C) collected and recorded abbreviated piano suites  
(D) created intricate sonata-like musical structures  
(E) explored the relations between Black music and continental folk music
20. The author rejects the argument that ragtime is a mechanical music because that argument
- (A) overlooks the precision required of the ragtime player  
(B) does not accurately describe the sound of ragtime pianola music  
(C) confuses the means of recording and the essential character of the music  
(D) exaggerates the influence of the performance style of professional ragtime players on the reputation of the genre  
(E) improperly identifies commercial ragtime music with the subtler classic ragtime style
21. It can be inferred that the author of the passage believes that the most important feature of ragtime music is its
- (A) commercial success  
(B) formal structure  
(C) emotional range  
(D) improvisational opportunities  
(E) role as a forerunner of jazz
22. It can be inferred from the passage that the essential nature of ragtime has been obscured by commentaries based on
- (A) the way ragtime music was first recorded  
(B) interpretations of ragtime by jazz musicians  
(C) the dance fashions that were contemporary with ragtime  
(D) early reviewers' accounts of characteristic structure  
(E) the musical sources used by Scott Joplin and James Scott
23. Which of the following is most nearly analogous in source and artistic character to a ragtime composition as described in the passage?
- (A) Symphonic music derived from complex jazz motifs  
(B) An experimental novel based on well-known cartoon characters  
(C) A dramatic production in which actors invent scenes and improvise lines  
(D) A ballet whose disciplined choreography is based on folk-dance steps  
(E) A painting whose abstract shapes evoke familiar objects in a natural landscape

Echolocating bats emit sounds in patterns—characteristic of each species—that contain both frequency-modulated (FM) and constant-frequency (CF) signals. The broadband FM signals and the narrowband CF signals travel out to a target, reflect from it, and return to the hunting bat. In this process of transmission and reflection, the sounds are changed, and the

changes in the echoes enable the bat to perceive features of the target.

The FM signals report information about target characteristics that modify the timing and the fine frequency structure, or spectrum, of echoes—for example, the target's size, shape, texture, surface structure, and direction in space. Because of their narrow bandwidth, CF signals portray only the target's presence and, in the case of some bat species, its motion relative to the bat's. Responding to changes in the CF echo's frequency, bats of some species correct in flight for the direction and velocity of their moving prey.

24. According to the passage, the information provided to the bat by CF echoes differs from that provided by FM echoes in which of the following ways?
- (A) Only CF echoes alert the bat to moving targets.
  - (B) Only CF echoes identify the range of widely spaced targets.
  - (C) Only CF echoes report the target's presence to the bat.
  - (D) In some species, CF echoes enable the bat to judge whether it is closing in on its target.
  - (E) In some species, CF echoes enable the bat to discriminate the size of its target and the direction in which the target is moving.
25. According to the passage, the configuration of the target is reported to the echolocating bat by changes in the
- (A) echo spectrum of CF signals
  - (B) echo spectrum of FM signals
  - (C) direction and velocity of the FM echoes
  - (D) delay between transmission and reflection of the CF signals
  - (E) relative frequencies of the FM and the CF echoes
26. The author presents the information concerning bat sonar in a manner that could be best described as
- (A) argumentative
  - (B) commendatory
  - (C) critical
  - (D) disbelieving
  - (E) objective
27. Which of the following best describes the organization of the passage?
- (A) A fact is stated, a process is outlined, and specific details of the process are described.
  - (B) A fact is stated, and examples suggesting that a distinction needs correction are considered.
  - (C) A fact is stated, a theory is presented to explain that fact, and additional facts are introduced to validate the theory.
  - (D) A fact is stated, and two theories are compared in light of their explanations

of this fact.

- (E) A fact is stated, a process is described, and examples of still another process are illustrated in detail.

## SECTION B

The social sciences are less likely than other intellectual enterprises to **get credit for** their accomplishments. Arguably, this is so because the theories and conceptual constructs of the social sciences are especially accessible: human intelligence apprehends truths about human affairs with particular facility. And the discoveries of the social sciences, once isolated and labeled, are quickly absorbed into conventional wisdom, **whereupon** they lose their distinctiveness as scientific advances.

This underappreciation of the social sciences contrasts oddly with what many see as their overutilization. Game theory is **pressed into service** in studies of shifting international alliances. Evaluation research is called upon to demonstrate successes or failures of social programs. Models from economics and demography become the definitive tools for examining the financial base of social security. Yet this rush into practical applications is itself quite understandable: public policy must continually be made, and policymakers rightly feel that even tentative findings and untested theories are better guides to decision-making than no findings and no theories at all.

17. The author is primarily concerned with
- (A) advocating a more modest view, and less widespread utilization, of the social sciences
  - (B) analyzing the mechanisms for translating discoveries into applications in the social sciences
  - (C) dissolving the air of paradox inherent in human beings studying themselves
  - (D) explaining a peculiar dilemma that the social sciences are in
  - (E) maintaining a strict separation between pure and applied social science
18. Which of the following is a social science discipline that the author mentions as being possibly overutilized?
- (A) Conventional theories of social change
  - (B) Game theory
  - (C) Decision-making theory
  - (D) Economic theories of international alliances
  - (E) Systems analysis
19. It can be inferred from the passage that, when speaking of the “overutilization” (line 11) of the social sciences, the author is referring to the
- (A) premature practical application of social science advances
  - (B) habitual reliance on the social sciences even where common sense would serve equally well

- (C) practice of bringing a greater variety of social science disciplines to bear on a problem than the nature of the problem warrants
  - (D) use of social science constructs by people who do not fully understand them
  - (E) tendency on the part of social scientists to recast everyday truths in social science jargon
20. The author confronts the claim that the social sciences are being overutilized with
- (A) proof that overextensions of social science results are self-correcting
  - (B) evidence that some public policy is made without any recourse to social science findings or theories
  - (C) a long list of social science applications that are perfectly appropriate and extremely fruitful
  - (D) the argument that overutilization is by and large the exception rather than the rule
  - (E) the observation that this practice represents the lesser of two evils under existing circumstances

The term "Ice Age" may give a wrong impression. The epoch that geologists know as the Pleistocene and that spanned the 1.5 to 2.0 million years prior to the current geologic epoch was not one long continuous glaciation, but a period of oscillating climate with ice advances punctuated by times of interglacial climate not very different from the climate experienced now. Ice sheets that derived from an ice cap centered on northern Scandinavia reached southward to Central Europe. And Beyond the margins of the ice sheets, climatic oscillations affected most of the rest of the world; for example, in the deserts, periods of wetter conditions (pluvials) contrasted with drier, interpluvial periods. Although the time involved is so short, about 0.04 percent of the total age of the Earth, the amount of attention devoted to the Pleistocene has been incredibly large, probably because of its immediacy, and because the epoch largely coincides with the appearance on Earth of humans and their immediate ancestors.

There is no reliable way of dating much of the Ice Age. Geological dates are usually obtained by using the rates of decay of various radioactive elements found in minerals. Some of these rates are suitable for very old rocks but involve increasing errors when used for young rocks; others are suitable for very young rocks and errors increase rapidly in older rocks. Most of the Ice Age spans a period of time for which no element has an appropriate decay rate.

Nevertheless, researchers of the Pleistocene epoch have developed all sorts of more or less fanciful model schemes of how they would have arranged the Ice Age had they been in charge of events. For example, an early classification of Alpine glaciation suggested the existence there of four glaciations, named the Gunz, Mindel, Riss, and Wurm. This succession was based primarily on a series of deposits and events not directly related to glacial and interglacial periods, rather than on the more usual modern method of studying biological remains found in interglacial beds themselves interstratified within glacial deposits. Yet this succession was forced willy-nilly onto the glaciated parts of Northern Europe, where there are partial successions of true glacial ground moraines and interglacial deposits, with hopes of ultimately piecing them together to provide a complete Pleistocene succession. Eradication of the Alpine nomenclature is still proving a Herculean task.



There is no conclusive evidence about the relative length, complexity, and temperatures of the various glacial and interglacial periods. We do not know whether we live in a postglacial period or an interglacial period. The chill truth seems to be that we are already past the optimum climate of postglacial time. Studies of certain fossil distributions and of the pollen of certain temperate plants suggest decreases of a degree or two in both summer and winter temperatures and, therefore, that we may be in the declining climatic phase leading to glaciation and extinction.

21. In the passage, the author is primarily concerned with
- (A) searching for an accurate method of dating the Pleistocene epoch
  - (B) discussing problems involved in providing an accurate picture of the Pleistocene epoch
  - (C) declaring opposition to the use of the term “Ice Age” for the Pleistocene epoch
  - (D) criticizing fanciful schemes about what happened in the Pleistocene epoch
  - (E) refuting the idea that there is no way to tell if we are now living in an Ice Age
22. The “wrong impression” (line 1) to which the author refers is the idea that the
- (A) climate of the Pleistocene epoch was not very different from the climate we are now experiencing
  - (B) climate of the Pleistocene epoch was composed of periods of violent storms
  - (C) Pleistocene epoch consisted of very wet, cold periods mixed with very dry, hot periods
  - (D) Pleistocene epoch comprised one period of continuous glaciation during which Northern Europe was covered with ice sheets
  - (E) Pleistocene epoch had no long periods during which much of the Earth was covered by ice
23. According to the passage, one of the reasons for the deficiencies of the “early classification of Alpine glaciation” (lines 32-33) is that it was
- (A) derived from evidence that was only tangentially related to times of actual glaciation
  - (B) based primarily on fossil remains rather than on actual living organisms
  - (C) an abstract, imaginative scheme of how the period might have been structured
  - (D) based on unmethodical examinations of randomly chosen glacial biological remains
  - (E) derived from evidence that had been haphazardly gathered from glacial deposits and inaccurately evaluated
24. Which of the following does the passage imply about the “early classification of Alpine glaciation” (lines 32-33)?
- (A) It should not have been applied as widely as it was.
  - (B) It represents the best possible scientific practice, given the tools available at

- the time.
- (C) It was a valuable tool, in its time, for measuring the length of the four periods of glaciation.
- (D) It could be useful, but only as a general guide to the events of the Pleistocene epoch.
- (E) It does not shed any light on the methods used at the time for investigating periods of glaciation.
25. It can be inferred from the passage that an important result of producing an accurate chronology of events of the Pleistocene epoch would be a
- (A) clearer idea of the origin of the Earth
- (B) clearer picture of the Earth during the time that humans developed
- (C) clearer understanding of the reasons for the existence of deserts
- (D) more detailed understanding of how radioactive dating of minerals works
- (E) firmer understanding of how the northern polar ice cap developed
26. The author refers to deserts primarily in order to
- (A) illustrate the idea that an interglacial climate is marked by oscillations of wet and dry periods
- (B) illustrate the idea that what happened in the deserts during the Ice Age had far-reaching effects even on the ice sheets of Central and Northern Europe
- (C) illustrate the idea that the effects of the Ice Age's climatic variations extended beyond the areas of ice
- (D) support the view that during the Ice Age sheets of ice covered some of the deserts of the world
- (E) support the view that we are probably living in a postglacial period
27. The author would regard the idea that we are living in an interglacial period as
- (A) unimportant
- (B) unscientific
- (C) self-evident
- (D) plausible
- (E) absurd

No. 8-3

## SECTION A

(This passage is excerpted from an article that was published in 1981.)

The deep sea typically has a sparse fauna dominated by tiny worms and crustaceans, with an even sparser distribution of larger animals. However, near **hydrothermal** vents, areas of the ocean where warm water emerges from subterranean sources, live remarkable densities of

huge clams, blind crabs, and fish.

Most deep-sea faunas rely for food on **particulate matter**, ultimately derived from photosynthesis, falling from above. The food supplies necessary to sustain the large vent communities, however, must be many times the ordinary fallout. The first reports describing vent faunas proposed two possible sources of nutrition: bacterial chemosynthesis, production of food by bacteria using energy derived from chemical changes, and advection, the drifting of food materials from surrounding regions. Later, evidence in support of the idea of intense local chemosynthesis was accumulated: hydrogen sulfide was found in vent water; many vent-site bacteria were found to be capable of chemosynthesis; and extremely large concentrations of bacteria were found in samples of vent water thought to be pure. This final observation seemed decisive. If such astonishing concentrations of bacteria were typical of vent outflow, then food within the vent would dwarf any contribution from advection. Hence, the widely quoted conclusion was reached that bacterial chemosynthesis provides the foundation for hydrothermal-vent food chains—an exciting prospect because no other communities on Earth are independent of photosynthesis.

There are, however, certain difficulties with this interpretation. For example, some of the large sedentary organisms associated with vents are also found at ordinary deep-sea temperatures many meters from the nearest hydrothermal sources. This suggests that bacterial chemosynthesis is not a sufficient source of nutrition for these creatures. Another difficulty is that similarly dense populations of large deep-sea animals have been found in the proximity of “smokers”—vents where water emerges at temperatures up to 350°C. No bacteria can survive such heat, and no bacteria were found there. Unless smokers are consistently located near more hospitable warm-water vents, chemosynthesis can account for only a fraction of the vent faunas. It is conceivable, however, that these large, sedentary organisms do in fact feed on bacteria that grow in warm-water vents, rise in the vent water, and then **rain in** peripheral areas to nourish animals living some distance from the warm-water vents.

Nonetheless advection is a more likely alternative food source. Research has demonstrated that advective flow, which originates near the surface of the ocean where suspended particulate matter accumulates, transports some of that matter and water to the vents. Estimates suggest that for every cubic meter of vent discharge, 350 milligrams of particulate organic material would be advected into the vent area. Thus, for an average-sized vent, advection could provide more than 30 kilograms of potential food per day. In addition, it is likely that small live animals in the advected water might be killed or stunned by thermal and/or chemical shock, thereby contributing to the food supply of vents.

16. The passage provides information for answering which of the following questions?
- (A) What causes warm-water vents to form?
  - (B) Do vent faunas consume more than do deep-sea faunas of similar size?
  - (C) Do bacteria live in the vent water of smokers?
  - (D) What role does **hydrogen sulfide** play in chemosynthesis?
  - (E) What accounts for the locations of deep-sea smokers?
17. The information in the passage suggests that the majority of deep-sea faunas that

- live in nonvent habitats have which of the following characteristics?
- (A) They do not normally feed on particles of food in the water.
  - (B) They are smaller than many vent faunas.
  - (C) They are predators.
  - (D) They derive nutrition from a chemosynthetic food source.
  - (E) They congregate around a single main food source.
18. The primary purpose of the passage is to
- (A) describe a previously unknown natural phenomenon
  - (B) reconstruct the evolution of a natural phenomenon
  - (C) establish unequivocally the accuracy of a hypothesis
  - (D) survey explanations for a natural phenomenon and determine which is best supported by evidence
  - (E) entertain criticism of the author's research and provide an effective response
19. Which of the following does the author cite as a weakness in the argument that bacterial chemosynthesis provides the foundation for the food chains at deep-sea vents?
- (A) Vents are colonized by some of the same animals found in other areas of the ocean floor.
  - (B) Vent water does not contain sufficient quantities of hydrogen sulfide.
  - (C) Bacteria cannot produce large quantities of food quickly enough.
  - (D) Large concentrations of minerals are found in vent water.
  - (E) Some bacteria found in the vents are incapable of chemosynthesis.
20. Which of the following is information supplied in the passage that would support the statement that the food supplies necessary to sustain vent communities must be many times that of ordinary fallout?
- I. Large vent faunas move from vent to vent in search of food.
  - II. Vent faunas are not able to consume food produced by photosynthesis.
  - III. Vents are more densely populated than are other deep-sea areas.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III
21. The author refers to "smokers" (line 38) most probably in order to
- (A) show how thermal shock can provide food for some vent faunas by stunning small animals
  - (B) prove that the habitat of most deep-sea animals is limited to warm-water

vents

- (C) explain how bacteria carry out chemosynthesis
  - (D) demonstrate how advection compensates for the lack of food sources on the seafloor
  - (E) present evidence that bacterial chemosynthesis may be an inadequate source of food for some vent faunas
22. Which of the following can be inferred from the passage about the particulate matter that is carried down from the surface of the ocean?
- (A) It is the basis of bacterial chemosynthesis in the vents.
  - (B) It may provide an important source of nutrition for vent faunas.
  - (C) It may cause the internal temperature of the vents to change significantly.
  - (D) It is transported as large aggregates of particles.
  - (E) It contains hydrogen sulfide.

Throughout human history there have been many stringent taboos concerning watching other people eat or eating **in the presence of** others. There have been attempts to explain these taboos in terms of inappropriate social relationships either between those who are involved and those who are not simultaneously involved in the satisfaction of a bodily need, or between those already satiated and those who appear to be shamelessly gorging. Undoubtedly such elements exist in the taboos, but there is an additional element with a much more fundamental importance. In prehistoric times, when food was so precious and the on-lookers so hungry, not to offer half of the little food one had was unthinkable, since every glance was a plea for life. Further, during those times, people existed in nuclear or **extended family** groups, and the sharing of food was quite literally supporting one's family or, by extension, preserving one's self.

23. If the argument in the passage is valid, taboos against eating in the presence of others who are not also eating would be **LEAST** likely in a society that
- (A) had always had a plentiful supply of food
  - (B) emphasized the need to share worldly goods
  - (C) had a nomadic rather than an agricultural way of life
  - (D) emphasized the value of privacy
  - (E) discouraged overindulgence
24. The author's hypothesis concerning the origin of taboos against watching other people eat emphasizes the
- (A) general palatability of food
  - (B) religious significance of food
  - (C) limited availability of food
  - (D) various sources of food
  - (E) nutritional value of food
25. According to the passage, the author believes that past attempts to explain some

taboos concerning eating are

- (A) unimaginative
- (B) implausible
- (C) inelegant
- (D) incomplete
- (E) unclear

26. In developing the main idea of the passage, the author does which of the following?
- (A) Downplays earlier attempts to explain the origins of a social prohibition.
  - (B) Adapts a scientific theory and applies it to a spiritual relationship.
  - (C) Simplifies a complex biological phenomenon by explaining it in terms of social needs.
  - (D) Reorganizes a system designed to guide personal behavior.
  - (E) Codifies earlier, unsystematized conjectures about family life.

## SECTION B

(This passage is from a book published in 1975.)

That Louise Nevelson is believed by many critics to be the greatest twentieth-century sculptor is all the more remarkable because the greatest resistance to women artists has been, until recently, in the field of sculpture. Since Neolithic times, sculpture has been considered the prerogative of men, partly, perhaps, for purely physical reasons: it was erroneously assumed that women were not suited for the hard manual labor required in sculpting stone, carving wood, or working in metal. It has been only during the twentieth century that women sculptors have been recognized as major artists, and it has been in the United States, especially since the decades of the fifties and sixties, that women sculptors have shown the greatest originality and creative power. Their rise to prominence parallels the development of sculpture itself in the United States: while there had been a few talented sculptors in the United States before the 1940's, it was only after 1945—when New York was rapidly becoming the art capital of the world—that major sculpture was produced in the United States. Some of the best was the work of women.

By far the most outstanding of these women is Louise Nevelson, who in the eyes of many critics is the most original female artist alive today. One famous and influential critic, Hilton Kramer, said of her work, "For myself, I think Ms. Nevelson succeeds where the painters often fail."

Her works have been compared to the Cubist constructions of Picasso, the Surrealistic objects of Miro, and the Merzbau of Schwitters. Nevelson would be the first to admit that she has been influenced by all of these, as well as by African sculpture, and by Native American and pre-Columbian art, but she has absorbed all these influences and still created a distinctive art that expresses the urban landscape and the aesthetic sensibility of the twentieth century. Nevelson says, "I have always wanted to show the world that art is everywhere, except that it



has to **pass through** a creative mind.”

Using mostly discarded wooden objects like packing crates, broken pieces of furniture, and abandoned architectural ornaments, all of which she has hoarded **for years**, she assembles architectural constructions of great beauty and power. Creating very freely with no sketches, she glues and nails objects together, paints them black, or more rarely white or gold, and places them in boxes. These assemblages, walls, even entire environments create a mysterious, almost awe-inspiring atmosphere. Although she has denied any symbolic or religious intent in her works, their three-dimensional grandeur and even their titles, such as *Sky Cathedral* and *Night Cathedral*, suggest such connotations. **In some ways**, her most ambitious works are closer to architecture than to traditional sculpture, but then neither Louise Nevelson nor her art **fits into** any neat category.

17. The passage focuses primarily on which of the following?
- (A) A general tendency in twentieth-century art
  - (B) The work of a particular artist
  - (C) The artistic influences on women sculptors
  - (D) Critical responses to twentieth-century sculpture
  - (E) Materials used by twentieth-century sculptors
18. Which of the following statements is supported by information given in the passage?
- (A) Since 1945 women sculptors in the United States have produced more sculpture than have men sculptors.
  - (B) Since 1950 sculpture produced in the United States has been the most original and creative sculpture produced anywhere.
  - (C) From 1900 to 1950 women sculptors in Europe enjoyed more recognition for their work than did women sculptors in the United States.
  - (D) Prior to 1945 there were many women sculptors whose work was ignored by critics.
  - (E) Prior to 1945 there was little major sculpture produced by men or women sculptors working in the United States.
19. The author quotes Hilton Kramer in lines 25-27 most probably in order to illustrate which of the following?
- (A) The realism of Nevelson’s work
  - (B) The unique qualities of Nevelson’s style
  - (C) The extent of critical approval of Nevelson’s work
  - (D) A distinction between sculpture and painting
  - (E) A reason for the prominence of women sculptors since the 1950’s
20. Which of the following is one way in which Nevelson’s art illustrates her theory as it is expressed in lines 36-38?
- (A) She sculpts in wood rather than in metal or stone.

- (B) She paints her sculptures and frames them in boxes.
  - (C) She makes no preliminary sketches but rather allows the sculpture to develop as she works.
  - (D) She puts together pieces of ordinary objects once used for different purposes to make her sculptures.
  - (E) She does not deliberately attempt to convey symbolic or religious meanings through her sculpture.
21. It can be inferred from the passage that the author believes which of the following about Nevelson's sculptures?
- (A) They suggest religious and symbolic meanings.
  - (B) They do not have qualities characteristic of sculpture.
  - (C) They are mysterious and awe-inspiring, but not beautiful.
  - (D) They are uniquely American in style and sensibility.
  - (E) They show the influence of twentieth-century architecture.
22. The author regards Nevelson's stature in the art world as "remarkable" (line 3) in part because of which of the following?
- (A) Her work is currently overrated.
  - (B) Women sculptors have found it especially difficult to be accepted and recognized as major artists.
  - (C) Nevelson's sculptures are difficult to understand.
  - (D) Many art critics have favored painting over sculpture in writing about developments in the art world.
  - (E) Few of the artists prominent in the twentieth century have been sculptors.
23. Which of the following statements about Nevelson's sculptures can be inferred from the passage?
- (A) They are meant for display outdoors.
  - (B) They are often painted in several colors.
  - (C) They are sometimes very large.
  - (D) They are hand carved by Nevelson.
  - (E) They are built around a central wooden object.

Volcanic rock that forms as fluid lava chills rapidly is called **pillow lava**. This rapid chilling occurs when lava erupts directly into water (or beneath ice) or when it flows across a shoreline and into a body of water. While the term "pillow lava" suggests a definite shape, in fact geologists disagree. Some geologists argue that pillow lava is characterized by discrete, ellipsoidal masses. Others describe pillow lava as a tangled mass of cylindrical, interconnected flow lobes. Much of this controversy probably results from unwarranted extrapolations of the original configuration of pillow flows from two-dimensional cross sections of eroded pillows in land **outcroppings**. Virtually any **cross section** cut through a tangled mass of interconnected flow lobes would give the appearance of a pile of discrete ellipsoidal masses. Adequate

three-dimensional images of intact pillows are essential for defining the true geometry of pillowed flows and thus ascertaining their mode of origin. Indeed, the term “pillow,” itself suggestive of discrete masses, is probably a misnomer.

24. Which of the following is a fact presented in the passage?
- (A) The shape of the connections between the separate, sacklike masses in pillow lava is unknown.
  - (B) More accurate cross sections of pillow lava would reveal the mode of origin.
  - (C) Water or ice is necessary for the formation of pillow lava.
  - (D) No three-dimensional examples of intact pillows currently exist.
  - (E) The origin of pillow lava is not yet known.
25. In the passage, the author is primarily interested in
- (A) analyzing the source of a scientific controversy
  - (B) criticizing some geologists’ methodology
  - (C) pointing out the flaws in a geological study
  - (D) proposing a new theory to explain existing scientific evidence
  - (E) describing a physical phenomenon
26. The author of the passage would most probably agree that the geologists mentioned in line 6 (“Some geologists”) have made which of the following errors in reasoning?
- I. Generalized unjustifiably from available evidence.
  - II. Deliberately ignored existing counterevidence.
  - III. Repeatedly failed to take new evidence into account.
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) II and III only
27. The author implies that the “controversy” (line 9) might be resolved if
- (A) geologists did not persist in using the term “pillow”
  - (B) geologists did not rely on potentially misleading information
  - (C) geologists were more willing to confer directly with one another
  - (D) two-dimensional cross sections of eroded pillows were available
  - (E) existing pillows in land outcroppings were not so badly eroded

No. 9-1

SECTION A

Many critics of Emily Bronte's novel *Wuthering Heights* see its second part as a **counterpoint** that comments on, if it does not reverse, the first part, where a "romantic" reading receives more confirmation. Seeing the two parts as a whole is encouraged by the novel's sophisticated structure, revealed in its complex use of narrators and time shifts. Granted that the presence of these elements need not argue an authorial awareness of novelistic construction comparable to that of Henry James, their presence does encourage attempts to unify the novel's heterogeneous parts. However, any interpretation that seeks to unify all of the novel's diverse elements is bound to be somewhat unconvincing. This is not because such an interpretation necessarily stiffens into a thesis (although rigidity in any interpretation of this or of any novel is always a danger), but because *Wuthering Heights* has recalcitrant elements of undeniable power that, ultimately, resist inclusion in an all-encompassing interpretation. In this respect, *Wuthering Heights* shares a feature of *Hamlet*.

17. According to the passage, which of the following is a true statement about the first and second parts of *Wuthering Heights*?
- (A) The second part has received more attention from critics.
  - (B) The second part has little relation to the first part.
  - (C) The second part annuls the force of the first part.
  - (D) The second part provides less substantiation for a "romantic" reading.
  - (E) The second part is better because it is more realistic.
18. Which of the following inferences about Henry James's awareness of novelistic construction is best supported by the passage?
- (A) James, more than any other novelist, was aware of the difficulties of novelistic construction.
  - (B) James was very aware of the details of novelistic construction.
  - (C) James's awareness of novelistic construction derived from his reading of Bronte.
  - (D) James's awareness of novelistic construction has led most commentators to see unity in his individual novels.
  - (E) James's awareness of novelistic construction precluded him from violating the unity of his novels.
19. The author of the passage would be most likely to agree that an interpretation of a novel should
- (A) not try to unite heterogeneous elements in the novel
  - (B) not be inflexible in its treatment of the elements in the novel
  - (C) not argue that the complex use of narrators or of time shifts indicates a sophisticated structure
  - (D) concentrate on those recalcitrant elements of the novel that are outside the novel's main structure
  - (E) primarily consider those elements of novelistic construction of which the author of the novel was aware

20. The author of the passage suggests which of the following about *Hamlet*?
- I. *Hamlet* has usually attracted critical interpretations that tend to stiffen into theses.
  - II. *Hamlet* has elements that are not amenable to an all-encompassing critical interpretation.
  - III. *Hamlet* is less open to an all-encompassing critical interpretation than is *Wuthering Heights*.
  - IV. *Hamlet* has not received a critical interpretation that has been widely accepted by readers.
- (A) I only  
(B) II only  
(C) I and IV only  
(D) III and IV only  
(E) I, II, and III only

The determination of the sources of copper ore used in the manufacture of copper and bronze artifacts of **Bronze Age** civilizations would add greatly to our knowledge of cultural contacts and trade in that era. Researchers have analyzed artifacts and ores for their concentrations of elements, but for a variety of reasons, these studies have generally failed to provide evidence of the sources of the copper used in the objects. Elemental composition can vary within the same copper-ore lode, usually because of varying admixtures of other elements, especially iron, lead, zinc, and arsenic. And high concentrations of cobalt or zinc, noticed in some artifacts, appear in a variety of copper-ore sources. Moreover, the processing of ores introduced poorly controlled changes in the concentrations of minor and trace elements in the resulting metal. Some elements evaporate during smelting and roasting; different temperatures and processes produce different degrees of loss. Finally, flux, which is sometimes added during smelting to remove waste material from the ore, could add quantities of elements to the final product.

An elemental property that is unchanged through these chemical processes is the isotopic composition of each metallic element in the ore. Isotopic composition, the percentages of the different isotopes of an element in a given sample of the element, is therefore particularly suitable as an indicator of the sources of the ore. Of course, for this purpose it is necessary to find an element whose isotopic composition is more or less constant throughout a given ore body, but varies from one copper ore body to another or, at least, from one geographic region to another.

The ideal choice, when isotopic composition is used to investigate the source of copper ore, would seem to be copper itself. It has been shown that small but measurable variations occur naturally in the isotopic composition of copper. However, the variations are large enough only in rare ores; between samples of the common ore minerals of copper, isotopic variations greater than the measurement error have not been found. An alternative choice is lead, which occurs in most copper and bronze artifacts of the Bronze Age in amounts consistent with the lead being derived from the copper ores and possibly from the fluxes. The isotopic composition of lead often varies from one source of common copper ore to another, with variations exceeding the

measurement error; and preliminary studies indicate virtually uniform isotopic composition of the lead from a single copper-ore source. While some of the lead found in an artifact may have been introduced from flux or when other metals were added to the copper ore, lead so added in Bronze Age processing would usually have the same isotopic composition as the lead in the copper ore. Lead isotope studies may thus prove useful for interpreting the archaeological record of the Bronze Age.

21. The primary purpose of the passage is to
- (A) discuss the techniques of analyzing lead isotope composition
  - (B) propose a way to determine the origin of the copper in certain artifacts
  - (C) resolve a dispute concerning the analysis of copper ore
  - (D) describe the deficiencies of a currently used method of chemical analysis of certain metals
  - (E) offer an interpretation of the archaeological record of the Bronze Age
22. The author first mentions the addition of flux during smelting (lines 18-21) in order to
- (A) give a reason for the failure of elemental composition studies to determine ore sources
  - (B) illustrate differences between various Bronze Age civilizations
  - (C) show the need for using high smelting temperatures
  - (D) illustrate the uniformity of lead isotope composition
  - (E) explain the success of copper isotope composition analysis
23. The author suggests which of the following about a Bronze Age artifact containing high concentrations of cobalt or zinc?
- (A) It could not be reliably tested for its elemental composition.
  - (B) It could not be reliably tested for its copper isotope composition.
  - (C) It could not be reliably tested for its lead isotope composition.
  - (D) It could have been manufactured from ore from any one of a variety of sources.
  - (E) It could have been produced by the addition of other metals during the processing of the copper ore.
24. According to the passage, possible sources of the lead found in a copper or bronze artifact include which of the following?
- I. The copper ore used to manufacture the artifact
  - II. Flux added during processing of the copper ore
  - III. Other metal added during processing of the copper ore
- (A) I only
  - (B) II only
  - (C) III only



- (D) II and III only  
(E) I, II, and III
25. The author rejects copper as the “ideal choice” mentioned in line 33 because  
(A) the concentration of copper in Bronze Age artifacts varies  
(B) elements other than copper may be introduced during smelting  
(C) the isotopic composition of copper changes during smelting  
(D) among common copper ores, differences in copper isotope composition are too small  
(E) within a single source of copper ore, copper isotope composition can vary substantially
26. The author makes which of the following statements about lead isotope composition?  
(A) It often varies from one copper-ore source to another.  
(B) It sometimes varies over short distances in a single copper-ore source.  
(C) It can vary during the testing of artifacts, producing a measurement error.  
(D) It frequently changes during smelting and roasting.  
(E) It may change when artifacts are buried for thousands of years.
27. It can be inferred from the passage that the use of flux in processing copper ore can alter the lead isotope composition of the resulting metal EXCEPT when  
(A) there is a smaller concentration of lead in the flux than in the copper ore  
(B) the concentration of lead in the flux is equivalent to that of the lead in the ore  
(C) some of the lead in the flux evaporates during processing  
(D) any lead in the flux has the same isotopic composition as the lead in the ore  
(E) other metals are added during processing

## SECTION B

Since the Hawaiian Islands have never been connected to other land masses, the great variety of plants in Hawaii must be a result of the long-distance dispersal of seeds, a process that requires both a method of transport and an equivalence between the ecology of the source area and that of the recipient area.

There is some dispute about the method of transport involved. Some biologists argue that ocean and air currents are responsible for the transport of plant seeds to Hawaii. Yet the results of flotation experiments and the low temperatures of air currents cast doubt on these hypotheses. More probable is bird transport, either externally, by accidental attachment of the seeds to feathers, or internally, by the swallowing of fruit and subsequent excretion of the seeds. While it is likely that fewer varieties of plant seeds have reached Hawaii externally than internally, more varieties are known to be adapted to external than to internal transport.

17. The author of the passage is primarily concerned with

- (A) discussing different approaches biologists have taken to testing theories about the distribution of plants in Hawaii
  - (B) discussing different theories about the transport of plant seeds to Hawaii
  - (C) discussing the extent to which air currents are responsible for the dispersal of plant seeds to Hawaii
  - (D) resolving a dispute about the adaptability of plant seeds to bird transport
  - (E) resolving a dispute about the ability of birds to carry plant seeds long distances
18. The author mentions the results of flotation experiments on plant seeds (lines 10-12) most probably in order to
- (A) support the claim that the distribution of plants in Hawaii is the result of the long-distance dispersal of seeds
  - (B) lend credibility to the thesis that air currents provide a method of transport for plant seeds to Hawaii
  - (C) suggest that the long-distance dispersal of seeds is a process that requires long periods of time
  - (D) challenge the claim that ocean currents are responsible for the transport of plant seeds to Hawaii
  - (E) refute the claim that Hawaiian flora evolved independently from flora in other parts of the world
19. It can be inferred from information in the passage that the existence in alpine regions of Hawaii of a plant species that also grows in the southwestern United States would justify which of the following conclusions?
- (A) The ecology of the southwestern United States is similar in important respects to the ecology of alpine regions of Hawaii.
  - (B) There are ocean currents that flow from the southwestern United States to Hawaii.
  - (C) The plant species discovered in Hawaii must have traveled from the southwestern United States only very recently.
  - (D) The plant species discovered in Hawaii reached there by attaching to the feathers of birds migrating from the southwestern United States.
  - (E) The plant species discovered in Hawaii is especially well adapted to transport over long distances.
20. The passage supplies information for answering which of the following questions?
- (A) Why does successful long-distance dispersal of plant seeds require an equivalence between the ecology of the source area and that of the recipient area?
  - (B) Why are more varieties of plant seeds adapted to external rather than to internal bird transport?

- (C) What varieties of plant seeds are birds that fly long distances most likely to swallow?
- (D) What is a reason for accepting the long-distance dispersal of plant seeds as an explanation for the origin of Hawaiian flora?
- (E) What evidence do biologists cite to argue that ocean and air currents are responsible for the transport of plant seeds to Hawaii?

A long-held view of the history of the English colonies that became the United States has been that England's policy toward these colonies before 1763 was dictated by commercial interests and that a change to a more imperial policy, dominated by expansionist militarist objectives, generated the tensions that ultimately led to the American Revolution. In a recent study, Stephen Saunders Webb has presented a formidable challenge to this view. According to Webb, England already had a military imperial policy for more than a century before the American Revolution. He sees Charles II, the English monarch between 1660 and 1685, as the proper successor of the Tudor monarchs of the sixteenth century and of Oliver Cromwell, all of whom were bent on extending centralized executive power over England's possessions through the use of what Webb calls "garrison government." Garrison government allowed the colonists a legislative assembly, but real authority, in Webb's view, belonged to the colonial governor, who was appointed by the king and supported by the "garrison," that is, by the local contingent of English troops under the colonial governor's command.

According to Webb, the purpose of garrison government was to provide military support for a royal policy designed to limit the power of the upper classes in the American colonies. Webb argues that the colonial legislative assemblies represented the interests not of the common people but of the colonial upper classes, a coalition of merchants and nobility who favored self-rule and sought to elevate legislative authority at the expense of the executive. It was, according to Webb, the colonial governors who favored the small farmer, opposed the plantation system, and tried through taxation to break up large holdings of land. Backed by the military presence of the garrison, these governors tried to prevent the gentry and merchants, allied in the colonial assemblies, from transforming colonial America into a capitalistic oligarchy.

Webb's study illuminates the political alignments that existed in the colonies in the century prior to the American Revolution, but his view of the crown's use of the military as an instrument of colonial policy is not entirely convincing. England during the seventeenth century was not noted for its military achievements. Cromwell did mount England's most ambitious overseas military expedition in more than a century, but it proved to be an utter failure. Under Charles II, the English army was too small to be a major instrument of government. Not until the war with France in 1697 did William III persuade Parliament to create a professional standing army, and Parliament's price for doing so was to keep the army under tight legislative control. While it may be true that the crown attempted to curtail the power of the colonial upper classes, it is hard to imagine how the English army during the seventeenth century could have provided significant military support for such a policy.

21. The passage can best be described as a
- (A) survey of the inadequacies of a conventional viewpoint
  - (B) reconciliation of opposing points of view

- (C) summary and evaluation of a recent study
  - (D) defense of a new thesis from anticipated objections
  - (E) review of the subtle distinctions between apparently similar views
22. The passage suggests that the view referred to in lines 1-7 argued that
- (A) the colonial governors were sympathetic to the demands of the common people
  - (B) Charles II was a pivotal figure in the shift of English monarchs toward a more imperial policy in their governorship of the American colonies
  - (C) the American Revolution was generated largely out of a conflict between the colonial upper classes and an alliance of merchants and small farmers
  - (D) the military did not play a major role as an instrument of colonial policy until 1763
  - (E) the colonial legislative assemblies in the colonies had little influence over the colonial governors
23. It can be inferred from the passage that Webb would be most likely to agree with which of the following statements regarding garrison government?
- (A) Garrison government gave legislative assemblies in the colonies relatively little authority, compared to the authority that it gave the colonial governors.
  - (B) Garrison government proved relatively ineffective until it was used by Charles II to curb the power of colonial legislatures.
  - (C) Garrison government became a less viable colonial policy as the English Parliament began to exert tighter legislative control over the English military.
  - (D) Oliver Cromwell was the first English ruler to make use of garrison government on a large scale.
  - (E) The creation of a professional standing army in England in 1697 actually weakened garrison government by diverting troops from the garrisons stationed in the American colonies.
24. According to the passage, Webb views Charles II as the “proper successor” (line 13) of the Tudor monarchs and Cromwell because Charles II
- (A) used colonial tax revenues to fund overseas military expeditions
  - (B) used the military to extend executive power over the English colonies
  - (C) wished to transform the American colonies into capitalistic oligarchies
  - (D) resisted the English Parliament’s efforts to exert control over the military
  - (E) allowed the American colonists to use legislative assemblies as a forum for resolving grievances against the crown
25. Which of the following, if true, would most seriously weaken the author’s assertion in lines 54-58?
- (A) Because they were poorly administered, Cromwell’s overseas military

- expeditions were doomed to failure.
- (B) Because it relied primarily on the symbolic presence of the military, garrison government could be effectively administered with a relatively small number of troops.
- (C) Until early in the seventeenth century, no professional standing army in Europe had performed effectively in overseas military expeditions.
- (D) Many of the colonial governors appointed by the crown were also commissioned army officers.
- (E) Many of the English troops stationed in the American colonies were veterans of other overseas military expeditions.
26. According to Webb's view of colonial history, which of the following was (were) true of the merchants and nobility mentioned in line 30?
- I. They were opposed to policies formulated by Charles II that would have transformed the colonies into capitalistic oligarchies.
- II. They were opposed to attempts by the English crown to limit the power of the legislative assemblies.
- III. They were united with small farmers in their opposition to the stationing of English troops in the colonies.
- (A) I only
- (B) II only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III
27. The author suggests that if William III had wanted to make use of the standing army mentioned in line 52 to administer garrison government in the American colonies, he would have had to.
- (A) make peace with France
- (B) abolish the colonial legislative assemblies
- (C) seek approval from the English Parliament
- (D) appoint colonial governors who were more sympathetic to royal policy
- (E) raise additional revenues by increasing taxation of large landholdings in the colonies

No. 9-2

## SECTION A

A serious critic has to comprehend the particular content, unique structure, and special meaning of a work of art. And here she faces a dilemma. The critic must recognize the artistic element of uniqueness that requires subjective reaction; yet she must not be unduly prejudiced

by such reactions. Her likes and dislikes are less important than what the work itself communicates, and her preferences may blind her to certain qualities of the work and thereby prevent an adequate understanding of it. Hence, it is necessary that a critic develop a sensibility informed by familiarity with the history of art and aesthetic theory. On the other hand, it is insufficient to treat the artwork solely historically, in relation to a fixed set of ideas or values. The critic's knowledge and training are, rather, a preparation of the cognitive and emotional abilities needed for an adequate personal response to an artwork's own particular qualities.

17. According to the author, a serious art critic may avoid being prejudiced by her subjective reactions if she
- (A) treats an artwork in relation to a fixed set of ideas and values
  - (B) brings to her observation a knowledge of art history and aesthetic theory
  - (C) allows more time for the observation of each artwork
  - (D) takes into account the preferences of other art critics
  - (E) limits herself to that art with which she has adequate familiarity
18. The author implies that it is insufficient to treat a work of art solely historically because
- (A) doing so would lead the critic into a dilemma
  - (B) doing so can blind the critic to some of the artwork's unique qualities
  - (C) doing so can insulate the critic from personally held beliefs
  - (D) subjective reactions can produce a biased response
  - (E) critics are not sufficiently familiar with art history
19. The passage suggests that the author would be most likely to agree with which of the following statements?
- (A) Art speaks to the passions as well as to the intellect.
  - (B) Most works of art express unconscious wishes or desires.
  - (C) The best art is accessible to the greatest number of people.
  - (D) The art produced in the last few decades is of inferior quality.
  - (E) The meaning of art is a function of the social conditions in which it was produced.
20. The author's argument is developed primarily by the use of
- (A) an attack on sentimentality
  - (B) an example of successful art criticism
  - (C) a critique of artists training
  - (D) a warning against extremes in art criticism
  - (E) an analogy between art criticism and art production

Viruses, infectious particles consisting of nucleic acid packaged in a protein coat (the capsid), are difficult to resist. Unable to reproduce outside a living cell, viruses reproduce only by subverting the genetic mechanisms of a host cell. In one kind of viral life cycle, the virus first



binds to the cell's surface, then penetrates the cell and sheds its capsid. The exposed viral nucleic acid produces new viruses from the contents of the cell. Finally, the cell releases the viral progeny, and a new cell cycle of infection begins. The human body responds to a viral infection by producing antibodies: complex, highly specific proteins that selectively bind to foreign molecules such as viruses. An antibody can either interfere with a virus's ability to bind to a cell, or can prevent it from releasing its nucleic acid.

Unfortunately, the **common cold**, produced most often by rhinoviruses, is intractable to antiviral defense. Humans have difficulty resisting colds because rhinoviruses are so diverse, including at least 100 strains. The strains differ most in the molecular structure of the proteins in their capsids. Since disease-fighting antibodies bind to the capsid, an antibody developed to protect against one rhinovirus strain is useless against other strains. Different antibodies must be produced for each strain.

A defense against rhinoviruses might nonetheless succeed by exploiting hidden similarities among the rhinovirus strains. For example, most rhinovirus strains bind to the same kind of molecule (delta-receptors) on a cell's surface when they attack human cells. Colonno, taking advantage of these common receptors, devised a strategy for blocking the attachment of rhinoviruses to their appropriate receptors. Rather than fruitlessly searching for an antibody that would bind to all rhinoviruses, Colonno realized that an antibody binding to the common receptors of a human cell would prevent rhinoviruses from initiating an infection. Because human cells normally do not develop antibodies to components of their own cells, Colonno injected human cells into mice, which did produce an antibody to the common receptor. In isolated human cells, this antibody proved to be extraordinarily effective at thwarting the rhinovirus. Moreover, when the antibody was given to chimpanzees, it inhibited rhinoviral growth, and in humans it lessened both the severity and duration of cold symptoms.

Another possible defense against rhinoviruses was proposed by Rossman, who described rhinoviruses' detailed molecular structure. Rossman showed that protein sequences common to all rhinovirus strains lie at the base of a deep "canyon" **scoring** each face of the capsid. The narrow opening of this canyon possibly prevents the relatively large antibody molecules from binding to the common sequence, but smaller molecules might reach it. Among these smaller, nonantibody molecules, some might bind to the common sequence, lock the nucleic acid in its coat, and thereby prevent the virus from reproducing.

21. The primary purpose of the passage is to
- (A) discuss viral mechanisms and possible ways of circumventing certain kinds of those mechanisms
  - (B) challenge recent research on how rhinoviruses bind to receptors on the surfaces of cells
  - (C) suggest future research on rhinoviral growth in chimpanzees
  - (D) defend a controversial research program whose purpose is to discover the molecular structure of rhinovirus capsids
  - (E) evaluate a dispute between advocates of two theories about the rhinovirus life cycle
22. It can be inferred from the passage that the protein sequences of the capsid that

- vary most among strains of rhinovirus are those
- (A) at the base of the “canyon”
  - (B) outside of the “canyon”
  - (C) responsible for producing nucleic acid
  - (D) responsible for preventing the formation of delta-receptors
  - (E) preventing the capsid from releasing its nucleic acid
23. It can be inferred from the passage that a cell lacking delta-receptors will be
- (A) unable to prevent the rhinoviral nucleic acid from shedding its capsid
  - (B) defenseless against most strains of rhinovirus
  - (C) unable to release the viral progeny it develops after infection
  - (D) protected from new infections by antibodies to the rhinovirus
  - (E) resistant to infection by most strains of rhinovirus
24. Which of the following research strategies for developing a defense against the common cold would the author be likely to find most promising?
- (A) Continuing to look for a general antirhinoviral antibody
  - (B) Searching for common cell-surface receptors in humans and mice
  - (C) Continuing to look for similarities among the various strains of rhinovirus
  - (D) Discovering how the human body produces antibodies in response to a rhinoviral infection
  - (E) Determining the detailed molecular structure of the nucleic acid of a rhinovirus
25. It can be inferred from the passage that the purpose of Colonno’s experiments was to determine whether
- (A) chimpanzees and humans can both be infected by rhinoviruses
  - (B) chimpanzees can produce antibodies to human cell-surface receptors
  - (C) a rhinovirus’ nucleic acid might be locked in its protein coat
  - (D) binding antibodies to common receptors could produce a possible defense against rhinoviruses
  - (E) rhinoviruses are vulnerable to human antibodies
26. According to the passage, Rossman’s research suggests that
- (A) a defense against rhinoviruses might exploit structural similarities among the strains of rhinovirus
  - (B) human cells normally do not develop antibodies to components of their own cells
  - (C) the various strains of rhinovirus differ in their ability to bind to the surface of a host cell
  - (D) rhinovirus versatility can work to the benefit of researchers trying to find a useful antibody

- (E) Colonno's research findings are probably invalid
27. According to the passage, in order for a given antibody to bind to a given rhinoviral capsid, which of the following must be true?
- (A) The capsid must have a deep "canyon" on each of its faces.
- (B) The antibody must be specific to the molecular structure of the particular capsid.
- (C) The capsid must separate from its nucleic acid before binding to an antibody.
- (D) The antibody must bind to a particular cell-surface receptor before it can bind to a rhinovirus.
- (E) The antibody must first enter a cell containing the particular rhinovirus.

## SECTION 8

Diamonds, an occasional component of rare igneous rocks called lamproites and kimberlites, have never been dated satisfactorily. However, some diamonds contain minute inclusions of silicate minerals, commonly olivine, pyroxene, and garnet. These minerals can be dated by radioactive decay techniques because of the very small quantities of radioactive trace elements they, in turn, contain. Usually, it is possible to conclude that the inclusions are older than their diamond hosts, but with little indication of the time interval involved. Sometimes, however, the crystal form of the silicate inclusions is observed to resemble more closely the internal structure of diamond than that of other silicate minerals. It is not known how rare this resemblance is, or whether it is most often seen in inclusions of silicates such as garnet, whose crystallography is generally somewhat similar to that of diamond; but when present, the resemblance is regarded as compelling evidence that the diamonds and inclusions are truly cogenetic.

17. The author implies that silicate inclusions were most often formed
- (A) with small diamonds inside of them
- (B) with trace elements derived from their host minerals
- (C) by the radioactive decay of rare igneous rocks
- (D) at an earlier period than were their host minerals
- (E) from the crystallization of rare igneous material
18. According to the passage, the age of silicate minerals included in diamonds can be determined due to a feature of the
- (A) trace elements in the diamond hosts
- (B) trace elements in the rock surrounding the diamonds
- (C) trace elements in the silicate minerals
- (D) silicate minerals' crystal structure
- (E) host diamonds' crystal structure
19. The author states that which of the following generally has a crystal structure similar to that of diamond?

- (A) Lamproite
- (B) Kimberlite
- (C) Olivine
- (D) Pyroxene
- (E) Garnet

20. The main purpose of the passage is to

- (A) explain why it has not been possible to determine the age of diamonds
- (B) explain how it might be possible to date some diamonds
- (C) compare two alternative approaches to determining the age of diamonds
- (D) compare a method of dating diamonds with a method used to date certain silicate minerals
- (E) compare the age of diamonds with that of certain silicate minerals contained within them

Discussion of the assimilation of Puerto Ricans in the United States has focused on two factors: **social standing** and the loss of national culture. In general, excessive stress is placed on one factor or the other, depending on whether the commentator is North American or Puerto Rican. Many North American social scientists, such as Oscar Handlin, Joseph Fitzpatrick, and Oscar Lewis, consider Puerto Ricans as the most recent in a long line of ethnic entrants to occupy the lowest rung on the social ladder. Such a "sociodemographic" approach tends to regard assimilation as a benign process, taking for granted increased economic advantage and inevitable cultural integration, in a supposedly egalitarian context. However, this approach fails to take into account the colonial nature of the Puerto Rican case, with this group, unlike their European predecessors, coming from a nation politically subordinated to the United States. Even the "radical" critiques of this mainstream research model, such as the critique developed in *Divided Society*, attach the issue of ethnic assimilation too mechanically to factors of economic and social mobility and are thus unable to illuminate the cultural subordination of Puerto Ricans as a colonial minority.

In contrast, the "colonialist" approach of island-based writers such as Eduardo Seda-Bonilla, Manuel Maldonado-Denis, and Luis Nieves-Falcon tends to view assimilation as the forced loss of national culture in an unequal contest with imposed foreign values. There is, of course, a strong tradition of cultural accommodation among other Puerto Rican thinkers. The writings of Eugenio Fernandez Mendez clearly exemplify this tradition, and many supporters of Puerto Rico's commonwealth status share the same universalizing orientation. But the Puerto Rican intellectuals who have written most about the assimilation process in the United States all advance cultural nationalist views, advocating the preservation of minority cultural distinctions and rejecting what they see as the subjugation of colonial nationalities.

This cultural and political emphasis is appropriate, but the colonialist thinkers misdirect it, overlooking the class relations at work in both Puerto Rican and North American history. They pose the clash of national cultures as an absolute polarity, with each culture understood as static and undifferentiated. Yet both the Puerto Rican and North American traditions have been subject to constant challenge from cultural forces within their own societies, forces that may

move toward each other in ways that cannot be written off as mere "assimilation." Consider, for example, the indigenous and Afro-Caribbean traditions in Puerto Rican culture and how they influence and are influenced by other Caribbean cultures and Black cultures in the United States. The elements of coercion and inequality, so central to cultural contact according to the colonialist framework play no role in this kind of convergence of racially and ethnically different elements of the same social class.

21. The author's main purpose is to
- (A) criticize the emphasis on social standing in discussions of the assimilation of Puerto Ricans in the United States
  - (B) support the thesis that assimilation has not been a benign process for Puerto Ricans
  - (C) defend a view of the assimilation of Puerto Ricans that emphasizes the preservation of national culture
  - (D) indicate deficiencies in two schools of thought on the assimilation of Puerto Ricans in the United States
  - (E) reject the attempt to formulate a general framework for discussion of the assimilation of Puerto Ricans in the United States
22. According to the passage, cultural accommodation is promoted by
- (A) Eduardo Seda-Bonilla
  - (B) Manuel Maldonado-Denis
  - (C) the author of *Divided Society*
  - (D) the majority of social scientists writing on immigration
  - (E) many supporters of Puerto Rico's commonwealth status
23. It can be inferred from the passage that a writer such as Eugenio Fernandez Mendez would most likely agree with which of the following statements concerning members of minority ethnic groups?
- (A) It is necessary for the members of such groups to adapt to the culture of the majority.
  - (B) The members of such groups generally encounter a culture that is static and undifferentiated.
  - (C) Social mobility is the most important feature of the experience of members of such groups.
  - (D) Social scientists should emphasize the cultural and political aspects of the experience of members of such groups.
  - (E) The assimilation of members of such groups requires the forced abandonment of their authentic national roots.
24. The author implies that the Puerto Rican writers who have written most about assimilation do NOT do which of the following?
- (A) Regard assimilation as benign.

- (B) Resist cultural integration.
  - (C) Describe in detail the process of assimilation.
  - (D) Take into account the colonial nature of the Puerto Rican case.
  - (E) Criticize supporters of Puerto Rico's commonwealth status.
25. It can be inferred from the passage that the "colonialist" approach is so called because its practitioners
- (A) support Puerto Rico's commonwealth status
  - (B) have a strong tradition of cultural accommodation
  - (C) emphasize the class relations at work in both Puerto Rican and North American history
  - (D) pose the clash of national cultures as an absolute polarity in which each culture is understood as static and undifferentiated
  - (E) regard the political relation of Puerto Rico to the United States as a significant factor in the experience of Puerto Ricans
26. The author regards the emphasis by island-based writers on the cultural and political dimensions of assimilation as
- (A) ironic
  - (B) dangerous
  - (C) fitting but misdirected
  - (D) illuminating but easily misunderstood
  - (E) peculiar but benign
27. The example discussed in lines 51-54 is intended by the author to illustrate a
- (A) strength of the sociodemographic approach
  - (B) strength of the "colonialist" approach
  - (C) weakness of the sociodemographic approach
  - (D) weakness of the "colonialist" approach
  - (E) weakness of the cultural-accommodationist approach

No. 9-3

## SECTION A

Classical physics defines the vacuum as a state of absence: a vacuum is said to exist in a region of space if there is nothing in it. In the quantum field theories that describe the physics of elementary particles, the vacuum becomes somewhat more complicated. Even in empty space, particles can appear spontaneously as a result of fluctuations of the vacuum. For example, an electron and a positron, or antielectron, can be created out of the void. Particles created in this way have only a fleeting existence; they are annihilated almost as soon as they appear, and their presence can never be detected directly. They are called virtual particles in



order to distinguish them from real particles, whose lifetimes are not constrained in the same way, and which can be detected. Thus it is still possible to define that vacuum as a space that has no real particles in it.

One might expect that the vacuum would always be the state of lowest possible energy for a given region of space. If an area is initially empty and a real particle is put into it, the total energy, it seems, should be raised by at least the energy equivalent of the mass of the added particle. A surprising result of some recent theoretical investigations is that this assumption is not invariably true. There are conditions under which the introduction of a real particle of finite mass into an empty region of space can reduce the total energy. If the reduction in energy is great enough, an electron and a positron will be spontaneously created. Under these conditions the electron and positron are not a result of vacuum fluctuations but are real particles, which exist indefinitely and can be detected. In other words, under these conditions the vacuum is an unstable state and can decay into a state of lower energy; i.e., one in which real particles are created.

The essential condition for the decay of the vacuum is the presence of an intense electric field. As a result of the decay of the vacuum, the space permeated by such a field can be said to acquire an electric charge, and it can be called a charged vacuum. The particles that materialize in the space make the charge manifest. An electric field of sufficient intensity to create a charged vacuum is likely to be found in only one place: in the immediate vicinity of a superheavy atomic nucleus, one with about twice as many protons as the heaviest natural nuclei known. A nucleus that large cannot be stable, but it might be possible to assemble one next to a vacuum for long enough to observe the decay of the vacuum. Experiments attempting to achieve this are now **under way**.

17. Which of the following titles best describes the passage as a whole?
- (A) The Vacuum: Its Fluctuations and Decay
  - (B) The Vacuum: Its Creation and Instability
  - (C) The Vacuum: A State of Absence
  - (D) Particles That Materialize in the Vacuum
  - (E) Classical Physics and the Vacuum
18. According to the passage, the assumption that the introduction of a real particle into a vacuum raises the total energy of that region of space has been cast into doubt by which of the following?
- (A) Findings from laboratory experiments
  - (B) Findings from observational field experiments
  - (C) Accidental observations made during other experiments
  - (D) Discovery of several erroneous propositions in accepted theories
  - (E) Predictions based on theoretical work
19. It can be inferred from the passage that scientists are currently making efforts to observe which of the following events?
- (A) The decay of a vacuum in the presence of virtual particles

- (B) The decay of a vacuum next to a superheavy atomic nucleus
  - (C) The creation of a superheavy atomic nucleus next to an intense electric field
  - (D) The creation of a virtual electron and a virtual positron as a result of fluctuations of a vacuum
  - (E) The creation of a charged vacuum in which only real electrons can be created in the vacuum's region of space
20. Physicists' recent investigations of the decay of the vacuum, as described in the passage, most closely resemble which of the following hypothetical events in other disciplines?
- (A) On the basis of data gathered in a carefully controlled laboratory experiment, a chemist predicts and then demonstrates the physical properties of a newly synthesized polymer.
  - (B) On the basis of manipulations of macroeconomic theory, an economist predicts that, contrary to accepted economic theory, inflation and unemployment will both decline under conditions of rapid economic growth.
  - (C) On the basis of a rereading of the texts of Jane Austen's novels, a literary critic suggests that, contrary to accepted literary interpretations, Austen's plots were actually metaphors for political events in early nineteenth-century England.
  - (D) On the basis of data gathered in carefully planned observations of several species of birds, a biologist proposes a modification in the accepted theory of interspecies competition.
  - (E) On the basis of a study of observations incidentally recorded in ethnographers' descriptions of non-Western societies, an anthropologist proposes a new theory of kinship relations.
21. According to the passage, the author considers the reduction of energy in an empty region of space to which a real particle has been added to be
- (A) a well-known process
  - (B) a frequent occurrence
  - (C) a fleeting aberration
  - (D) an unimportant event
  - (E) an unexpected outcome
22. According to the passage, virtual particles differ from real particles in which of the following ways?
- I. Virtual particles have extremely short lifetimes.
  - II. Virtual particles are created in an intense electric field.
  - III. Virtual particles cannot be detected directly.
- (A) I only
  - (B) II only

- (C) III only
  - (D) I and II only
  - (E) I and III only
23. The author's assertions concerning the conditions that lead to the decay of the vacuum would be most weakened if which of the following occurred?
- (A) Scientists created an electric field next to a vacuum, but found that the electric field was not intense enough to create a charged vacuum.
  - (B) Scientists assembled a superheavy atomic nucleus next to a vacuum, but found that no virtual particles were created in the vacuum's region of space.
  - (C) Scientists assembled a superheavy atomic nucleus next to a vacuum, but found that they could not then detect any real particles in the vacuum's region of space.
  - (D) Scientists introduced a virtual electron and a virtual positron into a vacuum's region of space, but found that the vacuum did not then fluctuate.
  - (E) Scientists introduced a real electron and a real positron into a vacuum's region of space, but found that the total energy of the space increased by the energy equivalent of the mass of the particles.

Simone de Beauvoir's work greatly influenced Betty Friedan's—Indeed, made it possible. Why, then, was it Friedan who became the prophet of women's emancipation in the United States? Political conditions, as well as a certain anti-intellectual bias, prepared Americans and the American media to better receive Friedan's deradicalized and highly pragmatic *The Feminine Mystique*, published in 1963, than Beauvoir's theoretical reading of women's situation in *The Second Sex*. In 1953 when *The Second Sex* first appeared in translation in the United States, the country had entered the silent, fearful fortress of the anticommunist McCarthy years (1950-1954), and Beauvoir was suspected of Marxist sympathies. Even *The Nation*, a generally liberal magazine, warned its readers against "certain political leanings" of the author. Open acknowledgement of the existence of women's oppression was too radical for the United States in the fifties, and Beauvoir's conclusion, that change in women's economic condition, though insufficient by itself, "remains the basic factor" in improving women's situation, was particularly unacceptable.

24. According to the passage, one difference between *The Feminine Mystique* and *The Second Sex* is that Friedan's book
- (A) rejects the idea that women are oppressed
  - (B) provides a primarily theoretical analysis of women's lives
  - (C) does not reflect the political beliefs of its author
  - (D) suggests that women's economic condition has no impact on their status
  - (E) concentrates on the practical aspects of the questions of women's emancipation
25. The author quotes from *The Nation* most probably in order to
- (A) modify an earlier assertion

- (B) point out a possible exception to her argument
  - (C) illustrate her central point
  - (D) clarify the meaning of a term
  - (E) cite an expert opinion
26. It can be inferred from the passage that which of the following is not a factor in the explanation of why *The Feminine Mystique* was received more positively in the United States than was *The Second Sex*?
- (A) By 1963 political conditions in the United States had changed.
  - (B) Friedan's book was less intellectual and abstract than Beauvoir's.
  - (C) Readers did not recognize the powerful influence of Beauvoir's book on Friedan's ideas.
  - (D) Friedan's approach to the issue of women's emancipation was less radical than Beauvoir's.
  - (E) American readers were more willing to consider the problem of the oppression of women in the sixties than they had been in the fifties.
27. According to the passage, Beauvoir's book asserted that the status of women
- (A) is the outcome of political oppression
  - (B) is inherently tied to their economic condition
  - (C) can be best improved under a communist government
  - (D) is a theoretical, rather than a pragmatic, issue
  - (E) is a critical area of discussion in Marxist economic theory

## SECTION B

One of the questions of interest in the study of the evolution of spiders is whether the weaving of orb webs evolved only once or several times. About half the 35,000 known kinds of spiders make webs; a third of the web weavers make orb webs. Since most orb weavers belong either to the Araneidae or the Uloboridae families, the origin of the orb web can be determined only by ascertaining whether the families are related.

Recent taxonomic analysis of individuals from both families indicates that the families evolved from different ancestors, thereby contradicting Wiehle's theory. This theory postulates that the families must be related, based on the assumption that complex behavior, such as web building, could evolve only once. According to Kullman, web structure is the only characteristic that suggests a relationship between families. The families differ in appearance, structure of body hair, and arrangement of eyes. Only Uloborids lack venom glands. Further identification and study of characteristic features will undoubtedly answer the question of the evolution of the orb web.

17. The primary purpose of the passage is to
- (A) settle the question of whether orb webs evolved once or more than once
  - (B) describe scientific speculation concerning an issue related to the evolution of

- orb webs
- (C) analyze the differences between the characteristic features of spiders in the Araneidae and Uloboridae families
  - (D) question the methods used by earlier investigators of the habits of spiders
  - (E) demonstrate that Araneidae spiders are not related to Uloboridae spiders
18. It can be inferred from the passage that all orb-weaving spiders belong to types of spiders that
- (A) lack venom glands
  - (B) are included either in the Uloboridae or Araneidae families
  - (C) share few characteristic features with other spider types
  - (D) comprise less than a third of all known types of spiders
  - (E) are more recently evolved than other types of spiders
19. According to the passage, members of the Araneidae family can be distinguished from members of the Uloboridae family by all of the following EXCEPT:
- (A) the presence of venom glands
  - (B) the type of web they spin
  - (C) the structure of their body hair
  - (D) the arrangement of their eyes
  - (E) their appearance
20. Which of the following statements, if true, most weakens Wiehle's theory that complex behavior could evolve only once?
- (A) Horses, introduced to the New World by the Spaniards, thrived under diverse climatic conditions.
  - (B) Plants of the Palmaceae family, descendants of a common ancestor, evolved unique seed forms even though the plants occupy similar habitats throughout the world.
  - (C) All mammals are descended from a small, rodentlike animal whose physical characteristics in some form are found in all its descendants.
  - (D) Plants in the Cactaceae and Euphorbiaceae families, although they often look alike and have developed similar mechanisms to meet the rigors of the desert, evolved independently.
  - (E) The Cuban anole, which was recently introduced in the Florida wilds, is quickly replacing the native Florida chameleon because the anole has no competitors.

"Popular art" has a number of meanings, impossible to define with any precision, which range from folklore to junk. The poles are clear enough, but the middle tends to blur. The Hollywood Western of the 1930's, for example, has elements of folklore, but is closer to junk than to high art or folk art. There can be great trash, just as there is bad high art. The musicals of George Gershwin are great popular art, never aspiring to high art. Schubert and Brahms,

however, used elements of popular music—folk themes—in works clearly intended as high art. The case of Verdi is a different one: he took a popular genre—bourgeois melodrama set to music (an accurate definition of nineteenth-century opera)—and, without altering its fundamental nature, transmuted it into high art. This remains one of the greatest achievements in music, and one that cannot be fully appreciated without recognizing the essential trashiness of the genre.

As an example of such a transmutation, consider what Verdi made of the typical political elements of nineteenth-century opera. Generally in the plots of these operas, a hero or heroine—usually portrayed only as an individual, unfettered by class—is caught between the immoral corruption of the aristocracy and the doctrinaire rigidity or secret greed of the leaders of the proletariat. Verdi transforms this naive and unlikely formulation with music of extraordinary energy and rhythmic vitality, music more subtle than it seems at first hearing. There are scenes and arias that still sound like calls to arms and were clearly understood as such when they were first performed. Such pieces lend an immediacy to the otherwise veiled political message of these operas and call up feelings beyond those of the opera itself.

Or consider Verdi's treatment of character. Before Verdi, there were rarely any characters at all in musical drama, only a series of situations which allowed the singers to express a series of emotional states. Any attempt to find coherent psychological portrayal in these operas is misplaced ingenuity. The only coherence was the singer's vocal technique: when the cast changed, new arias were almost always substituted, generally adapted from other operas. Verdi's characters, on the other hand, have genuine consistency and integrity, even if, in many cases, the consistency is that of pasteboard melodrama. The integrity of the character is achieved through the music: once he had become established, Verdi did not rewrite his music for different singers or countenance alterations or substitutions of somebody else's arias in one of his operas, as every eighteenth-century composer had done. When he revised an opera, it was only for dramatic economy and effectiveness.

21. The author refers to Schubert and Brahms in order to suggest
- (A) that their achievements are no less substantial than those of Verdi
  - (B) that their works are examples of great trash
  - (C) the extent to which Schubert and Brahms influenced the later compositions of Verdi
  - (D) a contrast between the conventions of nineteenth-century opera and those of other musical forms
  - (E) that popular music could be employed in compositions intended as high art
22. According to the passage, the immediacy of the political message in Verdi's operas stems from the
- (A) vitality and subtlety of the music
  - (B) audience's familiarity with earlier operas
  - (C) portrayal of heightened emotional states
  - (D) individual talents of the singers
  - (E) verisimilitude of the characters



23. According to the passage, all of the following characterize musical drama before Verdi EXCEPT:
- (A) arias tailored to a particular singer's ability
  - (B) adaptation of music from other operas
  - (C) psychological inconsistency in the portrayal of characters
  - (D) expression of emotional states in a series of dramatic situations
  - (E) music used for the purpose of defining a character
24. It can be inferred that the author regards Verdi's revisions to his operas with
- (A) regret that the original music and texts were altered
  - (B) concern that many of the revisions altered the plots of the original work
  - (C) approval for the intentions that motivated the revisions
  - (D) puzzlement, since the revisions seem largely insignificant
  - (E) enthusiasm, since the revisions were aimed at reducing the conventionality of the operas' plots
25. According to the passage, one of Verdi's achievements within the framework of nineteenth-century opera and its conventions was to
- (A) limit the extent to which singers influenced the musical compositions and performance of his operas
  - (B) use his operas primarily as forums to protest both the moral corruption and dogmatic rigidity of the political leaders of his time
  - (C) portray psychologically complex characters shaped by the political environment surrounding them
  - (D) incorporate elements of folklore into both the music and plots of his operas
  - (E) introduce political elements into an art form that had traditionally avoided political content
26. Which of the following best describes the relationship of the first paragraph of the passage to the passage as a whole?
- (A) It provides a group of specific examples from which generalizations are drawn later in the passage.
  - (B) It leads to an assertion that is supported by examples later in the passage.
  - (C) It defines terms and relationships that are challenged in an argument later in the passage.
  - (D) It briefly compares and contrasts several achievements that are examined in detail later in the passage.
  - (E) It explains a method of judging a work of art, a method that is used later in the passage.
27. It can be inferred that the author regards the independence from social class of the heroes and heroines of nineteenth-century opera as

- (A) an idealized but fundamentally accurate portrayal of bourgeois life
- (B) a plot convention with no real connection to political reality
- (C) a plot refinement unique to Verdi
- (D) a symbolic representation of the position of the bourgeoisie relative to the aristocracy and the proletariat
- (E) a convention largely seen as irrelevant by audiences

No. 9-4

## SECTION A

(The article from which the passage was taken appeared in 1982.)

Theorists are divided concerning the origin of the Moon. Some hypothesize that the Moon was formed in the same way as were the planets in the inner solar system (Mercury, Venus, Mars, and Earth)—from planet-forming materials in the presolar nebula. But, unlike the cores of the inner planets, the Moon's core contains little or no iron, while the typical planet-forming materials were quite rich in iron. Other theorists propose that the Moon was ripped out of the Earth's rocky mantle by the Earth's collision with another large celestial body after much of the Earth's iron fell to its core. One problem with the collision hypothesis is the question of how a satellite formed in this way could have settled into the nearly circular orbit that the Moon has today. Fortunately, the collision hypothesis is testable. If it is true, the mantlerocks of the Moon and the Earth should be the same geochemically.

17. The primary purpose of the passage is to
- (A) present two hypotheses concerning the origin of the Moon
  - (B) discuss the strengths and weaknesses of the collision hypothesis concerning the origin of the Moon
  - (C) propose that hypotheses concerning the Moon's origin be tested
  - (D) argue that the Moon could not have been formed out of the typical planet-forming materials of the presolar nebula
  - (E) describe one reason why the Moon's geochemical makeup should resemble that of the Earth
18. According to the passage, Mars and the Earth are similar in which of the following ways?
- I. Their satellites were formed by collisions with other celestial bodies.
  - II. Their cores contain iron.
  - III. They were formed from the presolar nebula.
- (A) III only
  - (B) I and II only
  - (C) I and III only
  - (D) II and III only

(E) I, II, and III

19. The author implies that a nearly circular orbit is unlikely for a satellite that
- (A) circles one of the inner planets
  - (B) is deficient in iron
  - (C) is different from its planet geochemically
  - (D) was formed by a collision between two celestial bodies
  - (E) was formed out of the planet-forming materials in the presolar nebula
20. Which of the following, if true, would be most likely to make it difficult to verify the collision hypothesis in the manner suggested by the author?
- (A) The Moon's core and mantlerock are almost inactive geologically.
  - (B) The mantlerock of the Earth has changed in composition since the formation of the Moon, while the mantlerock of the Moon has remained chemically inert.
  - (C) Much of the Earth's iron fell to the Earth's core long before the formation of the Moon, after which the Earth's mantlerock remained unchanged.
  - (D) Certain of the Earth's elements, such as platinum, gold, and iridium, followed iron to the Earth's core.
  - (E) The mantlerock of the Moon contains elements such as platinum, gold, and iridium.

Surprisingly enough, modern historians have rarely interested themselves in the history of the American South in the period before the South began to become self-consciously and distinctively "Southern"—the decades after 1815. Consequently, the cultural history of Britain's North American empire in the seventeenth and eighteenth centuries has been written almost as if the Southern colonies had never existed. The American culture that emerged during the Colonial and Revolutionary eras has been depicted as having been simply an extension of New England Puritan culture. However, Professor Davis has recently argued that the South stood apart from the rest of American society during this early period, following its own unique pattern of cultural development. The case for Southern distinctiveness rests upon two related premises: first, that the cultural similarities among the five Southern colonies were far more impressive than the differences, and second, that what made those colonies alike also made them different from the other colonies. The first, for which Davis offers an enormous amount of evidence, can be accepted without major reservations; the second is far more problematic.

What makes the second premise problematic is the use of the Puritan colonies as a basis for comparison. Quite properly, Davis decries the excessive influence ascribed by historians to the Puritans in the formation of American culture. Yet Davis inadvertently adds weight to such ascriptions by using the Puritans as the standard against which to assess the achievements and contributions of Southern colonials. Throughout, Davis focuses on the important, and undeniable, differences between the Southern and Puritan colonies in motives for and patterns of early settlement, in attitudes toward nature and Native Americans, and in the degree of receptivity to metropolitan cultural influences.

However, recent scholarship has strongly suggested that those aspects of early New

England culture that seem to have been most distinctly Puritan, such as the strong religious orientation and the communal impulse, were not even typical of New England as a whole, but were largely confined to the two colonies of Massachusetts and Connecticut. Thus, what in contrast to the Puritan colonies appears to Davis to be peculiarly Southern—acquisitiveness, a strong interest in politics and the law, and a tendency to cultivate metropolitan cultural models—was not only more typically English than the cultural patterns exhibited by Puritan Massachusetts and Connecticut, but also almost certainly characteristic of most other early modern British colonies from Barbados north to Rhode Island and New Hampshire. Within the larger framework of American colonial life, then, not the Southern but the Puritan colonies appear to have been distinctive, and even they seem to have been rapidly assimilating to the dominant cultural patterns by the late Colonial period.

21. The author is primarily concerned with
- (A) refuting a claim about the influence of Puritan culture on the early American South
  - (B) refuting a thesis about the distinctiveness of the culture of the early American South
  - (C) refuting the two premises that underlie Davis' discussion of the culture of the American South in the period before 1815
  - (D) challenging the hypothesis that early American culture was homogeneous in nature
  - (E) challenging the contention that the American South made greater contributions to early American culture than Puritan New England did
22. The passage implies that the attitudes toward Native Americans that prevailed in the Southern colonies
- (A) were in conflict with the cosmopolitan outlook of the South
  - (B) derived from Southerners' strong interest in the law
  - (C) were modeled after those that prevailed in the North
  - (D) differed from those that prevailed in the Puritan colonies
  - (E) developed as a response to attitudes that prevailed in Massachusetts and Connecticut
23. According to the author, the depiction of American culture during the Colonial and Revolutionary eras as an extension of New England Puritan culture reflects the
- (A) fact that historians have overestimated the importance of the Puritans in the development of American culture
  - (B) fact that early American culture was deeply influenced by the strong religious orientation of the colonists
  - (C) failure to recognize important and undeniable cultural differences between New Hampshire and Rhode Island on the one hand and the Southern colonies on the other

- (D) extent to which Massachusetts and Connecticut served as cultural models for the other American colonies
- (E) extent to which colonial America resisted assimilating cultural patterns that were typically English
24. The author of the passage is in agreement with which of the following elements of Davis' book?
- I. Davis' claim that acquisitiveness was a characteristic unique to the South during the Colonial period
  - II. Davis' argument that there were significant differences between Puritan and Southern culture during the Colonial period
  - III. Davis' thesis that the Southern colonies shared a common culture
- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) II and III only
25. It can be inferred from the passage that the author would find Davis' second premise (lines 18-20) more plausible if it were true that
- (A) Puritan culture had displayed the tendency characteristic of the South to cultivate metropolitan cultural models
  - (B) Puritan culture had been dominant in all the non-Southern colonies during the seventeenth and eighteen centuries
  - (C) the communal impulse and a strong religious orientation had been more prevalent in the South
  - (D) the various cultural patterns of the Southern colonies had more closely resembled each other
  - (E) the cultural patterns characteristic of most early modern British colonies had also been characteristic of the Puritan colonies
26. The passage suggests that by the late Colonial period the tendency to cultivate metropolitan cultural models was a cultural pattern that was
- (A) dying out as Puritan influence began to grow
  - (B) self-consciously and distinctively Southern
  - (C) spreading to Massachusetts and Connecticut
  - (D) more characteristic of the Southern colonies than of England
  - (E) beginning to spread to Rhode Island and New Hampshire
27. Which of the following statements could most logically follow the last sentence of the passage?
- (A) Thus, had more attention been paid to the evidence, Davis would not have

been tempted to argue that the culture of the South diverged greatly from Puritan culture in the seventeenth century.

- (B) Thus, convergence, not divergence, seems to have characterized the cultural development of the American colonies in the eighteenth century.
- (C) Thus, without the cultural diversity represented by the America South, the culture of colonial America would certainly have been homogeneous in nature.
- (D) Thus, the contribution of Southern colonials to American culture was certainly overshadowed by that of the Puritans.
- (E) Thus, the culture of America during the Colonial period was far more sensitive to outside influences than historians are accustomed to acknowledge.

## SECTION B

For some time scientists have believed that cholesterol plays a major role in heart disease because people with familial **hypercholesterolemia**, a genetic defect, have six to eight times the normal level of cholesterol in their blood and they invariably develop heart disease. These people lack cell-surface receptors for low-density lipoproteins (LDL's), which are the fundamental carriers of blood cholesterol to the body cells that use cholesterol. Without an adequate number of cell-surface receptors to remove LDL's from the blood, the cholesterol-carrying LDL's remain in the blood, increasing blood cholesterol levels. Scientists also noticed that people with familial hypercholesterolemia appear to produce more LDL's than normal individuals. How, scientists wondered, could a genetic mutation that causes a slowdown in the removal of LDL's from the blood also result in an increase in the synthesis of this cholesterol-carrying protein?

Since scientists could not experiment on human body tissue, their knowledge of familial hypercholesterolemia was severely limited. However, a breakthrough came in the laboratories of Yoshio Watanabe of Kobe University in Japan in 1980. Watanabe noticed that a male rabbit in his colony had ten times the normal concentration of cholesterol in its blood. By appropriate breeding, Watanabe obtained a strain of rabbits that had very high cholesterol levels. These rabbits spontaneously developed heart disease. To his surprise, Watanabe further found that the rabbits, like humans with familial hypercholesterolemia, lacked LDL receptors. Thus, scientists could study these Watanabe rabbits to gain a better understanding of familial hypercholesterolemia in humans.

Prior to the breakthrough at Kobe University, it was known that LDL's are secreted from the liver in the form of a precursor, called very low-density lipoproteins (VLDL's), which carry **triglycerides** as well as relatively small amounts of cholesterol. The triglycerides are removed from the VLDL's by fatty and other tissues. What remains is a remnant particle that must be removed from the blood. What scientists learned by studying the Watanabe rabbits is that the removal of the VLDL remnant requires the LDL receptor. Normally, the majority of the VLDL remnants go to the liver where they bind to LDL receptors and are degraded. In the Watanabe rabbit, due to a lack of LDL receptors on liver cells, the VLDL remnants remain in the blood and



are eventually converted to LDL's. The LDL receptors thus have a dual effect in controlling LDL levels. They are necessary to prevent oversynthesis of LDL's from VLDL remnants and they are necessary for the normal removal of LDL's from the blood. With this knowledge, scientists are now well on the way toward developing drugs that dramatically lower cholesterol levels in people afflicted with certain forms of familial hypercholesterolemia.

17. In the passage, the author is primarily concerned with
- (A) presenting a hypothesis and describing compelling evidence in support of it
  - (B) raising a question and describing an important discovery that led to an answer
  - (C) showing that a certain genetically caused disease can be treated effectively with drugs
  - (D) explaining what causes the genetic mutation that leads to heart disease
  - (E) discussing the importance of research on animals for the study of human disease
18. Which of the following drugs, if developed, would most likely be an example of the kind of drug mentioned in line 53?
- (A) A drug that stimulates the production of VLDL remnants
  - (B) A drug that stimulates the production of LDL receptors on the liver
  - (C) A drug that stimulates the production of an enzyme needed for cholesterol production
  - (D) A drug that suppresses the production of body cells that use cholesterol
  - (E) A drug that prevents triglycerides from attaching to VLDL's
19. The passage supplies information to answer which of the following questions?
- (A) Which body cells are the primary users of cholesterol?
  - (B) How did scientists discover that LDL's are secreted from the liver in the form of a precursor?
  - (C) Where in the body are VLDL remnants degraded?
  - (D) Which body tissues produce triglycerides?
  - (E) What techniques are used to determine the presence or absence of cell-surface receptors?
20. According to the passage, by studying the Watanabe rabbits scientists learned that
- (A) VLDL remnants are removed from the blood by LDL receptors in the liver
  - (B) LDL's are secreted from the liver in the form of precursors called VLDL's
  - (C) VLDL remnant particles contain small amounts of cholesterol
  - (D) triglycerides are removed from VLDL's by fatty tissues
  - (E) LDL receptors remove LDL's from the blood
21. The development of drug treatments for some forms of familial hypercholesterolemia is regarded by the author as
- (A) possible, but not very important

- (B) interesting, but too costly to be practical
  - (C) promising, but many years off
  - (D) extremely unlikely
  - (E) highly probable
22. The passage implies that if the Watanabe rabbits had had as many LDL receptors on their livers as do normal rabbits, the Watanabe rabbits would have been
- (A) less likely than normal rabbits to develop heart disease
  - (B) less likely than normal rabbits to develop high concentrations of cholesterol in their blood
  - (C) less useful than they actually were to scientists in the study of familial hypercholesterolemia in humans
  - (D) unable to secrete VLDL's from their livers
  - (E) immune to drugs that lower cholesterol levels in people with certain forms of familial hypercholesterolemia
23. The passage implies that Watanabe rabbits differ from normal rabbits in which of the following ways?
- (A) Watanabe rabbits have more LDL receptors than do normal rabbits.
  - (B) The blood of Watanabe rabbits contains more VLDL remnants than does the blood of normal rabbits.
  - (C) Watanabe rabbits have fewer fatty tissues than do normal rabbits.
  - (D) Watanabe rabbits secrete lower levels of VLDL's than do normal rabbits.
  - (E) The blood of Watanabe rabbits contains fewer LDL's than does the blood of normal rabbits.

(The article from which this passage was taken appeared in 1981.)

When speaking of Romare Bearden, one is tempted to say, "A great Black American artist." The subject matter of Bearden's collages is certainly Black. Portrayals of the folk of Mecklenburg County, North Carolina, whom he remembers from early childhood, of the jazz musicians and tenement roofs of his Harlem days, of Pittsburgh steelworkers, and his reconstruction of classical Greek myths in the guise of the ancient Black kingdom of Benin, attest to this. In natural harmony with this choice of subject matter are the social sensibilities of the artist, who remains active today with the Cinque Gallery in Manhattan, which he helped found and which is devoted to showing the work of minority artists.

Then why not call Bearden a Black American artist? Because ultimately this categorization is too narrow. "What stands up in the end is structure," Bearden says. "What I try to do is amplify. If I were just creating a picture of a farm woman from back home, it would have meaning to her and people there. But art amplifies itself to something universal."

24. According to the passage, all of the following are depicted in Bearden's collages EXCEPT:
- (A) workers in Pittsburgh's steel mills

- (B) scenes set in the ancient kingdom of Benin
  - (C) people Bearden knew as a child
  - (D) traditional representations of the classical heroes of Greek mythology
  - (E) the jazz musicians of the Harlem Bearden used to know
25. The author suggests that Bearden should not be called a Black American artist because
- (A) there are many collages by Bearden in which the subject matter is not Black
  - (B) Bearden's work reflects the Black American experience in a highly individual style
  - (C) through the structure of Bearden's art his Black subjects come to represent all of humankind
  - (D) Bearden's true significance lies not so much in his own work as in his efforts to help other minority artists
  - (E) much of Bearden's work uses the ancient Black kingdom of Benin for its setting
26. Bearden's social sensibilities and the subject matter of his collages are mentioned by the author in order to explain
- (A) why one might be tempted to call Bearden a Black American artist
  - (B) why Bearden cannot be readily categorized
  - (C) why Bearden's appeal is thought by many to be ultimately universal
  - (D) how deeply an artist's artistic creations are influenced by the artist's social conscience
  - (E) what makes Bearden unique among contemporary Black American artists
27. The author of the passage is chiefly concerned with
- (A) discussing Bearden's philosophy of art
  - (B) assessing the significance of the ethnic element in Bearden's work
  - (C) acknowledging Bearden's success in giving artistic expression to the Black American experience
  - (D) pointing out Bearden's helpfulness to other minority artists
  - (E) tracing Bearden's progress toward artistic maturity

No. 9-5

## SECTION A

Zooplankton, tiny animals adapted to an existence in the ocean, have evolved clever mechanisms for obtaining their food, miniscule phytoplankton (plant plankton). A very specialized feeding adaptation in zooplankton is that of the tadpolelike appendicularian who lives in a walnut-sized (or smaller) balloon of mucus equipped with filters that capture and

concentrate phytoplankton. The balloon, a transparent structure that varies in design according to the type of appendicularian in habiting it, also protects the animal and helps to keep it afloat. Water containing phytoplankton is pumped by the appendicularian's muscular tail into the balloon's incurrent filters, passes through the feeding filter where the appendicularian sucks the food into its mouth, and then goes through an exit passage. Found in all the oceans of the world, including the Arctic Ocean, appendicularians tend to remain near the water's surface where the density of phytoplankton is greatest.

17. It can be inferred from the passage that which of the following is true of appendicularians?
- (A) They are exclusively carnivorous.
  - (B) They have more than one method of obtaining food.
  - (C) They can tolerate frigid water.
  - (D) They can disguise themselves by secreting mucus.
  - (E) They are more sensitive to light than are other zooplankton.
18. The author is primarily concerned with
- (A) explaining how appendicularians obtain food
  - (B) examining the flotation methods of appendicularians
  - (C) mapping the distribution of appendicularians around the world
  - (D) describing how appendicularians differ from other zooplankton
  - (E) comparing the various types of balloons formed by appendicularians
19. According to the passage, all of the following are descriptive of appendicularians EXCEPT:
- (A) tailed
  - (B) vegetarian
  - (C) small-sized
  - (D) single-celled
  - (E) ocean-dwelling
20. The passage suggests that appendicularians tend to remain in surface waters because they
- (A) prefer the warmer water near the surface
  - (B) are unable to secrete mucus at the lower levels of the ocean
  - (C) use the contrast of light and shadow at the surface to hide from predators
  - (D) live in balloons that cannot withstand the water pressure deeper in the ocean
  - (E) eat food that grows more profusely near the surface

Students of United States history, seeking to identify the circumstances that encouraged the emergence of feminist movements, have thoroughly investigated the mid-nineteenth-century American economic and social conditions that affected the status of women. These historians, however, have analyzed less fully the development of specifically

feminist ideas and activities during the same period. Furthermore, the ideological origins of feminism in the United States have been obscured because, even when historians did take into account those feminist ideas and activities occurring within the United States, they failed to recognize that feminism was then a truly international movement actually centered in Europe. American feminist activists who have been described as “solitary” and “individual theorists” were **in reality** connected to a movement—utopian socialism—which was already popularizing feminist ideas in Europe during the two decades that culminated in the first women’s rights conference held at Seneca Falls, New York, in 1848. Thus, a complete understanding of the origins and development of nineteenth-century feminism in the United States requires that the geographical focus be widened to include Europe and that the detailed study already made of social conditions be expanded to include the ideological development of feminism.

The earliest and most popular of the utopian socialists were the Saint-Simonians. The specifically feminist part of Saint-Simonianism has, however, been less studied than the group’s contribution to early socialism. This is regrettable on two counts. **By 1832** feminism was the central concern of Saint-Simonianism and entirely absorbed its adherents’ energy; hence, by ignoring its feminism, European historians have misunderstood Saint-Simonianism. Moreover, since many feminist ideas can be traced to Saint-Simonianism, European historians’ appreciation of later feminism in France and the United States remained limited.

Saint-Simon’s followers, many of whom were women, based their feminism on an interpretation of his project to reorganize the globe by replacing brute force with the rule of spiritual powers. The new world order would be ruled together by a male, to represent reflection, and a female, to represent sentiment. This complementarity reflects the fact that, while the Saint-Simonians did not reject the belief that there were innate differences between men and women, they nevertheless foresaw an equally important social and political role for both sexes in their utopia.

Only a few Saint-Simonians opposed a definition of sexual equality based on gender distinction. This minority believed that individuals of both sexes were born similar in capacity and character, and they ascribed male-female differences to socialization and education. The envisioned result of both currents of thought, however, was that women would enter public life in the new age and that sexual equality would reward men as well as women with an improved way of life.

21. It can be inferred that the author considers those historians who describe early feminists in the United States as “solitary” to be
- (A) insufficiently familiar with the international origins of nineteenth-century American feminist thought
  - (B) overly concerned with the regional diversity of feminist ideas in the period before 1848
  - (C) not focused narrowly enough in their geographical scope
  - (D) insufficiently aware of the ideological consequences of the Seneca Falls conference
  - (E) insufficiently concerned with the social conditions out of which feminism developed

22. According to the passage, which of the following is true of the Seneca Falls conference on women's rights?
- (A) It was primarily a product of nineteenth-century Saint-Simonian feminist thought.
  - (B) It was the work of American activists who were independent of feminists abroad.
  - (C) It was the culminating achievement of the utopian socialist movement.
  - (D) It was a manifestation of an international movement for social change and feminism.
  - (E) It was the final manifestation of the women's rights movement in the United States in the nineteenth century.
23. The author's attitude toward most European historians who have studied the Saint-Simonians is primarily one of
- (A) approval of the specific focus of their research
  - (B) disapproval of their lack of attention to the issue that absorbed most of the Saint-Simonians' energy after 1832
  - (C) approval of their general focus on social conditions
  - (D) disapproval of their lack of attention to links between the Saint-Simonians and their American counterparts
  - (E) disagreement with their interpretation of the Saint-Simonian belief in sexual equality
24. The author mentions all of the following as characteristic of the Saint-Simonians EXCEPT:
- (A) The group included many women among its members.
  - (B) The group believed in a world that would be characterized by sexual equality.
  - (C) The group was among the earliest European socialist groups.
  - (D) Most members believed that women should enter public life.
  - (E) Most members believed that women and men were inherently similar in ability and character.
25. It can be inferred from the passage that the Saint-Simonians envisioned a utopian society having which of the following characteristics?
- (A) It would be worldwide.
  - (B) It would emphasize dogmatic religious principles.
  - (C) It would most influence the United States.
  - (D) It would have armies composed of women rather than of men.
  - (E) It would continue to develop new feminist ideas.
26. It can be inferred from the passage that the author believes that study of Saint-Simonianism is necessary for historians of American feminism because



such study

- (A) would clarify the ideological origins of those feminist ideas that influenced American feminism
- (B) would increase understanding of a movement that deeply influenced the utopian socialism of early American feminists
- (C) would focus attention on the most important aspect of Saint-Simonian thought before 1832
- (D) promises to offer insight into a movement that was a direct outgrowth of the Seneca Falls conference of 1848
- (E) could increase understanding of those ideals that absorbed most of the energy of the earliest American feminists

27. According to the passage, which of the following would be the most accurate description of the society envisioned by most Saint-Simonians?
- (A) A society in which women were highly regarded for their extensive education
  - (B) A society in which the two genders played complementary roles and had equal status
  - (C) A society in which women did not enter public life
  - (D) A social order in which a body of men and women would rule together on the basis of their spiritual power
  - (E) A social order in which distinctions between male and female would not exist and all would share equally in political power

## SECTION B

Historically, a cornerstone of classical empiricism has been the notion that every true generalization must be confirmable by specific observations. In classical empiricism, the truth of "All balls are red," for example, is assessed by inspecting balls; any observation of a *non* red ball refutes unequivocally the proposed generalization.

For W. V. O. Quine, however, this constitutes an overly "narrow" conception of empiricism. "All balls are red," he maintains, forms one strand within an entire web of statements (our knowledge); individual observations can be referred only to this web as a whole. As new observations are collected, he explains, they must be integrated into the web. Problems occur only if a contradiction develops between a new observation, say, "That ball is blue," and the preexisting statements. In that case, he argues, *any* statement or combination of statements (not merely the "offending" generalization, as in classical empiricism) can be altered to achieve the fundamental requirement, a system free of contradictions, even if, in some cases, the alteration consists of labeling the new observation a "hallucination."

17. The author of the passage is primarily concerned with presenting
- (A) criticisms of Quine's views on the proper conceptualization of empiricism
  - (B) evidence to support Quine's claims about the problems inherent in classical empiricism

- (C) an account of Quine's counterproposal to one of the traditional assumptions of classical empiricism
  - (D) an overview of classical empiricism and its contributions to Quine's alternate understanding of empiricism
  - (E) a history of classical empiricism and Quine's reservations about it
18. According to Quine's conception of empiricism, if a new observation were to contradict some statement already within our system of knowledge, which of the following would be true?
- (A) The new observation would be rejected as untrue.
  - (B) Both the observation and the statement in our system that it contradicted would be discarded.
  - (C) New observations would be added to our web of statements in order to expand our system of knowledge.
  - (D) The observation or some part of our web of statements would need to be adjusted to resolve the contradiction.
  - (E) An entirely new field of knowledge would be created.
19. As described in the passage, Quine's specific argument against classical empiricism would be most strengthened if he did which of the following?
- (A) Provided evidence that many observations are actually hallucinations.
  - (B) Explained why new observations often invalidate preexisting generalizations.
  - (C) Challenged the mechanism by which specific generalizations are derived from collections of particular observations.
  - (D) Mentioned other critics of classical empiricism and the substance of their approaches.
  - (E) Gave an example of a specific generalization that has not been invalidated despite a contrary observation.
20. It can be inferred from the passage that Quine considers classical empiricism to be "overly 'narrow'" (lines 7-8) for which of the following reasons?
- I. Classical empiricism requires that our system of generalizations be free of contradictions.
  - II. Classical empiricism demands that in the case of a contradiction between an individual observation and a generalization, the generalization must be abandoned.
  - III. Classical empiricism asserts that every observation will either confirm an existing generalization or initiate a new generalization.
- (A) II only
  - (B) I and II only
  - (C) I and III only
  - (D) II and III only

(E) I, II, and III

Until recently astronomers have been puzzled by the fate of red giant and supergiant stars. When the core of a giant star whose mass surpasses 1.4 times the present mass of our Sun ( $M_{\odot}$ ) exhausts its nuclear fuel, it is unable to support its own weight and collapses into a tiny neutron star. The gravitational energy released during this implosion of the core blows off the remainder of the star in a gigantic explosion, or a supernova. Since around 50 percent of all stars are believed to begin their lives with masses greater than  $1.4M_{\odot}$ , we might expect that one out of every two stars would die as a supernova. But in fact, only one star in thirty dies such a violent death. The rest expire much more peacefully as planetary nebulas. Apparently most massive stars manage to lose sufficient material that their masses drop below the critical value of  $1.4 M_{\odot}$  before they exhaust their nuclear fuel.

Evidence supporting this view comes from observations of IRC+10216, a pulsating giant star located 700 light-years away from Earth. A huge rate of mass loss ( $1 M_{\odot}$  every 10,000 years) has been deduced from infrared observations of ammonia ( $\text{NH}_3$ ) molecules located in the circumstellar cloud around IRC+10216. Recent microwave observations of carbon monoxide ( $\text{CO}$ ) molecules indicate a similar rate of mass loss and demonstrate that the escaping material extends outward from the star for a distance of at least one light-year. Because we know the size of the cloud around IRC+10216 and can use our observations of either  $\text{NH}_3$  or  $\text{CO}$  to measure the outflow velocity, we can calculate an age for the circumstellar cloud. IRC+10216 has apparently expelled, in the form of molecules and dust grains, a mass equal to that of our entire Sun within the past ten thousand years. This implies that some stars can shed huge amounts of matter very quickly and thus may never expire as supernovas. Theoretical models as well as statistics on supernovas and planetary nebulas suggest that stars that begin their lives with masses around  $6 M_{\odot}$  shed sufficient material to drop below the critical value of  $1.4 M_{\odot}$ . IRC+10216, for example, should do this in a mere 50,000 years from its birth, only an instant in the life of a star.

But what place does IRC+10216 have in stellar evolution? Astronomers suggest that stars like IRC+10216 are actually "protoplanetary nebulas"—old giant stars whose dense cores have almost but not quite rid themselves of the fluffy envelopes of gas around them. Once the star has lost the entire envelope, its exposed core becomes the central star of the planetary nebula and heats and ionizes the last vestiges of the envelope as it flows away into space. This configuration is a full-fledged planetary nebula, long familiar to optical astronomers.

21. The primary purpose of the passage is to
- (A) offer a method of calculating the age of circumstellar clouds
  - (B) describe the conditions that result in a star's expiring as a supernova
  - (C) discuss new evidence concerning the composition of planetary nebulas
  - (D) explain why fewer stars than predicted expire as supernovas
  - (E) survey conflicting theories concerning the composition of circumstellar clouds
22. The passage implies that at the beginning of the life of IRC+10216, its mass was approximately

- (A)  $7.0 M_{\odot}$
  - (B)  $6.0 M_{\odot}$
  - (C)  $5.0 M_{\odot}$
  - (D)  $1.4 M_{\odot}$
  - (E)  $1.0 M_{\odot}$
23. The view to which line 18 refers serves to
- (A) reconcile seemingly contradictory facts
  - (B) undermine a previously held theory
  - (C) take into account data previously held to be insignificant
  - (D) resolve a controversy
  - (E) question new methods of gathering data
24. It can be inferred from the passage that the author assumes which of the following in the discussion of the rate at which IRC+10216 loses mass?
- (A) The circumstellar cloud surrounding IRC+10216 consists only of CO and  $\text{NH}_3$  molecules.
  - (B) The circumstellar cloud surrounding IRC+10216 consists of material expelled from that star.
  - (C) The age of a star is equal to that of its circumstellar cloud.
  - (D) The rate at which IRC+10216 loses mass varies significantly from year to year.
  - (E) Stars with a mass greater than  $6 M_{\odot}$  lose mass at a rate faster than stars with a mass less than  $6 M_{\odot}$  do.
25. According to information provided by the passage, which of the following stars would astronomers most likely describe as a planetary nebula?
- (A) A star that began its life with a mass of  $5.5 M_{\odot}$ , has exhausted its nuclear fuel, and has a core that is visible to astronomers
  - (B) A star that began its life with a mass of  $6 M_{\odot}$ , lost mass at a rate of  $1 M_{\odot}$  per 10,000 years, and exhausted its nuclear fuel in 40,000 years
  - (C) A star that has exhausted its nuclear fuel, has a mass of  $1.2 M_{\odot}$ , and is surrounded by a circumstellar cloud that obscures its core from view
  - (D) A star that began its life with a mass greater than  $6 M_{\odot}$ , has just recently exhausted its nuclear fuel, and is in the process of releasing massive amounts of gravitational energy
  - (E) A star that began its life with a mass of  $5.5 M_{\odot}$ , has yet to exhaust its nuclear fuel, and exhibits a rate of mass loss similar to that of IRC+10216
26. Which of the following statements would be most likely to follow the last sentence of the passage?
- (A) Supernovas are not necessarily the most spectacular events that astronomers

have occasion to observe.

- (B) Apparently, stars that have a mass of greater than  $6 M_{\odot}$  are somewhat rare.
- (C) Recent studies of CO and  $\text{NH}_3$  in the circumstellar clouds of stars similar to IRC+10216 have led astronomers to believe that the formation of planetary nebulas precedes the development of supernovas.
- (D) It appears, then, that IRC+10216 actually represents an intermediate step in the evolution of a giant star into a planetary nebula.
- (E) Astronomers have yet to develop a consistently accurate method for measuring the rate at which a star exhausts its nuclear fuel.

27. Which of the following titles best summarizes the content of the passage?

- (A) New Methods of Calculating the Age of Circumstellar Clouds
- (B) New Evidence Concerning the Composition of Planetary Nebulas
- (C) Protoplanetary Nebula: A Rarely Observed Phenomenon
- (D) Planetary Nebulas: An Enigma to Astronomers
- (E) The Diminution of a Star's Mass: A Crucial Factor in Stellar Evolution

No. 9-6

## SECTION A

(This passage is from an article published in 1973)

The recent change to all-volunteer armed forces in the United States will eventually produce a gradual increase in the proportion of women in the armed forces and in the variety of women's assignments, but probably not the dramatic gains for women that might have been expected. This is so even though the armed forces operate in an ethos of institutional change oriented toward occupational equality and under the federal sanction of equal pay for equal work. The difficulty is that women are unlikely to be trained for any direct combat operations. A significant portion of the larger society remains uncomfortable as yet with extending equality in this direction. Therefore, for women in the military, the search for equality will still be based on functional equivalence, not identity or even similarity of task. Opportunities seem certain to arise. The growing emphasis on deterrence is bound to offer increasing scope for women to become involved in novel types of noncombat military assignments.

17. The primary purpose of the passage is to

- (A) present an overview of the different types of assignments available to women in the new United States all-volunteer armed forces
- (B) present a **reasoned** prognosis of the status of women in the new United States all-volunteer armed forces
- (C) present the new United States all-volunteer armed forces as a model case of equal employment policies in action
- (D) analyze reforms in the new United States all-volunteer armed forces

- necessitated by the increasing number of women in the military
- (E) analyze the use of functional equivalence as a substitute for occupational equality in the new United States all-volunteer armed forces
18. According to the passage, despite the United States armed forces' commitment to occupational equality for women in the military, certain other factors preclude women's
- (A) receiving equal pay for equal work
  - (B) having access to positions of responsibility at most levels
  - (C) drawing assignments from a wider range of assignments than before
  - (D) benefiting from opportunities arising from new noncombat functions
  - (E) being assigned all of the military tasks that are assigned to men
19. The passage implies that which of the following is a factor conducive to a more equitable representation of women in the United States armed forces than has existed in the past?
- (A) The all-volunteer character of the present armed forces
  - (B) The past service records of women who had assignments functionally equivalent to men's assignments
  - (C) The level of awareness on the part of the larger society of military issues
  - (D) A decline in the proportion of deterrence oriented noncombat assignments
  - (E) Restrictive past policies governing the military assignments open to women
20. The "dramatic gains for women" (line 5) and the attitude, as described in lines 11-12, of a "significant portion of the larger society" are logically related to each other **inasmuch as** the author puts forward the latter as
- (A) a public response to achievement of the former
  - (B) the major reason for absence of the former
  - (C) a precondition for any prospect of achieving the former
  - (D) a catalyst for a further extension of the former
  - (E) a reason for some of the former being lost again

Of the thousands of specimens of meteorites found on Earth and known to science, only about 100 are igneous; that is, they have undergone melting by volcanic action at some time since the planets were first formed. These igneous meteorites are known as achondrites because they lack chondrules—small stony spherules found in the thousands of meteorites (called "chondrites") composed primarily of unaltered minerals that condensed from dust and gas at the origin of the solar system. Achondrites are the only known samples of volcanic rocks originating outside the Earth-Moon system. Most are thought to have been dislodged by interbody impact from asteroids, with diameters of from 10 to 500 kilometers, in solar orbit between Mars and Jupiter.

Shergottites, the name given to three anomalous achondrites so far discovered on Earth, present scientists with a genuine enigma. Shergottites crystallized from molten rock less than



1.1 billion years ago (some 3.5 billion years later than typical achondrites) and were presumably ejected into space when an object impacted on a body similar in chemical composition to Earth.

While most meteorites appear to derive from comparatively small bodies, shergottites exhibit properties that indicate that their source was a large planet, conceivably Mars. In order to account for such an unlikely source, some unusual factor must be invoked, because the impact needed to accelerate a fragment of rock to escape the gravitational field of a body even as small as the Moon is so great that no meteorites of lunar origin have been discovered.

While some scientists speculate that shergottites derive from Io (a volcanically active moon of Jupiter), recent measurements suggest that since Io's surface is rich in sulfur and sodium, the chemical composition of its volcanic products would probably be unlike that of the shergottites. Moreover, any fragments dislodged from Io by interbody impact would be unlikely to escape the gravitational pull of Jupiter.

The only other logical source of shergottites is Mars. Space-probe photographs indicate the existence of giant volcanoes on the Martian surface. From the small number of impact craters that appear on Martian lava flows, one can estimate that the planet was volcanically active as recently as a half-billion years ago—and may be active today. The great objection to the Martian origin of shergottites is the absence of lunar meteorites on Earth. An impact capable of ejecting a fragment of the Martian surface into an Earth-intersecting orbit is even less probable than such an event on the Moon, **in view of** the Moon's smaller size and closer proximity to Earth. A recent study suggests, however, that permafrost ices below the surface of Mars may have altered the effects of impact on it. If the ices had been rapidly vaporized by an impacting object, the expanding gases might have helped the ejected fragments reach **escape velocity**. Finally, analyses performed by space probes show a remarkable chemical similarity between Martian soil and the shergottites.

21. The passage implies which of the following about shergottites?
- I. They are products of volcanic activity.
  - II. They derive from a planet larger than Earth.
  - III. They come from a planetary body with a chemical composition similar to that of Io.
- (A) I only  
(B) II only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III
22. According to the passage, a meteorite discovered on Earth is unlikely to have come from a large planet for which of the following reasons?
- (A) There are fewer large planets in the solar system than there are asteroids.
  - (B) Most large planets have been volcanically inactive for more than a billion years.

- (C) The gravitational pull of a large planet would probably prohibit fragments from escaping its orbit.
  - (D) There are no chondrites occurring naturally on Earth and probably none on other large planets.
  - (E) Interbody impact is much rarer on large than on small planets because of the density of the atmosphere on large planets.
23. The passage suggests that the age of shergottites is probably
- (A) still entirely undetermined
  - (B) less than that of most other achondrites
  - (C) about 3.5 billion years
  - (D) the same as that of typical achondrites
  - (E) greater than that of the Earth
24. According to the passage, the presence of chondrules in a meteorite indicates that the meteorite
- (A) has probably come from Mars
  - (B) is older than the solar system itself
  - (C) has not been melted since the solar system formed
  - (D) is certainly less than 4 billion years old
  - (E) is a small fragment of an asteroid
25. The passage provides information to answer which of the following questions?
- (A) What is the precise age of the solar system?
  - (B) How did shergottites get their name?
  - (C) What are the chemical properties shared by shergottites and Martian soils?
  - (D) How volcanically active is the planet Jupiter?
  - (E) What is a major feature of the Martian surface?
26. It can be inferred from the passage that each of the following is a consideration in determining whether a particular planet is a possible source of shergottites that have been discovered on Earth EXCEPT the
- (A) planet's size
  - (B) planet's distance from Earth
  - (C) strength of the planet's field of gravity
  - (D) proximity of the planet to its moons
  - (E) chemical composition of the planet's surface
27. It can be inferred from the passage that most meteorites found on Earth contain which of the following?
- (A) Crystals
  - (B) Chondrules

- (C) Metals
- (D) Sodium
- (E) Sulfur

## SECTION 8

The transplantation of organs from one individual to another normally involves two major problems: (1) organ rejection is likely unless the transplantation **antigens** of both individuals are nearly identical, and (2) the introduction of any unmatched transplantation antigens induces the development by the recipient of donor-specific lymphocytes that will produce violent rejection of further transplantations from that donor. However, we have found that among many strains of rats these "normal" rules of transplantation are not obeyed by liver transplants. Not only are liver transplants never rejected, but they even induce a state of donor-specific unresponsiveness in which subsequent transplants of other organs, such as skin, from that donor are accepted permanently. Our hypothesis is that (1) many strains of rats simply cannot mount a sufficiently vigorous destructive immune-response (using lymphocytes) to outstrip the liver's relatively great capacity to protect itself from immune-response damage and that (2) the systemic unresponsiveness observed is due to concentration of the recipient's donor-specific lymphocytes at the site of the liver transplant.

17. The primary purpose of the passage is to treat the accepted generalizations about organ transplantation in which of the following ways?
- (A) Explicate their main features
  - (B) Suggest an alternative to them
  - (C) Examine their virtues and limitations
  - (D) Criticize the major evidence used to support them
  - (E) Present findings that qualify them
18. It can be inferred from the passage that the author believes that an important difference among strains of rats is the
- (A) size of their livers
  - (B) constitution of their skin
  - (C) strength of their immune-response reactions
  - (D) sensitivity of their antigens
  - (E) adaptability of their lymphocytes
19. According to the hypothesis of the author, after a successful liver transplant, the reason that rats do not reject further transplants of other organs from the same donor is that the
- (A) transplantation antigens of the donor and the recipient become matched
  - (B) lymphocytes of the recipient are weakened by the activity of the transplanted liver
  - (C) subsequently transplanted organ is able to repair the damage caused by the

- recipient's immune-response reaction
- (D) transplanted liver continues to be the primary locus for the recipient's immune-response reaction
- (E) recipient is unable to manufacture the lymphocytes necessary for the immune-response reaction
20. Which of the following new findings about strains of rats that do not normally reject liver transplants, if true, would support the authors' hypothesis?
- I. Stomach transplants are accepted by the recipients in all cases.
  - II. Increasing the strength of the recipient's immune-response reaction can induce liver-transplant rejection.
  - III. Organs from any other donor can be transplanted without rejection after liver transplantation.
  - IV. Preventing lymphocytes from being concentrated at the liver transplant produces acceptance of skin transplants.
- (A) II only
- (B) I and III only
- (C) II and IV only
- (D) I, II, and III only
- (E) I, III, and IV only

Practically speaking, the artistic maturing of the cinema was the single-handed achievement of David W. Griffith (1875-1948). Before Griffith, photography in dramatic films consisted of **little more than** placing the actors before a stationary camera and showing them in full length as they would have appeared on stage. From the beginning of his career as a director, however, Griffith, because of his love of Victorian painting, employed composition. He conceived of the camera image as having a foreground and a rear ground, as well as the middle distance preferred by most directors. By 1910 he was using close-ups to reveal significant details of the scene or of the acting and extreme long shots to achieve a sense of spectacle and distance. His appreciation of the camera's possibilities produced novel dramatic effects. By splitting an event into fragments and recording each from the most suitable camera position, he could significantly vary the emphasis from camera shot to camera shot.

Griffith also achieved dramatic effects by means of creative editing. By juxtaposing images and varying the speed and rhythm of their presentation, he could control the dramatic intensity of the events as the story progressed. Despite the reluctance of his producers, who feared that the public would not be able to follow a plot that was made up of such juxtaposed images, Griffith persisted, and experimented as well with other elements of cinematic syntax that have become standard **ever since**. These included the flashback, permitting broad psychological and emotional exploration as well as narrative that was not chronological, and the crosscut between two parallel actions to heighten suspense and excitement. In thus exploiting fully the possibilities of editing, Griffith transposed devices of the Victorian novel to film and gave film mastery of time as well as space.

Besides developing the cinema's language, Griffith immensely broadened its range and

treatment of subjects. His early output was remarkably eclectic: it included not only the standard comedies, melodramas, westerns, and thrillers, but also such novelties as adaptations from Browning and Tennyson, and treatments of social issues. As his successes mounted, his ambitions grew, and with them the whole of American cinema. When he remade *Enoch Arden* in 1911, he insisted that a subject of such importance could not be treated in the then conventional length of one reel. Griffith's introduction of the American-made multireel picture began an immense revolution. Two years later, *Judith of Bethulia*, an elaborate historicophilosophical spectacle, reached the unprecedented length of four reels, or one hour's **running time**. From our contemporary viewpoint, the pretensions of this film may seem a trifle ludicrous, but at the time it provoked endless debate and discussion and gave a new intellectual respectability to the cinema.

21. The primary purpose of the passage is to
- (A) discuss the importance of Griffith to the development of the cinema
  - (B) describe the impact on cinema of the flashback and other editing innovations
  - (C) deplore the state of American cinema before the advent of Griffith
  - (D) analyze the changes in the cinema wrought by the introduction of the multireel film
  - (E) document Griffith's impact on the choice of subject matter in American films
22. The author suggests that Griffith's film innovations had a direct effect on all of the following EXCEPT:
- (A) film editing
  - (B) camera work
  - (C) scene composing
  - (D) sound editing
  - (E) directing
23. It can be inferred from the passage that before 1910 the normal running time of a film was
- (A) 15 minutes or less
  - (B) between 15 and 30 minutes
  - (C) between 30 and 45 minutes
  - (D) between 45 minutes and 1 hour
  - (E) 1 hour or more
24. The author asserts that Griffith introduced all of the following into American cinema EXCEPT:
- (A) consideration of social issues
  - (B) adaptations from Tennyson
  - (C) the flashback and other editing techniques
  - (D) photographic approaches inspired by Victorian painting

- (E) dramatic plots suggested by Victorian theater
25. The author suggests that Griffith's contributions to the cinema had which of the following results?
- I. Literary works, especially Victorian novels, became popular sources for film subjects.
  - II. Audience appreciation of other film directors' experimentations with cinematic syntax was increased.
  - III. Many of the artistic limitations thought to be inherent in filmmaking were shown to be really nonexistent.
- (A) II only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III
26. It can be inferred from the passage that Griffith would be most likely to agree with which of the following statements?
- (A) The good director will attempt to explore new ideas as quickly as possible.  
(B) The most important element contributing to a film's success is the ability of the actors.  
(C) The camera must be considered an integral and active element in the creation of a film.  
(D) The cinema should emphasize serious and sober examinations of fundamental human problems.  
(E) The proper composition of scenes in a film is more important than the details of their editing.
27. The author's attitude toward photography in the cinema before Griffith can best be described as
- (A) sympathetic  
(B) nostalgic  
(C) amused  
(D) condescending  
(E) hostile



Because of its accuracy in outlining the Earth's subsurface, the seismic-reflection method remains the most important tool in the search for **petroleum reserves**. In field practice, a subsurface is mapped by arranging a series of wave-train sources, such as small dynamite explosions, in a grid pattern. As each source is activated, it generates a wave train that moves downward at a speed determined uniquely by the rock's elastic characteristics. As rock interfaces are crossed, the elastic characteristics encountered generally change abruptly, which causes part of the energy to be reflected back to the surface, where it is recorded by seismic instruments. The seismic records must be processed to correct for positional differences between the source and the receiver, for unrelated wave trains, and for multiple reflections from the rock interfaces. Then the data acquired at each of the specific source locations are combined to generate a physical profile of the subsurface, which can eventually be used to select targets for drilling.

17. The passage is primarily concerned with
- (A) describing an important technique
  - (B) discussing a new method
  - (C) investigating a controversial procedure
  - (D) announcing a significant discovery
  - (E) promoting a novel application
18. According to the passage, in the seismic-reflection method all of the following have a significant effect on the signal detected by the seismic instruments EXCEPT the
- (A) presence of unrelated wave trains
  - (B) placement of the seismic instruments
  - (C) number of sources in the grid pattern
  - (D) nature of the reflectivity of the rock interfaces
  - (E) properties of rocks through which the wave train has traveled
19. It can be inferred from the passage that the seismic-reflection method would be likely to yield an inaccurate physical profile of the subsurface in which of the following circumstances?
- (A) If the speed at which the wave train moved downward changed
  - (B) If the receiver were not positioned directly at the wave-train source
  - (C) If the rock on one side of a rock interface had similar elastic characteristics to those of the rock on the other side
  - (D) If the seismic records obtained for the different sources in a grid were highly similar to each other
  - (E) If there were no petroleum deposits beneath the area defined by the grid of wave-train sources
20. Which of the following best describes the organization of the passage?
- (A) A method is criticized, and an alternative is suggested.

- (B) An illustration is examined, and some errors are exposed.
- (C) An assertion is made, and a procedure is outlined.
- (D) A series of examples is presented, and a conclusion is drawn.
- (E) A hypothesis is advanced, and supporting evidence is supplied.

Modern archaeological finds can still contribute much to the study of ancient literature. For example, forty years ago a survey of the early Greek dramatist Aeschylus' plays would have started with *The Suppliant Women*. Many factors internal to the play, but perhaps most especially the prominence of the chorus (which in this play has the main role), led scholars to consider it one of Aeschylus' earlier works. The consensus was that here was a drama truly reflecting an early stage in the evolution of tragedy out of choral lyric. The play was dated as early as the 490's B.C., in any event, well before Aeschylus' play *The Persians* of 472 B.C. Then, in 1952, a fragment of papyrus found at Oxyrhynchus was published stating the official circumstances and results of a dramatic contest. The fragment announced that Aeschylus won first prize with his Danaid tetralogy, of which *The Suppliant Women* is the opening play, and defeated Sophocles in the process. Sophocles did not compete in any dramatic contest before 468 B.C., when he won his first victory. Hence, except by special pleading (e. g., that the tetralogy was composed early in Aeschylus' career but not produced until the 460's B.C.), the Danaid tetralogy must be put after 468 B.C. In addition, a few letters in the fragment suggest the name Archedemides, archon in 463 B.C., thus perhaps tying the plays to that precise date, almost exactly halfway between Aeschylus' *Seven Against Thebes* of 467 B.C. and his *Oresteia*.

The implication of the papyrus administered a severe shock to the vast majority of classical scholars, who had confidently asserted that not only the role of the chorus but also language, metrics, and characterization all pointed to an early date. The discovery has resulted in no less than a total reevaluation of every chronological criterion that has been applied to or derived from Aeschylus' plays. The activity has been brisk, and a new creed has now spread. The prominence of the chorus in *The Suppliant Women* now is seen not as a sign of primitivism but as analogous to the massive choral songs of the *Oresteia*. Statistics have been formulated, or reformulated, to show that stylistically *The Suppliant Women* does actually occupy a position after *The Persians* and *Seven Against Thebes*, which now become the "primitive" plays, and before the *Oresteia*. While the new doctrine seems almost certainly correct, the one papyrus fragment raises the specter that another may be unearthed, showing, for instance, that it was a posthumous production of the Danaid tetralogy which bested Sophocles, and throwing the date once more into utter confusion. This is unlikely to happen, but it warns us that perhaps the most salutary feature of the papyrus scrap is its message of the extreme difficulty of classifying and categorizing rigidly the development of a creative artist.

21. The author of the passage focuses primarily on
- (A) discussing a series of modern archaeological finds and their impact on the study of Greek literature
  - (B) recounting the effect of one archaeological find on modern ideas concerning a particular author's work
  - (C) giving a definitive and coherent account of the chronology of a particular author's work

- (D) illustrating the many varieties of difficulties involved in establishing facts concerning ancient literature
- (E) determining the exact value of archaeological finds in relation to the history of ancient literature
22. With respect to the study of ancient literature, which of the following statements best expresses the author's main point concerning modern archaeological finds?
- (A) They can profoundly alter accepted views of ancient literary works, and can encourage flexibility in the way scholars look at the creative development of any artist.
- (B) They can be severely shocking and can have a revivifying effect on the study of ancient literature, which has recently suffered from a lack of interest on the part of scholars.
- (C) They can raise more questions than they answer and can be unreliable sources of information.
- (D) They generally confirm scholars' ideas about ancient literary works and allow them to dispense with inferences drawn from the works' internal structure.
- (E) They often undermine scholarly consensus in certain areas and create utter confusion concerning an author's work.
23. According to the passage, in the absence of definite knowledge concerning the dates of composition of ancient literary works, literary historians do which of the following when trying to establish the chronology of an author's work?
- (A) Make assumptions about a single work's date of composition if such assumptions would not seriously affect interpretations of other works by the same author.
- (B) Draw inferences concerning the date of a work's composition based on evidence internal to that work and on the author's other works.
- (C) Ignore the date of a work's composition which is supplied by archaeological research when literary factors internal to the work contradict that date.
- (D) Refrain from speculation concerning a work's date of composition unless archaeological finds produce information concerning it.
- (E) Estimate the date of a work's composition without attempting to relate it to the author's development as an artist.
24. It can be inferred from the passage that which of the following plays or groups of plays is considered the latest in the date of its composition?
- (A) The Persians
- (B) The Danaid tetralogy
- (C) The *Oresteia*
- (D) Seven Against Thebes
- (E) The Suppliant Women

25. With which of the following statements regarding the chronological criteria mentioned in line 33-34 would the author be most likely to agree?
- (A) Such criteria, whether applied to or derived from the plays, should only be used to confirm already existing knowledge.
  - (B) Such criteria, although derived from reliable external and internal evidence, should be changed continually to avoid rigidity in thinking.
  - (C) Such criteria, based on statistical analysis, are inherently more reliable than those of forty years ago.
  - (D) Such criteria, even when unsupported by external evidence, can resolve most questions.
  - (E) Such criteria, based on often ambiguous internal evidence, can lead to erroneous reconstructions of the chronology of an author's work.
26. The author's attitude toward the "activity" mentioned in line 35 and its consequences can best be described as one of
- (A) amused tolerance
  - (B) mocking envy
  - (C) grave doubt
  - (D) angry disapproval
  - (E) unrestrained enthusiasm
27. The allusion to the hypothetical papyrus fragment in line 45-49 does which of the following?
- (A) Supports an argument concerning the date of *The Suppliant Women*.
  - (B) Refutes the views of the majority of scholars concerning the Oxyrhynchus papyrus find.
  - (C) Predicts the future results of archaeological research proposed in the passage.
  - (D) Undermines the validity of the currently accepted chronology of Aeschylus' works.
  - (E) **Qualifies** the author's agreement with the "new creed" developed since the Oxyrhynchus papyrus find.

## SECTION B

Scholars often fail to see that music played an important role in the preservation of African culture in the United States. They correctly note that slavery stripped some cultural elements from Black people—their political and economic systems—but they underestimate the significance of music in sustaining other African cultural values. African music, unlike the music of some other cultures, was based on a total vision of life in which music was not an isolated social domain. In African culture music was pervasive, serving not only religion, but all phases of life, including birth, death, work, and play. The methods that a community devises to perpetuate itself come into being to preserve aspects of the cultural legacy that that community perceives as essential. Music, like art in general, was so inextricably a part of African culture

that it became a crucial means of preserving the culture during and after the dislocations of slavery.

17. The primary purpose of the passage is to
- (A) analyze the impact that slavery had on African political and economic systems
  - (B) review the attempt of recent scholarship to study the influence of African music on other music
  - (C) correct the failure of some scholars to appreciate the significance of music in African culture
  - (D) survey the ways by which people attempt to preserve their culture against the effects of oppression
  - (E) compare the relative importance of music with that of other art forms in culture
18. In line 9, the phrase “isolated social domain” refers to
- (A) African music in relation to contemporary culture as a whole
  - (B) music as it may be perceived in non-African cultures
  - (C) a feature of African music that aided in transmitting African cultural values
  - (D) an aspect of the African cultural legacy
  - (E) the influence of music on contemporary culture
19. Which of the following statements concerning the function of African music can be inferred from the passage?
- (A) It preserved cultural values because it was thoroughly integrated into the lives of the people.
  - (B) It was more important in the development of African religious life than in other areas of culture.
  - (C) It was developed in response to the loss of political and economic systems.
  - (D) Its pervasiveness in African culture hindered its effectiveness in minimizing the impact of slavery.
  - (E) Its isolation from the economic domains of life enabled it to survive the destructive impact of slavery.
20. According to the author, scholars would **err in** drawing which of the following conclusions?
- I. Slavery stripped the slaves of their political and economic systems.
  - II. African music was similar to all other traditions of music in that it originated in a total vision of life.
  - III. Music was a crucial part of the African cultural legacy.
- (A) I only
  - (B) II only

- (C) I and II only
- (D) II and III only
- (E) I, II, and III

Traditionally, pollination by wind has been viewed as a reproductive process marked by random events in which the vagaries of the wind are compensated for by the generation of vast quantities of pollen, so that the ultimate production of new seeds is assured at the expense of producing much more pollen than is actually used. Because the potential hazards pollen grains are subject to as they are transported over long distances are enormous, wind-pollinated plants have, in the view above, compensated for the ensuing loss of pollen through happenstance by virtue of producing an amount of pollen that is one to three orders of magnitude greater than the amount produced by species pollinated by insects.

However, a number of features that are characteristic of wind-pollinated plants reduce pollen waste. For example, many wind-pollinated species fail to release pollen when wind speeds are low or when humid conditions prevail. Recent studies suggest another way in which species compensate for the inefficiency of wind pollination. These studies suggest that species frequently take advantage of the physics of pollen motion by generating specific aerodynamic environments within the immediate vicinity of their female reproductive organs. It is the morphology of these organs that dictates the pattern of airflow disturbances through which pollen must travel. The speed and direction of the airflow disturbances can combine with the physical properties of a species' pollen to produce a species-specific pattern of pollen collision on the surfaces of female reproductive organs. Provided that these surfaces are strategically located, the consequences of this combination can significantly increase the pollen-capture efficiency of a female reproductive organ.

A critical question that remains to be answered is whether the morphological attributes of the female reproductive organs of wind-pollinated species are evolutionary adaptations to wind pollination or are merely fortuitous. A complete resolution of the question is as yet impossible since adaptation must be evaluated for each species within its own unique functional context. However, it must be said that, while evidence of such evolutionary adaptations does exist in some species, one must be careful about attributing morphology to adaptation. For example, the spiral arrangement of scale-bract complexes on ovule-bearing pine cones, where the female reproductive organs of conifers are located, is important to the production of airflow patterns that spiral over the cone's surfaces, thereby passing airborne pollen from one scale to the next. However, these patterns cannot be viewed as an adaptation to wind pollination because the spiral arrangement occurs in a number of non-wind-pollinated plant lineages and is regarded as a characteristic of vascular plants, of which conifers are only one kind, as a whole. Therefore, the spiral arrangement is not likely to be the result of a direct adaptation to wind pollination.

21. The author of the passage is primarily concerned with discussing
- (A) the current debate on whether the morphological attributes of wind-pollinated plants are evolutionary adaptations
  - (B) the kinds of airflow patterns that permit wind-pollinated plants to capture pollen most efficiently
  - (C) the ways in which the reproductive processes of wind-pollinated plants are



- controlled by random events
- (D) a recently proposed explanation of a way in which wind-pollinated plants reduce pollen waste
- (E) a specific morphological attribute that permits one species of wind-pollinated plant to capture pollen
22. The author suggests that explanations of wind pollination that emphasize the production of vast quantities of pollen to compensate for the randomness of the pollination process are
- (A) debatable and misleading
- (B) ingenious and convincing
- (C) accurate but incomplete
- (D) intriguing but controversial
- (E) plausible but unverifiable
23. According to the passage, the “aerodynamic environments” mentioned in line 23, when they are produced, are primarily determined by the
- (A) presence of insects near the plant
- (B) physical properties of the plant’s pollen
- (C) shape of the plant’s female reproductive organs
- (D) amount of pollen generated by the plant
- (E) number of seeds produced by the plant
24. According to the passage, true statements about the release of pollen by wind-pollinated plants include which of the following?
- I. The release can be affected by certain environmental factors.
- II. The amount of pollen released increases on a rainy day.
- III. Pollen is sometimes not released by plants when there is little wind.
- (A) II only
- (B) III only
- (C) I and II only
- (D) I and III only
- (E) I, II, and III
25. The passage suggests that the recent studies cited in lines 19-21 have not done which of the following?
- (A) Made any distinctions between different species of wind-pollinated plants.
- (B) Considered the physical properties of the pollen that is produced by wind-pollinated plants.
- (C) Indicated the general range within which plant-generated airflow disturbances are apt to occur.
- (D) Included investigations of the physics of pollen motion and its relationship to

- the efficient capture of pollen by the female reproductive organs of wind-pollinated plants.
- (E) Demonstrated that the morphological attributes of the female reproductive organs of wind-pollinated plants are usually evolutionary adaptations to wind pollination.
26. It can be inferred from the passage that the claim that the spiral arrangement of scale-bract complexes on an ovule-bearing pine cone is an adaptation to wind pollination would be more convincing if which of the following were true?
- (A) Such an arrangement occurred only in wind-pollinated plants.
- (B) Such an arrangement occurred in vascular plants as a whole.
- (C) Such an arrangement could be shown to be beneficial to pollen release.
- (D) The number of bracts could be shown to have increased over time.
- (E) The airflow patterns over the cone's surfaces could be shown to be produced by such arrangements.
27. Which of the following, if known, is likely to have been the kind of evidence used to support the view described in the first paragraph?
- (A) Wind speeds need not be very low for wind-pollinated plants to fail to release pollen.
- (B) The female reproductive organs of plants often have a sticky surface that allows them to trap airborne pollen systematically.
- (C) Grasses, as well as conifers, generate specific aerodynamic environments within the immediate vicinity of their reproductive organs.
- (D) Rain showers often wash airborne pollen out of the air before it ever reaches an appropriate plant.
- (E) The density and size of an airborne pollen grain are of equal importance in determining whether that grain will be captured by a plant.

1990 10

## SECTION A

It has been known for many decades that the appearance of sunspots is roughly periodic, with an average cycle of eleven years. Moreover, the incidence of solar flares and the flux of solar cosmic rays, ultraviolet radiation, and x-radiation all vary directly with the **sunspot cycle**. But after more than a century of investigation, the relation of these and other phenomena, known collectively as the solar-activity cycle, to terrestrial weather and climate remains unclear. For example, the sunspot cycle and the allied magnetic-polarity cycle have been linked to periodicities discerned in records of such variables as rainfall, temperature, and winds. Invariably, however, the relation is weak, and commonly of dubious statistical significance.

Effects of solar variability over longer terms have also been sought. The absence of recorded sunspot activity in the notes kept by European observers in the late seventeenth and

early eighteenth centuries has led some scholars to postulate a brief cessation of sunspot activity at that time (a period called the **Maunder minimum**). The Maunder minimum has been linked to a span of unusual cold in Europe extending from the sixteenth to the early nineteenth centuries. The reality of the Maunder minimum has yet to be established, however, especially since the records that Chinese naked-eye observers of solar activity made at that time appear to contradict it. Scientists have also sought evidence of long-term solar periodicities by examining indirect climatological data, such as fossil records of the thickness of ancient tree rings. These studies, however, failed to link unequivocally terrestrial climate and the solar-activity cycle, or even to confirm the cycle's past existence.

If consistent and reliable geological or archaeological evidence tracing the solar-activity cycle in the distant past could be found, it might also resolve an important issue in solar physics: how to model solar activity. Currently, there are two models of solar activity. The first supposes that the Sun's internal motions (caused by rotation and convection) interact with its large-scale magnetic field to produce a dynamo, a device in which mechanical energy is converted into the energy of a magnetic field. In short, the Sun's large-scale magnetic field is taken to be self-sustaining, so that the solar-activity cycle it drives would be maintained with little overall change for perhaps billions of years. The alternative explanation supposes that the Sun's large-scale magnetic field is a remnant of the field the Sun acquired when it formed, and is not sustained against decay. In this model, the solar mechanism dependent on the Sun's magnetic field runs down more quickly. Thus, the characteristics of the solar-activity cycle could be expected to change over a long period of time. Modern solar observations span too short a time to reveal whether present cyclical solar activity is a long-lived feature of the Sun, or merely a transient phenomenon.

17. The author focuses primarily on
- (A) presenting two competing scientific theories concerning solar activity and evaluating geological evidence often cited to support them
  - (B) giving a brief overview of some recent scientific developments in solar physics and assessing their impact on future climatological research
  - (C) discussing the difficulties involved in linking terrestrial phenomena with solar activity and indicating how resolving that issue could have an impact on our understanding of **solar physics**
  - (D) pointing out the futility of a certain line of scientific inquiry into the terrestrial effects of solar activity and recommending its abandonment in favor of purely physics-oriented research
  - (E) outlining the specific reasons why a problem in solar physics has not yet been solved and faulting the overly theoretical approach of modern physicists
18. Which of the following statements about the two models of solar activity, as they are described in lines 37-55, is accurate?
- (A) In both models cyclical solar activity is regarded as a long-lived feature of the Sun, persisting with little change over billions of years.
  - (B) In both models the solar-activity cycle is hypothesized as being dependent on the large-scale solar magnetic field.

- (C) In one model the Sun's magnetic field is thought to play a role in causing solar activity, whereas in the other model it is not.
  - (D) In one model solar activity is presumed to be unrelated to terrestrial phenomena, whereas in the other model solar activity is thought to have observable effects on the Earth.
  - (E) In one model cycles of solar activity with periodicities longer than a few decades are considered to be impossible, whereas in the other model such cycles are predicted.
19. According to the passage, late seventeenth and early eighteenth-century Chinese records are important for which of the following reasons?
- (A) They suggest that the data on which the Maunder minimum was predicated were incorrect.
  - (B) They suggest that the Maunder minimum cannot be related to climate.
  - (C) They suggest that the Maunder minimum might be valid only for Europe.
  - (D) They establish the existence of a span of unusually cold weather worldwide at the time of the Maunder minimum.
  - (E) They establish that solar activity at the time of the Maunder minimum did not significantly vary from its present pattern.
20. The author implies which of the following about currently available geological and archaeological evidence concerning the solar-activity cycle?
- (A) It best supports the model of solar activity described in lines 37-45.
  - (B) It best supports the model of solar activity described in lines 45-52.
  - (C) It is insufficient to confirm either model of solar activity described in the third paragraph.
  - (D) It contradicts both models of solar activity as they are presented in the third paragraph.
  - (E) It disproves the theory that terrestrial weather and solar activity are linked in some way.
21. It can be inferred from the passage that the argument in favor of the model described in lines 37-45 would be strengthened if which of the following were found to be true?
- (A) Episodes of intense volcanic eruptions in the distant past occurred in cycles having very long periodicities.
  - (B) At the present time the global level of thunderstorm activity increases and decreases in cycles with periodicities of approximately 11 years.
  - (C) In the distant past cyclical climatic changes had periodicities of longer than 200 years.
  - (D) In the last century the length of the sunspot cycle has been known to vary by as much as 2 years from its average periodicity of 11 years.

- (E) Hundreds of millions of years ago, solar-activity cycles displayed the same periodicities as do present-day solar-activity cycles.
22. It can be inferred from the passage that Chinese observations of the Sun during the late seventeenth and early eighteenth centuries
- (A) are ambiguous because most sunspots cannot be seen with the naked eye
  - (B) probably were made under the same weather conditions as those made in Europe
  - (C) are more reliable than European observations made during this period
  - (D) record some sunspot activity during this period
  - (E) have been employed by scientists seeking to argue that a change in solar activity occurred during this period
23. It can be inferred from the passage that studies attempting to use tree-ring thickness to locate possible links between solar periodicity and terrestrial climate are based on which of the following assumptions?
- (A) The solar-activity cycle existed in its present form during the time period in which the tree rings grew.
  - (B) The biological mechanisms causing tree growth are unaffected by short-term weather patterns.
  - (C) Average tree-ring thickness varies from species to species.
  - (D) Tree-ring thicknesses reflect changes in terrestrial climate.
  - (E) Both terrestrial climate and the solar-activity cycle randomly affect tree-ring thickness.

The common belief of some linguists that each language is a perfect vehicle for the thoughts of the nation speaking it is in some ways the exact counterpart of the conviction of the Manchester school of economics that supply and demand will regulate everything for the best. Just as economists were blind to the numerous cases in which the law of supply and demand left actual wants unsatisfied, so also many linguists are deaf to those instances in which the very nature of a language **calls forth** misunderstandings in everyday conversation, and in which, consequently, a word has to be modified or defined in order to present the idea intended by the speaker: "He took his stick—no, not John's, but his own." No language is perfect, and if we admit this truth, we must also admit that it is not unreasonable to investigate the relative merits of different languages or of different details in languages.

24. The primary purpose of the passage is to
- (A) analyze an interesting feature of the English language
  - (B) refute a belief held by some linguists
  - (C) show that economic theory is relevant to linguistic study
  - (D) illustrate the confusion that can result from the improper use of language
  - (E) suggest a way in which languages can be made more nearly perfect
25. The misunderstanding presented by the author in lines 13-14 is similar to which

of the following?

- I. X uses the word “you” to refer to a group, but Y thinks that X is referring to one person only.
- II. X mistakenly uses the word “anomaly” to refer to a typical example, but Y knows that “anomaly” means “exception.”
- III. X uses the word “bachelor” to mean “unmarried man,” but Y mistakenly thinks that bachelor means “unmarried woman.”

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

26. In presenting the argument, the author does all of the following EXCEPT:

- (A) give an example
- (B) draw a conclusion
- (C) make a generalization
- (D) make a comparison
- (E) present a paradox

27. Which of the following contributes to the misunderstanding described by the author in lines 13-14?

- (A) It is unclear whom the speaker of the sentence is addressing.
- (B) It is unclear to whom the word “his” refers the first time it is used.
- (C) It is unclear to whom the word “his” refers the second time it is used.
- (D) The meaning of “took” is ambiguous.
- (E) It is unclear to whom “He” refers.

## SECTION B

It is frequently assumed that the mechanization of work has a revolutionary effect on the lives of the people who operate the new machines and on the society into which the machines have been introduced. For example, it has been suggested that the employment of women in industry took them out of the household, their traditional sphere, and fundamentally altered their position in society. In the nineteenth century, when women began to enter factories, Jules Simon, a French politician, warned that by doing so, women would give up their femininity. Friedrich Engels, however, predicted that women would be liberated from the “social, legal, and economic subordination” of the family by technological developments that made possible the recruitment of “the whole female sex into public industry.” Observers thus differed concerning the social desirability of mechanization’s effects, but they agreed that it would transform women’s lives.

Historians, particularly those investigating the history of women, now seriously question



this assumption of transforming power. They conclude that such dramatic technological innovations as the **spinning jenny**, the sewing machine, the typewriter, and the vacuum cleaner have not resulted in equally dramatic social changes in women's economic position or in the prevailing evaluation of women's work. The employment of young women in textile mills during the Industrial Revolution was largely an extension of an older pattern of employment of young, single women as **domestics**. It was not the change in office technology, but rather the separation of secretarial work, previously seen as an apprenticeship for beginning managers, from administrative work that in the 1880's created a new class of "dead-end" jobs, thenceforth considered "women's work." The increase in the numbers of married women employed outside the home in the twentieth century had less to do with the mechanization of housework and an increase in leisure time for these women than it did with their own economic necessity and with high marriage rates that shrank the available pool of single women workers, previously, in many cases, the only women employers would hire.

Women's work has changed considerably in the past 200 years, moving from the household to the office or the factory, and later becoming mostly white-collar instead of blue-collar work. Fundamentally, however, the conditions under which women work have changed little since before the Industrial Revolution: the segregation of occupations by gender, lower pay for women as a group, jobs that require relatively low levels of skill and offer women little opportunity for advancement all persist, while women's household labor remains demanding. Recent historical investigation has led to a major revision of the notion that technology is always inherently revolutionary in its effects on society. Mechanization may even have slowed any change in the traditional position of women both in the labor market and in the home.

17. Which of the following statements best summarizes the main idea of the passage?
- (A) The effects of the mechanization of women's work have not borne out the frequently held assumption that new technology is inherently revolutionary.
  - (B) Recent studies have shown that mechanization revolutionizes a society's traditional values and the customary roles of its members.
  - (C) Mechanization has caused the nature of women's work to change since the Industrial Revolution.
  - (D) The mechanization of work creates whole new classes of jobs that did not previously exist.
  - (E) The mechanization of women's work, while extremely revolutionary in its effects, has not, on the whole, had the deleterious effects that some critics had feared.
18. The author mentions all of the following inventions as examples of dramatic technological innovations EXCEPT the
- (A) sewing machine
  - (B) vacuum cleaner
  - (C) typewriter
  - (D) telephone

- (E) spinning jenny
19. It can be inferred from the passage that, before the Industrial Revolution, the majority of women's work was done in which of the following settings?
- (A) Textile mills
  - (B) Private households
  - (C) Offices
  - (D) Factories
  - (E) Small shops
20. It can be inferred from the passage that the author would consider which of the following to be an indication of a fundamental alteration in the conditions of women's work?
- (A) Statistics showing that the majority of women now occupy white-collar positions
  - (B) Interviews with married men indicating that they are now doing some household tasks
  - (C) Surveys of the labor market documenting the recent creation of a new class of jobs in electronics in which women workers outnumber men four to one
  - (D) Census results showing that working women's wages and salaries are, on the average, as high as those of working men
  - (E) Enrollment figures from universities demonstrating that increasing numbers of young women are choosing to continue their education beyond the undergraduate level
21. The passage states that, before the twentieth century, which of the following was true of many employers?
- (A) They did not employ women in factories.
  - (B) They tended to employ single rather than married women.
  - (C) They employed women in only those jobs that were related to women's traditional household work.
  - (D) They resisted technological innovations that would radically change women's roles in the family.
  - (E) They hired women only when qualified men were not available to fill the open positions.
22. It can be inferred from the passage that the author most probably believes which of the following to be true concerning those historians who study the history of women?
- (A) Their work provides insights important to those examining social phenomena affecting the lives of both sexes.
  - (B) Their work can only be used cautiously by scholars in other disciplines.
  - (C) Because they concentrate only on the role of women in the workplace, they

draw more reliable conclusions than do other historians.

- (D) While highly interesting, their work has not had an impact on most historians' current assumptions concerning the revolutionary effect of technology in the workplace.
- (E) They oppose the further mechanization of work, which, according to their findings, tends to perpetuate existing inequalities in society.

23. Which of the following best describes the function of the concluding sentence of the passage?

- (A) It sums up the general points concerning the mechanization of work made in the passage as a whole.
- (B) It draws a conclusion concerning the effects of the mechanization of work which goes beyond the evidence presented in the passage as a whole.
- (C) It restates the point concerning technology made in the sentence immediately preceding it.
- (D) It qualifies the author's agreement with scholars who argue for a major revision in the assessment of the impact of mechanization on society.
- (E) It suggests a compromise between two seemingly contradictory views concerning the effects of mechanization on society.

(This passage is excerpted from an article that was published in 1982.)

Warm-blooded animals have elaborate physiological controls to maintain constant body temperature (in humans, 37°C). Why then during sickness should temperature rise, apparently increasing stress on the infected organism? It has long been known that the level of serum iron in animals falls during infection. Garibaldi first suggested a relationship between fever and iron. He found that microbial synthesis of **siderophores**—substances that bind iron—in bacteria of the genus *Salmonella* declined at environmental temperatures above 37°C and stopped at 40.3°C. Thus, fever would make it more difficult for an infecting bacterium to acquire iron and thus to multiply. Cold-blooded animals were used to test this hypothesis because their body temperature can be controlled in the laboratory. Kluger reported that of iguanas infected with the potentially lethal bacterium *A. hydrophilia*, more survived at temperatures of 42°C than at 37°C, even though healthy animals prefer the lower temperature. When animals at 42°C were injected with an iron solution, however, mortality rates increased significantly. Research to determine whether similar phenomena occur in warm-blooded animals is sorely needed.

24. The passage is primarily concerned with attempts to determine

- (A) the role of siderophores in the synthesis of serum iron
- (B) new treatments for infections that are caused by *A. hydrophilia*
- (C) the function of fever in warm-blooded animals
- (D) the mechanisms that ensure constant body temperature
- (E) iron utilization in cold-blooded animals

25. According to the passage, Garibaldi determined which of the following?

- (A) That serum iron is produced through microbial synthesis.

- (B) That microbial synthesis of siderophores in warm-blooded animals is more efficient at higher temperatures.
- (C) That only iron bound to other substances can be used by bacteria.
- (D) That there is a relationship between the synthesis of siderophores in bacteria of the genus *Salmonella* and environmental temperature.
- (E) That bacteria of the genus *Salmonella* require iron as a nutrient.
26. Which of the following can be inferred about warm-blooded animals solely on the basis of information in the passage?
- (A) The body temperatures of warm-blooded animals cannot be easily controlled in the laboratory.
- (B) Warm-blooded animals require more iron in periods of stress than they do at other times.
- (C) Warm-blooded animals are more comfortable at an environmental temperature of 37°C than they are at a temperature of 42°C.
- (D) In warm-blooded animals, bacteria are responsible for the production of siderophores, which, in turn, make iron available to the animal.
- (E) In warm-blooded animals, infections that lead to fever are usually traceable to bacteria.
27. If it were to be determined that “similar phenomena occur in warm-blooded animals” (lines 21-22), which of the following, assuming each is possible, is likely to be the most effective treatment for warm-blooded animals with bacterial infections?
- (A) Administering a medication that lowers the animals’ body temperature
- (B) Injecting the animals with an iron solution
- (C) Administering a medication that makes serum iron unavailable to bacteria
- (D) Providing the animals with reduced-iron diets
- (E) Keeping the animals in an environment with temperatures higher than 37°C

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## SECTION A

As Gilbert White, Darwin, and others observed long ago, all species appear to have the innate capacity to increase their numbers from generation to generation. The task for ecologists is to untangle the environmental and biological factors that hold this intrinsic capacity for population growth in check over the long run. The great variety of dynamic behaviors exhibited by different populations makes this task more difficult: some populations remain roughly constant from year to year; others exhibit regular cycles of abundance and scarcity; still others vary wildly, with outbreaks and crashes that are in some cases plainly correlated with the weather, and in other cases not.

To impose some order on this kaleidoscope of patterns, one school of thought proposes dividing populations into two groups. These ecologists posit that the relatively steady populations have “density-dependent” growth parameters; that is, rates of birth, death, and migration which depend strongly on population density. The highly varying populations have “density-independent” growth parameters, with vital rates buffeted by environmental events; these rates fluctuate in a way that is wholly independent of population density.

This dichotomy has its uses, but it can cause problems if taken too literally. For one thing, no population can be driven entirely by density-independent factors all the time. No matter how severely or unpredictably birth, death and migration rates may be fluctuating around their long-term averages, if there were no density-dependent effects, the population would, in the long run, either increase or decrease without bound (barring a miracle by which gains and losses canceled exactly). Put another way, it may be that on average 99 percent of all deaths in a population arise from density-independent causes, and only one percent from factors varying with density. The factors making up the one percent may seem unimportant, and their cause may be correspondingly hard to determine. Yet, whether recognized or not, they will usually determine the long-term average population density.

In order to understand the nature of the ecologist’s investigation, we may think of the density-dependent effects on growth parameters as the “signal” ecologists are trying to isolate and interpret, one that tends to make the population increase from relatively low values or decrease from relatively high ones, while the density-independent effects act to produce “noise” in the population dynamics. For populations that remain relatively constant, or that oscillate around repeated cycles, the signal can be fairly easily characterized and its effects described, even though the causative biological mechanism may remain unknown. For irregularly fluctuating populations, we are likely to have too few observations to have any hope of extracting the signal from the overwhelming noise. But it now seems clear that all populations are regulated by a mixture of density-dependent and density-independent effects in varying proportions.

17. The author of the passage is primarily concerned with
- (A) discussing two categories of factors that control population growth and assessing their relative importance
  - (B) describing how growth rates in natural populations fluctuate over time and explaining why these changes occur
  - (C) proposing a hypothesis concerning population sizes and suggesting ways to test it
  - (D) posing a fundamental question about environmental factors in population growth and presenting some currently accepted answers
  - (E) refuting a commonly accepted theory about population density and offering a new alternative
18. It can be inferred from the passage that the author considers the dichotomy discussed in the second paragraph to be
- (A) applicable only to erratically fluctuating populations

- (B) useful, but only if its limitations are recognized
  - (C) dangerously misleading in most circumstances
  - (D) a complete and sufficient way to account for observed phenomena
  - (E) conceptually valid, but too confusing to apply on a practical basis
19. Which of the following statements can be inferred from the last paragraph?
- (A) For irregularly fluctuating populations, doubling the number of observations made will probably result in the isolation of density-dependent effects.
  - (B) Density-dependent effects on population dynamics do not occur as frequently as do density-independent effects.
  - (C) At present, ecologists do not understand any of the underlying causes of the density-dependent effects they observe in population dynamics.
  - (D) Density-dependent effects on growth parameters are thought to be caused by some sort of biochemical “signaling” that ecologists hope eventually to understand.
  - (E) It is sometimes possible to infer the existence of a density-dependent factor controlling population growth without understanding its causative mechanism.
20. According to the passage, which of the following is a true statement about density-dependent factors in population growth?
- (A) They ultimately account for long-term population levels.
  - (B) They have little to do with long-term population dynamics.
  - (C) They are always more easily isolated and described than those that are density-independent.
  - (D) They include random environmental events.
  - (E) They contradict current ecological assumptions about population dynamics.
21. According to the passage, all of the following behaviors have been exhibited by different populations EXCEPT:
- (A) roughly constant population levels from year to year
  - (B) regular cycles of increases and decreases in numbers
  - (C) erratic increases in numbers correlated with the weather
  - (D) unchecked increases in numbers over many generations
  - (E) sudden declines in numbers from time to time
22. The discussion concerning population in lines 24-40 serves primarily to
- (A) demonstrate the difficulties ecologists face in studying density-dependent factors limiting population growth
  - (B) advocate more rigorous study of density-dependent factors in population growth
  - (C) prove that the death rates of any population are never entirely



density-independent

- (D) give an example of how death rates function to limit population densities in typical populations
- (E) underline the importance of even small density-dependent factors in regulating long-term population densities

23. In the passage, the author does all of the following EXCEPT:

- (A) cite the views of other biologists
- (B) define a basic problem that the passage addresses
- (C) present conceptual categories used by other biologists
- (D) describe the results of a particular study
- (E) draw a conclusion

In *Raisin in the Sun*, Lorraine Hansberry does not reject integration or the economic and moral promise of the American dream; rather, she remains loyal to this dream while looking, realistically, at its incomplete realization. Once we recognize this dual vision, we can accept the play's ironic nuances as deliberate social commentaries by Hansberry rather than as the "unintentional" irony that Bigsby attributes to the work. Indeed a curiously persistent refusal to credit Hansberry with a capacity for intentional irony has led some critics to interpret the play's thematic conflicts as mere confusion, contradiction, or eclecticism. Isaacs, for example, cannot easily reconcile Hansberry's intense concern for her race with her ideal of human reconciliation. But the play's complex view of Black self-esteem and human solidarity as compatible is no more "contradictory" than Du Bois' famous, well-considered ideal of ethnic self-awareness coexisting with human unity, or Fanon's emphasis on an ideal internationalism that also accommodates national identities and roles.

24. The author's primary purpose in this passage is to

- (A) explain some critics' refusal to consider *Raisin in the Sun* a deliberately ironic play
- (B) suggest that ironic nuances ally *Raisin in the Sun* with Du Bois' and Fanon's writings
- (C) analyze the fundamental dramatic conflicts in *Raisin in the Sun*
- (D) justify the inclusion of contradictory elements in *Raisin in the Sun*
- (E) affirm the thematic coherence underlying *Raisin in the Sun*

25. It can be inferred from the passage that the author believes which of the following about Hansberry's use of irony in *Raisin in the Sun*?

- (A) It derives from Hansberry's eclectic approach to dramatic structure.
- (B) It is justified by Hansberry's loyalty to a favorable depiction of American life.
- (C) It is influenced by the themes of works by Du Bois and Fanon.
- (D) It is more consistent with Hansberry's concern for Black Americans than with her ideal of human reconciliation.
- (E) It reflects Hansberry's reservations about the extent to which the American

dream has been realized.

26. In which of the following does the author of the passage reinforce his criticism of responses such as Isaacs' to *Raisin in the Sun*?
- (A) The statement that Hansberry is "loyal" (line 3) to the American dream
  - (B) The description of Hansberry's concern for Black Americans as "intense" (line 13)
  - (C) The assertion that Hansberry is concerned with "human solidarity" (line 15)
  - (D) The description of Du Bois' ideal as "well-considered" (line 17)
  - (E) The description of Fanon's internationalism as "ideal" (line 19)
27. The author of the passage would probably consider which of the following judgments to be most similar to the reasoning of critics described in lines 8-12?
- (A) The world is certainly flat; therefore, the person proposing to sail around it is unquestionably foolhardy.
  - (B) Radioactivity cannot be directly perceived; therefore, a scientist could not possibly control it in a laboratory.
  - (C) The painter of this picture could not intend it to be funny, therefore, its humor must result from a lack of skill.
  - (D) Traditional social mores are beneficial to culture; therefore, anyone who deviates from them acts destructively.
  - (E) Filmmakers who produce documentaries deal exclusively with facts; therefore, a filmmaker who reinterprets particular events is misleading us.

## SECTION B

Some recent historians have argued that life in the British colonies in America from approximately 1763 to 1789 was marked by internal conflicts among colonists. Inheritors of some of the viewpoints of early twentieth-century Progressive historians such as Beard and Becker, these recent historians have put forward arguments that deserve evaluation.

The kind of conflict most emphasized by these historians is class conflict. Yet with the Revolutionary War dominating these years, how does one distinguish class conflict within that larger conflict? Certainly not by the side a person supported. Although many of these historians have accepted the earlier assumption that Loyalists represented an upper class, new evidence indicates that Loyalists, like rebels, were drawn from all socioeconomic classes. (It is nonetheless probably true that a larger percentage of the well-to-do joined the Loyalists than joined the rebels.) Looking at the rebel side, we find little evidence for the contention that lower-class rebels were in conflict with upper-class rebels. Indeed, the war effort against Britain tended to suppress class conflicts. Where it did not, the disputing rebels of one or another class usually became Loyalists. Loyalism thus operated as a safety valve to remove socioeconomic discontent that existed among the rebels. Disputes occurred, of course, among those who remained on the rebel side, but the extraordinary social mobility of eighteenth-century American society (with the obvious exception of slaves) usually prevented such disputes from

hardening along class lines. Social structure was in fact so fluid—though recent statistics suggest a narrowing of economic opportunity as the latter half of the century progressed—that to talk about social classes at all requires the use of loose economic categories such as rich, poor, and middle class, or eighteenth-century designations like “the better sort.” Despite these vague categories, one should not claim unequivocally that hostility between recognizable classes cannot be legitimately observed. Outside of New York, however, there were very few instances of openly expressed class antagonism.

Having said this, however, one must add that there is much evidence to support the further claim of recent historians that sectional conflicts were common between 1763 and 1789. The “Paxton Boys” incident and the Regulator movement are representative examples of the widespread, and justified, discontent of western settlers against colonial or state governments dominated by eastern interests. Although undertones of class conflict existed beneath such hostility, the opposition was primarily geographical. Sectional conflict—which also existed between North and South—deserves further investigation.

In summary, historians must be careful about the kind of conflict they emphasize in eighteenth-century America. Yet those who stress the achievement of a general consensus among the colonists cannot fully understand that consensus without understanding the conflicts that had to be overcome or repressed in order to reach it.

17. The author considers the contentions made by the recent historians discussed in the passage to be
- (A) potentially verifiable
  - (B) partially justified
  - (C) logically contradictory
  - (D) ingenious but flawed
  - (E) capricious and unsupported
18. The author most likely refers to “historians such as Beard and Becker” (lines 5-6) in order to
- (A) isolate the two historians whose work is most representative of the viewpoints of Progressive historians
  - (B) emphasize the need to find connections between recent historical writing and the work of earlier historians
  - (C) make a case for the importance of the views of the Progressive historians concerning eighteenth-century American life
  - (D) suggest that Progressive historians were the first to discover the particular internal conflicts in eighteenth-century American life mentioned in the passage
  - (E) point out historians whose views of history anticipated some of the views of the recent historians mentioned in the passage
19. According to the passage, Loyalism during the American Revolutionary War served the function of

- (A) eliminating the disputes that existed among those colonists who supported the rebel cause
  - (B) drawing upper, as opposed to lower, socioeconomic classes away from the rebel cause
  - (C) tolerating the kinds of socioeconomic discontent that were not allowed to exist on the rebel side
  - (D) channeling conflict that existed within a socioeconomic class into the war effort against the rebel cause
  - (E) absorbing members of socioeconomic groups on the rebel side who felt themselves in contention with members of other socioeconomic groups
20. The passage suggests that the author would be likely to agree with which of the following statements about the social structure of eighteenth-century American society?
- I. It allowed greater economic opportunity than it did social mobility.
  - II. It permitted greater economic opportunity prior to 1750 than after 1750.
  - III. It did not contain rigidly defined socioeconomic divisions.
  - IV. It prevented economic disputes from arising among members of the society.
- (A) I and IV only
  - (B) II and III only
  - (C) III and IV only
  - (D) I, II, and III only
  - (E) I, II, III, and IV
21. It can be inferred from the passage that the author would be most likely to agree with which of the following statements regarding socioeconomic class and support for the rebel and Loyalist causes during the American Revolutionary War?
- (A) Identifying a person's socioeconomic class is the least accurate method of ascertaining which side that person supported.
  - (B) Identifying a person as a member of the rebel or of the Loyalist side does not necessarily reveal that person's particular socioeconomic class.
  - (C) Both the rebel and the Loyalist sides contained members of all socioeconomic classes, although there were fewer disputes among socioeconomic classes on the Loyalist side.
  - (D) Both the rebel and the Loyalist sides contained members of all socioeconomic classes, although the Loyalist side was made up primarily of members of the upper classes.
  - (E) Both the rebel and the Loyalist sides contained members of all socioeconomic classes, although many upper-class rebels eventually joined the Loyalists.
22. The author suggests which of the following about the representativeness of

colonial or state governments in America from 1763 to 1789?

- (A) The governments inadequately represented the interests of people in western regions.
- (B) The governments more often represented class interests than sectional interests.
- (C) The governments were less representative than they had been before 1763.
- (D) The governments were dominated by the interests of people of an upper socioeconomic class.
- (E) The governments of the northern colonies were less representative than were the governments of the southern colonies.

23. According to the passage, which of the following is a true statement about sectional conflicts in America between 1763 and 1789?

- (A) These conflicts were instigated by eastern interests against western settlers.
- (B) These conflicts were the most serious kind of conflict in America.
- (C) The conflicts eventually led to openly expressed class antagonism.
- (D) These conflicts contained an element of class hostility.
- (E) These conflicts were motivated by class conflicts.

Since 1953, many experimental attempts to synthesize the chemical constituents of life under "primitive Earth conditions" have been performed, but none of these experiments has produced anything approaching the complexity of the simplest organism. They have demonstrated, however, that a variety of the complex molecules currently making up living organisms could have been present in the early ocean and atmosphere, with only one limitation: such molecules are synthesized far less readily when oxygen-containing compounds dominate the atmosphere. Therefore some scientists postulate that the Earth's earliest atmosphere, unlike that of today, was dominated by hydrogen, methane, and ammonia.

From these studies, scientists have concluded that the surface of the primitive Earth was covered with oceans containing the molecules fundamental to life. Although, at present, scientists cannot explain how these relatively small molecules combined to produce larger, more complex molecules, some scientists have precipitously ventured hypotheses that attempt to explain the development, from larger molecules, of the earliest self-duplicating organisms.

24. According to the passage, which of the following can be inferred about the process by which the chemical constituents of life were synthesized under primitive Earth conditions?

- (A) The synthesis is unlikely to occur under current atmospheric conditions.
- (B) The synthesis is common in modern laboratories.
- (C) The synthesis occurs more readily in the atmosphere than in the ocean.
- (D) The synthesis easily produces the most complex organic molecules.
- (E) The synthesis is accelerated by the presence of oxygen-containing compounds.

25. The primary purpose of the passage is to
- (A) point out that theories about how life developed on Earth have changed little since 1953
  - (B) warn of increasing levels of hydrogen, methane, and ammonia in the Earth's atmosphere
  - (C) describe the development since 1953 of some scientists' understanding of how life began on Earth
  - (D) demonstrate that the synthesis of life in the laboratory is too difficult for modern technology
  - (E) describe how primitive atmospheric conditions produced the complex molecules of living organisms
26. It can be inferred from the passage that "some scientists" assume which of the following concerning "larger, more complex molecules" (line 20)?
- (A) The earliest atmosphere was formed primarily of these molecules.
  - (B) Chemical processes involving these molecules proceeded much more slowly under primitive Earth conditions.
  - (C) The presence of these molecules would necessarily precede the existence of simple organisms.
  - (D) Experimental techniques will never be sufficiently sophisticated to produce in the laboratory simple organisms from these chemical constituents.
  - (E) Explanations could easily be developed to explain how simple molecules combined to form these more complex ones.
27. The author's reaction to the attempts that have been made to explain the development of the first self-duplication organisms can best be described as one of
- (A) enthusiasm
  - (B) expectation
  - (C) dismay
  - (D) skepticism
  - (E) antipathy

1991 04

## SECTION A

Isadora Duncan's masterly writings on the dance reveal the depth of her determination to create a lyric form of the art which was free of characterization, storytelling, and the theatrical exhibition of skills. She wished to discard the traditional methods and established vocabularies of such dance forms as ballet and to explore the internal sources of human expressiveness. She shunned bodily ornamentation and strove to use only the natural movements of her body,



undistorted by acrobatic exaggeration and stimulated only by internal compulsion. In her recitals Duncan danced to the music of Beethoven, Wagner, and Gluck, among others, but, contrary to popular belief, she made no attempt to visualize or to interpret the music; rather, she simply relied on it to provide the inspiration for expressing inner feelings through movement. She did not regard this use of music as ideal, however, believing that she would someday **dispense with** music entirely. That day never came.

17. The author is primarily concerned with Duncan's
- (A) masterful lyricism as expressed in her writings on the dance
  - (B) concerted efforts to subdue the natural movements of the dance
  - (C) belated recognition that she could not actually fulfill all of her ideals for the dance
  - (D) basic standards for the dance form that she wished to create and perform
  - (E) continuous responsiveness to a popular misconception about the nature of her new art form
18. The author implies that Duncan relied on music in her recitals in order to
- (A) interpret musical works solely by means of natural body movements
  - (B) foster the illusion that music serves as an inspiration for the dance
  - (C) inspire the expression of inner feeling when she danced
  - (D) validate the public belief that music inspires the expression of feeling through movement
  - (E) counter the public belief that she made no attempt to visualize music
19. According to the passage, Duncan intended to develop an art form that would do all of the following EXCEPT
- (A) avoid the use of standard ballet techniques
  - (B) revitalize an earlier established vocabulary
  - (C) draw on internal sources of human expressiveness
  - (D) create intended effects without the use of acrobatic exaggeration
  - (E) derive inspiration solely from inner feelings
20. It can be inferred from the passage that which of the following endeavors is LEAST compatible with Duncan's ideals for the dance?
- (A) Using music to stimulate the inspiration to dance
  - (B) Attempting to free an art form of both characterization and storytelling
  - (C) Minimizing the theatrical exhibition of skills
  - (D) Being inspired to express inner feeling through movement
  - (E) Creating a lyric art form by drawing on inner personal resources

The recent, apparently successful, prediction by mathematical models of an appearance of El Nino—the warm ocean current that periodically develops along the Pacific coast of South America—has excited researchers. Jacob Bjerknes pointed out over 20 years ago how winds

might create either abnormally warm or abnormally cold water in the eastern equatorial Pacific. Nonetheless, until the development of the models no one could explain why conditions should regularly shift from one to the other, as happens in the periodic oscillations between appearances of the warm El Nino and the cold so-called anti-El Nino. The answer, at least if the current model that links the behavior of the ocean to that of the atmosphere is correct, is to be found in the ocean.

It has long been known that during an El Nino, two conditions exist: (1) unusually warm water extends along the eastern Pacific, principally along the coasts of Ecuador and Peru, and (2) winds blow from the west into the warmer air rising over the warm water in the east. These winds tend to create a **feedback mechanism** by driving the warmer surface water into a "pile" that blocks the normal **upwelling** of deeper, cold water in the east and further warms the eastern water, thus strengthening the wind still more. The contribution of the model is to show that the winds of an El Nino, which raise sea level in the east, simultaneously send a signal to the west lowering sea level. According to the model, that signal is generated as a negative Rossby wave, a wave of depressed, or negative, sea level, that moves westward parallel to the equator at 25 to 85 kilometers per day. Taking months to traverse the Pacific, Rossby waves march to the western boundary of the Pacific basin, which is modeled as a smooth wall but in reality consists of quite irregular island chains, such as the Philippines and Indonesia.

When the waves meet the western boundary, they are reflected, and the model predicts that Rossby waves will be broken into numerous coastal Kelvin waves carrying the same negative sea-level signal. These eventually shoot toward the equator, and then head eastward along the equator propelled by the rotation of the Earth at a speed of about 250 kilometers per day. When enough Kelvin waves of sufficient amplitude arrive from the western Pacific, their negative sea-level signal overcomes the feedback mechanism tending to raise the sea level, and they begin to drive the system into the opposite cold mode. This produces a gradual shift in winds, one that will eventually send positive sea-level Rossby waves westward, waves that will eventually return as cold cycle-ending positive Kelvin waves, beginning another warming cycle.

21. The primary function of the passage as a whole is to
- (A) introduce a new explanation of a physical phenomenon
  - (B) explain the difference between two related physical phenomena
  - (C) illustrate the limitations of applying mathematics to complicated physical phenomena
  - (D) indicate the direction that research into a particular physical phenomenon should take
  - (E) clarify the differences between an old explanation of a physical phenomenon and a new model of it
22. Which of the following best describes the organization of the first paragraph?
- (A) A theory is presented and criticized.
  - (B) A model is described and evaluated.
  - (C) A result is reported and its importance explained.
  - (D) A phenomenon is noted and its significance debated.

- (E) A hypothesis is introduced and contrary evidence presented.
23. According to the passage, which of the following features is characteristic of an El Nino?
- (A) Cold coastal water near Peru
  - (B) Winds blowing from the west
  - (C) Random occurrence
  - (D) Worldwide effects
  - (E) Short duration
24. According to the model presented in the passage, which of the following normally signals the disappearance of an El Nino?
- (A) The arrival in the eastern Pacific of negative sea-level Kelvin waves.
  - (B) A shift in the direction of the winds produced by the start of an anti-El Nino elsewhere in the Pacific.
  - (C) The reflection of Kelvin waves after they reach the eastern boundary of the Pacific, along Ecuador and Peru.
  - (D) An increase in the speed at which negative Rossby waves cross the Pacific.
  - (E) The creation of a reservoir of colder, deep ocean water trapped under the pile of warmer, surface ocean water.
25. It can be inferred from the passage that which of the following would result fairly immediately from the cessation of the winds of an El Nino?
- I. Negative Rossby waves would cease to be generated in the eastern Pacific.
  - II. The sea level in the eastern Pacific would fall.
  - III. The surface water in the eastern Pacific would again be cooled by being mixed with deep water.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II, and III
26. Which of the following, if true, would most seriously undermine the validity of the model of El Nino that is presented in the passage?
- (A) During some years El Nino extends significantly farther along the coasts of Ecuador and Peru than during other years.
  - (B) During periods of unusually cool temperatures along the eastern Pacific, an El Nino is much colder than normal.
  - (C) The normal upwelling of cold water in the eastern Pacific depends much more on the local characteristics of the ocean than on atmospheric conditions.

- (D) The variations in the time it takes Rossby waves to cross the Pacific depend on the power of the winds that the waves encounter.
- (E) The western boundary of the Pacific basin is so irregular that it impedes most coastal Kelvin waves from heading eastward.
27. The passage best supports the conclusion that during an anti-El Nino the fastest-moving signal waves are
- (A) negative Rossby waves moving east along the equator
- (B) positive Rossby waves moving west along the equator
- (C) negative Kelvin waves moving west along the equator
- (D) positive Kelvin waves moving west along the equator
- (E) positive Kelvin waves moving east along the equator

## SECTION B

Historians have only recently begun to note the increase in demand for luxury goods and services that took place in eighteenth-century England. McKendrick has explored the Wedgwood firm's remarkable success in marketing luxury pottery; Plumb has written about the proliferation of provincial theaters, musical festivals, and children's toys and books. While the fact of this consumer revolution is hardly in doubt, three key questions remain: Who were the consumers? What were their motives? And what were the effects of the new demand for luxuries?

An answer to the first of these has been difficult to obtain. Although it has been possible to infer from the goods and services actually produced what manufacturers and servicing trades thought their customers wanted, only a study of relevant personal documents written by actual consumers will provide a precise picture of *who* wanted what. We still need to know how large this consumer market was and how far down the social scale the consumer demand for luxury goods penetrated. With regard to this last question, we might note in passing that Thompson, while rightly restoring laboring people to the stage of eighteenth-century English history, has probably exaggerated the opposition of these people to the inroads of capitalist consumerism in general; for example, laboring people in eighteenth-century England readily shifted from home-brewed beer to standardized beer produced by huge, heavily capitalized urban breweries.

To answer the question of why consumers became so eager to buy, some historians have pointed to the ability of manufacturers to advertise in a relatively uncensored press. This, however, hardly seems a sufficient answer. McKendrick favors a Veblen model of **conspicuous consumption** stimulated by competition for status. The "middling sort" bought goods and services because they wanted to follow fashions set by the rich. Again, we may wonder whether this explanation is sufficient. Do not people enjoy buying things as a form of self-gratification? **If so**, consumerism could be seen as a product of the rise of new concepts of individualism and **materialism**, but not necessarily of the frenzy for conspicuous competition.

Finally, what were the consequences of this consumer demand for luxuries? McKendrick claims that it **goes a long way** toward explaining the coming of the Industrial Revolution. But

does it? What, for example, does the production of high-quality pottery and toys have to do with the development of iron manufacture or textile mills? It is perfectly possible to have the psychology and reality of a consumer society without a heavy industrial sector.

That future exploration of these key questions is undoubtedly necessary should not, however, diminish the force of the conclusion of recent studies: the insatiable demand in eighteenth-century England for frivolous as well as useful goods and services foreshadows our own world.

17. In the first paragraph, the author mentions McKendrick and Plumb most probably in order to
- (A) contrast their views on the subject of luxury consumerism in eighteenth-century England
  - (B) indicate the inadequacy of historiographical approaches to eighteenth-century English history
  - (C) give examples of historians who have helped to establish the fact of growing consumerism in eighteenth-century England
  - (D) support the contention that key questions about eighteenth-century consumerism remain to be answered
  - (E) compare one historian's interest in luxury goods such as pottery to another historian's interest in luxury services such as musical festivals
18. Which of the following items, if preserved from eighteenth-century England, would provide an example of the kind of documents mentioned in lines 16-17?
- (A) A written agreement between a supplier of raw materials and a supplier of luxury goods
  - (B) A diary that mentions luxury goods and services purchased by its author
  - (C) A theater ticket stamped with the date and name of a particular play
  - (D) A payroll record from a company that produced luxury goods such as pottery
  - (E) A newspaper advertisement describing luxury goods and services available at a seaside resort
19. According to the passage, Thompson attributes to laboring people in eighteenth-century England which of the following attitudes toward capitalist consumerism?
- (A) Enthusiasm
  - (B) Curiosity
  - (C) Ambivalence
  - (D) Stubbornness
  - (E) Hostility
20. In the third paragraph, the author is primarily concerned with
- (A) contrasting two theses and offering a compromise
  - (B) questioning two explanations and proposing a possible alternative to them

- (C) paraphrasing the work of two historians and questioning their assumptions
  - (D) examining two theories and endorsing one over the other
  - (E) raising several questions but implying that they cannot be answered
21. According to the passage, a Veblen model of conspicuous consumption has been used to
- (A) investigate the extent of the demand for luxury goods among social classes in eighteenth-century England
  - (B) classify the kinds of luxury goods desired by eighteenth-century consumers
  - (C) explain the motivation of eighteenth-century consumers to buy luxury goods
  - (D) establish the extent to which the tastes of rich consumers were shaped by the middle classes in eighteenth-century England
  - (E) compare luxury consumerism in eighteenth-century England with such consumerism in the twentieth century
22. According to the passage, eighteenth-century England and the contemporary world of the passage's readers are
- (A) dissimilar in the extent to which luxury consumerism could be said to be widespread among the social classes
  - (B) dissimilar in their definitions of luxury goods and services
  - (C) dissimilar in the extent to which luxury goods could be said to be a stimulant of industrial development
  - (D) similar in their strong demand for a variety of goods and services
  - (E) similar in the extent to which a middle class could be identified as imitating the habits of a wealthier class
23. It can be inferred from the passage that the author would most probably agree with which of the following statements about the relationship between the Industrial Revolution and the demand for luxury goods and services in eighteenth-century England?
- (A) The growing demand for luxury goods and services was a major factor in the coming of the Industrial Revolution.
  - (B) The Industrial Revolution exploited the already existing demand for luxury goods and services.
  - (C) Although the demand for luxury goods may have helped bring about the Industrial Revolution, the demand for luxury services did not.
  - (D) There is no reason to believe that the Industrial Revolution was directly driven by a growing demand for luxury goods and services.
  - (E) The increasing demand for luxury goods and services was a cultural phenomenon that has been conclusively demonstrated to have been separate from the coming of the Industrial Revolution.

Researchers are finding that in many ways an individual bacterium is more analogous to a



component cell of a multicellular organism than it is to a free-living, autonomous organism. *Anabaena*, a freshwater bacteria, is a case in point. Among photosynthetic bacteria, *Anabaena* is unusual: it is capable of both photosynthesis and nitrogen fixation. Within a single cell, these two biochemical processes are incompatible: oxygen produced during photosynthesis, inactivates the **nitrogenase** required for nitrogen fixation. In *Anabaena* communities, however, these processes can coexist. When fixed nitrogen compounds are abundant, *Anabaena* is strictly photosynthetic and its cells are all alike. When nitrogen levels are low, however, specialized cells called **heterocysts** are produced which lack chlorophyll (necessary for photosynthesis) but which can fix nitrogen by converting nitrogen gas into a usable form. Submicroscopic channels develop which connect the heterocyst cells with the photosynthetic ones and which are used for transferring cellular products between the two kinds of *Anabaena* cells.

24. According to the passage, which of the following statements is true of bacteria that engage in photosynthesis?
- (A) They eventually become two autonomous cells.
  - (B) They cannot normally also engage in nitrogen fixation.
  - (C) Oxygen normally inactivates them.
  - (D) Cellular products are constantly transferred between such bacteria.
  - (E) They normally lack chlorophyll.
25. It can be inferred from the passage that cell differentiation within *Anabaena* is regulated by the
- (A) amount of oxygen *Anabaena* cells produce
  - (B) season of the year
  - (C) amount of fixed nitrogen compounds available
  - (D) number of microscopic channels uniting *Anabaena* cells
  - (E) amount of chlorophyll in *Anabaena* cells
26. The passage supports which of the following inferences about heterocysts?
- (A) Heterocysts do not produce oxygen.
  - (B) Nitrogen gas inactivates heterocysts.
  - (C) Chlorophyll increases the productivity of heterocysts.
  - (D) Heterocysts allow nitrogen fixation and photosynthesis to occur in the same cell.
  - (E) Heterocysts are more important for *Anabaena*'s functioning than are photosynthetic cells.
27. The author uses the example of *Anabaena* to illustrate the
- (A) uniqueness of bacteria among unicellular organisms
  - (B) inadequacy of an existing view of bacteria
  - (C) ability of unicellular organisms to engage in photosynthesis
  - (D) variability of a freshwater bacteria

(E) difficulty of investigating even the simplest unicellular organisms

1991 10

## SECTION A

Aided by the recent ability to analyze samples of air trapped in glaciers, scientists now have a clearer idea of the relationship between atmospheric composition and global temperature change over the past 160,000 years. In particular, determination of atmospheric composition during periods of glacial expansion and retreat (cooling and warming) is possible using data from the 2,000 meter Vostok ice core drilled in Antarctica. The technique involved is similar to that used in analyzing cores of marine sediments, where the ratio of the two common isotopes of oxygen,  $^{18}\text{O}$  and  $^{16}\text{O}$ , accurately reflects past temperature changes. Isotopic analysis of oxygen in the Vostok core suggests mean global temperature fluctuations of up to 10 degrees centigrade over the past 160,000 years.

Data from the Vostok core also indicate that the amount of carbon dioxide has fluctuated with temperature over the same period: the higher the temperature, the higher the concentration of carbon dioxide and the lower the temperature, the lower the concentration. Although change in carbon dioxide content closely follows change in temperature during periods of deglaciation, it apparently lags behind temperature during periods of cooling. The correlation of carbon dioxide with temperature, of course, does not establish whether changes in atmospheric composition caused the warming and cooling trends or were caused by their.

The correlation between carbon dioxide and temperature throughout the Vostok record is consistent and predictable. The absolute temperature changes, however, are from 5 to 14 times greater than would be expected on the basis of carbon dioxide's own ability to absorb infrared radiation, or radiant heat. This reaction suggests that, quite *aside from* changes in heat-trapping gases, commonly known as greenhouse gases, certain positive feedbacks are also amplifying the temperature change. Such feedbacks might involve ice on land and sea, clouds, or water vapor, which also absorb *radiant heat*.

Other data from the Vostok core show that methane gas also correlates closely with temperature and carbon dioxide. The methane concentration nearly doubled, for example, between the peak of the penultimate glacial period and the following interglacial period. Within the present interglacial period it has more than doubled in just the past 300 years and is rising rapidly. Although the concentration of atmospheric methane is more than two orders of magnitude lower than that of carbon dioxide, it cannot be ignored: the radiative properties of methane make it 20 times more effective, molecule for molecule, than carbon dioxide in absorbing radiant heat. On the basis of a simulation model that climatological researchers have developed, methane appears to have been about 25 percent as important as carbon dioxide in the warming that took place during the most recent glacial retreat 8,000 to 10,000 years ago.

17. The primary purpose of the passage is to

- (A) interpret data
- (B) explain research methodology

- (C) evaluate a conclusion
  - (D) suggest a new technique
  - (E) attack a theory
18. According to the passage, which of the following statements about methane is true?
- (A) Methane is found in marine sediments.
  - (B) Methane is more effective than carbon dioxide in absorbing radiant heat.
  - (C) The Earth's atmosphere now contains more than twice as much methane as it does carbon dioxide.
  - (D) The higher the concentration of carbon dioxide in the Earth's atmosphere, the lower the concentration of methane.
  - (E) Most of the global warming that has occurred during the past 10 years has been associated with increased methane concentration.
19. According to the passage, which of the following statements best describes the relationship between carbon dioxide and global temperature?
- (A) Carbon dioxide levels change immediately in response to changes in temperature.
  - (B) Carbon dioxide levels correlate with global temperature during cooling periods only.
  - (C) Once carbon dioxide levels increase, they remain high regardless of changes in global temperature.
  - (D) Carbon dioxide levels increase more quickly than global temperature does.
  - (E) During cooling periods, carbon dioxide levels initially remain high and then decline.
20. The author mentions "certain positive feedbacks" (lines 35-36) in order to indicate that
- (A) increased concentration of carbon dioxide in the Earth's atmosphere is responsible for global temperature increase
  - (B) some climate simulation models have produced useful information
  - (C) greenhouse gases alone do not account for global temperature increase
  - (D) variables that benefit life are causing global temperature to increase
  - (E) beneficial substances that are not heat-trapping gases and that contribute to global temperature increase have been found in the Vostok ice core
21. It can be inferred from the passage that a long-term decrease in the concentration of carbon dioxide in the Earth's atmosphere would
- (A) increase methane concentration in the Earth's atmosphere
  - (B) accompany a period of glaciation
  - (C) encourage the formation of more oxygen isotopes in the Earth's atmosphere

- (D) promote the formation of more water in the Earth's global environment
  - (E) increase the amount of infrared radiation absorbed by the Earth's atmosphere
22. The passage suggests that when the methane concentration in the Earth's atmosphere decreases, which of the following also happens?
- (A) Glaciers melt faster.
  - (B) The concentration of carbon dioxide increases.
  - (C) The mean global temperature decreases.
  - (D) Carbon dioxide absorbs more radiant heat.
  - (E) More clouds form in the Earth's atmosphere.
23. In the fourth paragraph, the author is primarily concerned with
- (A) restating the main idea of the passage
  - (B) using research findings to develop a simulation model
  - (C) outlining the direction of future research
  - (D) providing an additional example of a phenomenon
  - (E) introducing a conflicting hypothesis

In *The Women of Mexico City, 1796-1857*, Sylvia Marina Arrom argues that the status of women in Mexico City improved during the nineteenth century. According to Arrom, households headed by females and instances of women working outside the home were much more common than scholars have estimated; efforts by the Mexican government to encourage female education resulted in increased female literacy; and influential male writers wrote pieces advocating education, employment, and increased family responsibilities for women, while deploring women's political and marital inequality. Mention of the fact that the civil codes of 1870 and 1884 significantly advanced women's rights would have further strengthened Arrom's argument.

Arrom does not discuss whether women's improved status counteracted the effects on women of instability in the Mexican economy during the nineteenth century. However, this is not so much a weakness in her work as it is the inevitable result of scholars' neglect of this period. Indeed, such gaps in Mexican history are precisely what make Arrom's pioneering study an important addition to Latin American women's history.

24. The passage is primarily concerned with doing which of the following?
- (A) Reviewing a historical study of the status of women in Mexico City during the nineteenth century
  - (B) Analyzing the effects of economic instability on the status of women in Mexico during the nineteenth century
  - (C) Advancing a thesis explaining why women's status in Mexico City improved during the nineteenth century
  - (D) Rejecting the thesis that the status of women in Mexico City during the nineteenth century actually improved
  - (E) Praising an author for a pioneering attempt to bridge significant gaps in

Mexico's economic history prior to 1790

25. According to the author of the passage, Arrom's study can be characterized as "an important addition to Latin American women's history" (lines 21-22) because it
- (A) offers a radical thesis concerning the status of women's civil rights in Mexican society during the nineteenth century
  - (B) relies on a new method of historical analysis that has not previously been applied to Latin American history
  - (C) focuses only on the status of women in Mexican society
  - (D) addresses a period in Mexican history that scholars have to some extent neglected
  - (E) is the first study to recognize the role of the Mexican government in encouraging women's education
26. It can be inferred from the passage that Arrom would agree with which of the following assertions?
- (A) Efforts by the Mexican government to encourage education for women during the nineteenth century were hampered by the economic instability of that period.
  - (B) The most significant advances in the rights of Mexican women during the nineteenth century occurred prior to 1857.
  - (C) Improvements in the status of women in Mexico City during the nineteenth century were accompanied by similar improvements in the status of women in other large Latin American cities.
  - (D) Scholars have in the past accorded the most significance to nineteenth-century Mexican literature that supported the status quo in women's political and marital rights.
  - (E) Scholars have in the past underestimated the number of households headed by females in Mexico City.
27. Which of the following best describes the author's attitude toward Arrom's work?
- (A) Uncritical approval
  - (B) Enthusiasm tempered by minor reservations
  - (C) Praise for her thesis, despite skepticism regarding the sources of her evidence
  - (D) Reluctant acceptance, despite lingering doubts regarding the accuracy of her thesis
  - (E) Rejection, despite admiration for her attempt to break new ground in a hitherto neglected field

## SECTION B

Present-day philosophers usually envision their discipline as an endeavor that has been, since antiquity, distinct from and superior to any particular intellectual discipline, such as

theology or science. Such philosophical concerns as the mind-body problem or, more generally, the nature of human knowledge, they believe, are basic human questions whose tentative philosophical solutions have served as the necessary foundations on which all other intellectual speculation has rested.

The basis for this view, however, lies in a serious misinterpretation of the past, a projection of modern concerns onto past events. The idea of an autonomous discipline called “philosophy,” distinct from and sitting in judgment on such pursuits as theology and science turns out, on close examination, to be of quite recent origin. When, in the seventeenth century, Descartes and Hobbes rejected medieval philosophy, they did not think of themselves, as modern philosophers do, as proposing a new and better philosophy, but rather as furthering “the warfare between science and theology.” They were fighting, albeit discreetly, to open the intellectual world to the new science and to liberate intellectual life from ecclesiastical philosophy and envisioned their work as contributing to the growth, not of philosophy, but of research in mathematics and physics. This link between philosophical interests and scientific practice persisted until the nineteenth century, when decline in ecclesiastical power over scholarship and changes in the nature of science provoked the final separation of philosophy from both.

The demarcation of philosophy from science was facilitated by the development in the early nineteenth century of a new notion, that philosophy’s core interest should be epistemology, the general explanation of what it means to know something. Modern philosophers now trace that notion back at least to Descartes and Spinoza, but it was not explicitly articulated until the late eighteenth century, by Kant, and did not become built into the structure of academic institutions and the standard self-descriptions of philosophy professors until the late nineteenth century. Without the idea of epistemology, the survival of philosophy in an age of modern science is hard to imagine. Metaphysics, philosophy’s traditional core—considered as the most general description of how the heavens and the earth are put together—had been rendered almost completely meaningless by the spectacular progress of physics. Kant, however, by focusing philosophy on the problem of knowledge, managed to replace metaphysics with epistemology, and thus to transform the notion of philosophy as “queen of sciences” into the new notion of philosophy as a separate, foundational discipline. Philosophy became “primary” no longer in the sense of “highest” but in the sense of “underlying”. After Kant, philosophers were able to reinterpret seventeenth-and eighteenth-century thinkers as attempting to discover “How is our knowledge possible?” and to project this question back even on the ancients.

17. Which of the following best expresses the author’s main point?
- (A) Philosophy’s overriding interest in basic human questions is a legacy primarily of the work of Kant.
  - (B) Philosophy was deeply involved in the seventeenth-century warfare between science and religion.
  - (C) The set of problems of primary importance to philosophers has remained relatively constant since antiquity.
  - (D) The status of philosophy as an independent intellectual pursuit is a relatively recent development.



- (E) The role of philosophy in guiding intellectual speculation has gradually been usurped by science.
18. According to the passage, present-day philosophers believe that the mind-body problem is an issue that
- (A) has implications primarily for philosophers
  - (B) may be affected by recent advances in science
  - (C) has shaped recent work in epistemology
  - (D) has little relevance to present-day philosophy
  - (E) has served as a basis for intellectual speculation since antiquity
19. According to the author, philosophy became distinct from science and theology during the
- (A) ancient period
  - (B) medieval period
  - (C) seventeenth century
  - (D) nineteenth century
  - (E) twentieth century
20. The author suggests that Descartes' support for the new science of the seventeenth century can be characterized as
- (A) pragmatic and hypocritical
  - (B) cautious and inconsistent
  - (C) daring and opportunistic
  - (D) intense but fleeting
  - (E) strong but prudent
21. The author of the passage implies which of the following in discussing the development of philosophy during the nineteenth century?
- (A) Nineteenth-century philosophy took science as its model for understanding the bases of knowledge.
  - (B) The role of academic institutions in shaping metaphysical philosophy grew enormously during the nineteenth century.
  - (C) Nineteenth-century philosophers carried out a program of investigation explicitly laid out by Descartes and Spinoza.
  - (D) Kant had an overwhelming impact on the direction of nineteenth-century philosophy.
  - (E) Nineteenth-century philosophy made major advances in understanding the nature of knowledge.
22. With which of the following statements concerning the writing of history would the author of the passage be most likely to agree?
- (A) History should not emphasize the role played by ideas over the role played by

individuals.

- (B) History should not be distorted by attributing present-day consciousness to historical figures.
- (C) History should not be focused primarily on those past events most relevant to the present.
- (D) History should be concerned with describing those aspects of the past that differ most from those of the present.
- (E) History should be examined for the lessons it can provide in understanding current problems.

23. The primary function of the passage as a whole is to

- (A) compare two competing models
- (B) analyze a difficult theory
- (C) present new evidence for a theory
- (D) correct an erroneous belief by describing its origins
- (E) resolve a long-standing theoretical controversy

Biologists have long maintained that two groups of **pinnipeds**, sea lions and walruses, are descended from a terrestrial bearlike animal, whereas the remaining group, seals, shares an ancestor with weasels. But the recent discovery of detailed similarities in the skeletal structure of the flippers in all three groups undermines the attempt to **explain away** superficial resemblance as due to **convergent evolution**—the independent development of similarities between unrelated groups in response to similar environmental pressures. Flippers may indeed be a necessary response to aquatic life; turtles, whales, and **dugongs** also have them. But the common detailed design found among the pinnipeds probably indicates a common ancestor. Moreover, walruses and seals drive themselves through the water with thrusts of their hind flippers, but sea lions use their front flippers. If anatomical similarity in the flippers resulted from similar environmental pressures, as posited by the convergent evolution theory, one would expect walruses and seals, but not seals and sea lions, to have similar flippers.

24. According to the passage, it has been recently discovered that

- (A) there are detailed skeletal similarities in the flippers of pinnipeds
- (B) sea lions, seals, and walruses are all pinnipeds
- (C) pinnipeds are descended from animals that once lived on land
- (D) animals without common ancestors sometimes evolve in similar ways
- (E) animals that have flippers do not all use them in the same way

25. The author implies that which of the following was part of the long-standing view concerning pinnipeds?

- (A) Pinnipeds are all descended from a terrestrial bearlike animal.
- (B) Pinnipeds share a common ancestor with turtles, whales, and dugongs.
- (C) Similarities among pinnipeds are due to their all having had to adapt to aquatic life.

- (D) There are detailed similarities in the skeletal structure of the flippers in all pinnipeds.
- (E) Convergent evolution cannot account for the similarities among pinnipeds.
26. The author implies which of the following about the fact that turtles, whales, and dugongs all have flippers?
- (A) It can be explained by the hypothesis that turtles, whales, and dugongs are very closely related.
- (B) It can be explained by the idea of convergent evolution.
- (C) It suggests that turtles, whales, and dugongs evolved in separate parts of the world.
- (D) It undermines the view that turtles, whales, and dugongs are all descended from terrestrial ancestors.
- (E) It is the primary difference between turtles, whales, and dugongs, on the one hand, and pinnipeds, on the other.
27. In presenting the argument in the passage, the author does which of the following?
- (A) Contends that key terms in an opposing view have been improperly used.
- (B) Contends that opponents have purposely obscured important evidence.
- (C) Shows that two theories thought to be in conflict are actually complementary.
- (D) Shows that advocates of a theory have not always stated their view in the same manner.
- (E) Shows that an implication of a theory is contradicted by the facts.

1992 02

## SECTION A

The more that is discovered about the intricate organization of the nervous system, the more it seems remarkable that genes can successfully specify the development of that system. Human genes contain too little information even to specify which hemisphere of the brain each of a human's  $10^{11}$  neurons should occupy, let alone the hundreds of connections that each neuron makes. For such reasons, we can assume that there must be an important random factor in neural development, and in particular, that errors must and do occur in the development of all normal brains.

The most vivid expression of such errors occurs in genetically identical (isogenic) organisms. Even when reared under the same conditions, isogenic organisms are rarely exact copies of one another, and their differences have revealed much about the random variations that **result from** an organism's limited supply of genetic information. In isogenic *Daphniae*, for example, even though the position, size, and branching pattern of each optic neuron are remarkably constant, there is some variability in connectivity, and the number of synapses varies greatly. This variability is probably the result of random scatter beyond the resolution of

genetic control and is best termed "imprecision," since its converse, the degree of clustering about a mean, is conventionally, called "precision."

Imprecision should be distinguished from developmental mistakes: wrongly migrated neurons, incorrect connections, and the like. To use a computer analogy, minor rounding-off errors occur universally and are analogous to imprecision, but occasionally a binary digit is incorrectly transmitted, perhaps ruining a calculation, and this incorrect transmission is analogous to a developmental mistake. Thus, imprecision is a form of inaccuracy inherent within the limits of design, but mistakes are forms of gross fallibility.

Both imprecision and gross fallibility can plausibly be blamed on the insufficiency of genetic information, since either could be reduced by adding more information. It is universally accepted among information theorists that codes and languages can be made mistake-resistant by incorporating redundancy. However, since the amount of space available in any information system is limited, increased redundancy results in decreased precision. For example,  $\pi$  when written incorrectly in English, "three point oen four two," can be understood correctly even though a typographical error has occurred. More precision could be gained, however, if those 24 spaces were filled with Arabic numerals; then  $\pi$  could be expressed to 23 significant digits, although any error would significantly change the meaning. There exists a trade-off, the more precisely a system is specified, using a given limited amount of information, the greater the danger of gross mistakes. The overall scheme by which genetic information is rationed out in organisms, therefore, must involve a compromise between two conflicting priorities: precision and the avoidance of gross mistakes.

17. Which of the following best expresses the main idea of the passage?
- (A) Although studies of isogenic organisms have shown that all organisms are subject to developmental variations, there is still scientific debate over the exact causes of these variations.
  - (B) Because of limitations on the amount of information contained in the genes of organisms, developing nervous systems are subject to two basic kinds of error, the likelihood of one of which is reduced only when the likelihood of the other is increased.
  - (C) The complexity of an organism's genetic information means that much of the unusual variation that occurs among organisms can best be explained as the result of developmental mistakes.
  - (D) New findings about the nature of the genetic control of neural development support the work of some scientists who argue that the computer is an extremely useful model for understanding the nervous system.
  - (E) The major discovery made by scientists studying the genetic control of neural development is that both imprecision and gross developmental error can be traced to specific types of mutations in specific genes.
18. According to the passage, one of the reasons it has been assumed that there is an important random element in human neural development is that
- (A) genes cannot specify certain types of developmental processes as well as they can others

- (B) the intricacy of the nervous system allows small developmental errors to occur without harmful effects
  - (C) the amount of information contained in the genes is less than the amount necessary to specify the location of the neurons
  - (D) the number of neurons in the human brain varies greatly from individual to individual
  - (E) it is theoretically impossible for an organism to protect itself completely from gross developmental mistakes
19. The author suggests which of the following about the findings of information theorists?
- (A) Their findings provocatively challenge the standard explanation of redundancy in genes.
  - (B) Their findings provide useful insights into understanding the rationing of genetic information.
  - (C) Their findings help to explain why imprecision can occur in neural development but not why gross mistakes can occur.
  - (D) Their findings suggest that genes may be able to specify neural development more accurately than had previously been thought.
  - (E) Their findings support the work of those who use computer operations as models for understanding genetic control.
20. According to the passage, of the following aspects of the optic neurons of isogenic *Daphniae*, which varies the most?
- (A) Size
  - (B) Connectivity
  - (C) Position
  - (D) Branching pattern
  - (E) Number of synapses
21. Which of the following best describes the organization of the first paragraph?
- (A) A specific case is presented, its details are analyzed, and a conclusion is drawn from it.
  - (B) A discovery is announced, its most significant application is discussed, and possibilities for the future are suggested.
  - (C) A generalization is made, specific situations in which it is applicable are noted, and problems with it are suggested.
  - (D) An observation is made, specifics are provided to support it, and a generalization is derived.
  - (E) A hypothesis is presented, its implications are clarified, and applications of it are discussed.
22. The author uses all of the following to clarify the distinction between imprecision

- and gross mistake in neural development EXCEPT
- (A) classification of borderline phenomena
  - (B) a description of the relationship between the phenomena denoted by each term
  - (C) specific examples of the phenomena denoted by each term
  - (D) an explanation of at least one of the key terms involved
  - (E) analogies to other types of phenomena

23. Which of the following can be inferred from the passage about the genetic information of *Daphniae*?
- I. There is probably some degree of redundancy in the information controlling neural development.
  - II. Most of the information for neural development stored in the genes is used to specify the positions of the optic neurons.
  - III. There is sufficient information to preclude the occurrence of gross mistakes during neural development.
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) II and III only

In a recent study, David Cressy examines two central questions concerning English immigration to New England in the 1630's: what kinds of people immigrated and why? Using contemporary literary evidence, shipping lists, and customs records, Cressy finds that most adult immigrants were skilled in farming or crafts, were literate, and were organized in families. Each of these characteristics sharply distinguishes the 21,000 people who left for New England in the 1630's from most of the approximately 377,000 English people who had immigrated to America by 1700.

With respect to their reasons for immigrating, Cressy does not deny the frequently noted fact that some of the immigrants of the 1630's, most notably the organizers and clergy, advanced religious explanations for departure, but he finds that such explanations usually assumed primacy only *in retrospect*. When he moves beyond the principal actors, he finds that religious explanations were less frequently offered and he concludes that most people immigrated because they were recruited by promises of material improvement.

24. In the passage, the author is primarily concerned with
- (A) summarizing the findings of an investigation
  - (B) analyzing a method of argument
  - (C) evaluating a point of view
  - (D) hypothesizing about a set of circumstances
  - (E) establishing categories



25. According to the passage, Cressy would agree with which of the following statements about the organizers among the English immigrants to New England in the 1630's?
- I. Most of them were clergy.
  - II. Some of them offered a religious explanation for their immigration.
  - III. They did not offer any reasons for their immigration until some time after they had immigrated.
  - IV. They were more likely than the average immigrant to be motivated by material considerations.
- (A) I only  
(B) II only  
(C) II and III only  
(D) I, III, and IV only  
(E) II, III, and IV only
26. According to the passage, Cressy has made which of the following claims about what motivated English immigrants to go to New England in the 1630's?
- (A) They were motivated by religious considerations alone.  
(B) They were motivated by economic considerations alone.  
(C) They were motivated by religious and economic considerations equally.  
(D) They were motivated more often by economic than by religious considerations.  
(E) They were motivated more often by religious than by economic considerations.
27. The passage suggests that the majority of those English people who had immigrated to America by the late seventeenth century were
- (A) clergy  
(B) young children  
(C) organized in families  
(D) skilled in crafts  
(E) illiterate

## SECTION B

Is the literary critic like the poet, responding creatively, intuitively, subjectively to the written word as the poet responds to human experience? Or is the critic more like a scientist, following a series of demonstrable, verifiable steps, using an objective method of analysis?

For the woman who is a practitioner of feminist literary criticism, the subjectivity versus objectivity, or critic-as-artist-or-scientist, debate has special significance; for her, the question is not only academic, but political as well, and her definition will court special risks whichever side of the issue it favors. If she defines feminist criticism as objective and scientific—a valid,

verifiable, intellectual method that anyone, whether man or woman, can perform—the definition not only precludes the critic-as-artist approach, but may also impede accomplishment of the utilitarian political objectives of those who seek to change the academic establishment and its thinking, especially about sex roles. If she defines feminist criticism as creative and intuitive, privileged as art, then her work becomes vulnerable to the prejudices of stereotypic ideas about the ways in which women think, and will be dismissed by much of the academic establishment. Because of these prejudices, women who use an intuitive approach in their criticism may find themselves charged with inability to be analytical, to be objective, or to think critically. Whereas men may be free to claim the role of critic-as-artist, women run different professional risks when they choose intuition and private experience as critical method and defense.

These questions are political in the sense that the debate over them will inevitably be less an exploration of abstract matters in a spirit of disinterested inquiry than an academic power struggle in which the careers and professional fortunes of many women scholars—only now entering the academic profession in substantial numbers—will be at stake, and with them the chances for a distinctive contribution to humanistic understanding, a contribution that might be an important influence against sexism in our society.

As long as the academic establishment continues to regard objective analysis as “masculine” and an intuitive approach as “feminine,” the theoretician must steer a delicate philosophical course between the two. If she wishes to construct a theory of feminist criticism, she would be well advised to place it within the framework of a general theory of the critical process that is neither purely objective nor purely intuitive. Her theory is then more likely to be compared and contrasted with other theories of criticism with some degree of dispassionate distance.

17. Which of the following titles best summarizes the content of the passage?
- (A) How Theories of Literary Criticism Can Best Be Used
  - (B) Problems Confronting Women Who Are Feminist Literary Critics
  - (C) A Historical overview of Feminist literary Criticism
  - (D) A New Theory of Literary Criticism
  - (E) Literary Criticism: Art or Science?
18. It can be inferred that the author believes which of the following about women who are literary critics?
- I. They can make a unique contribution to society.
  - II. They must develop a new theory of the critical process.
  - III. Their criticisms of literature should be entirely objective.
- (A) I only
  - (B) II only
  - (C) I and III only
  - (D) II and III only
  - (E) I, II, and III

19. The author specifically mentions all of the following as difficulties that particularly affect women who are theoreticians of feminist literary criticism EXCEPT the
- (A) tendency of a predominantly male academic establishment to form preconceptions about women
  - (B) limitations that are imposed when criticism is defined as objective and scientific
  - (C) likelihood that the work of a woman theoretician who claims the privilege of art will be viewed with prejudice by some academics
  - (D) inescapability of power struggles between women in the academic profession and the academic establishment
  - (E) tendency of members of the academic establishment to treat all forms of feminist literary theory with hostility
20. According to the author, the debate mentioned in the passage has special significance for the woman who is a theoretician of feminist literary criticism for which of the following reasons?
- (A) There are large numbers of capable women working within the academic establishment.
  - (B) There are a few powerful feminist critics who have been recognized by the academic establishment.
  - (C) Like other critics, most women who are literary critics define criticism as either scientific or artistic.
  - (D) Women who are literary critics face professional risks different from those faced by men who are literary critics.
  - (E) Women who are literary critics are more likely to participate in the debate than are men who are literary critics.
21. Which of the following is presented by the author **in support of** the suggestion that there is stereotypic thinking among members of the academic establishment?
- (A) A distinctively feminist contribution to humanistic understanding could work against the influence of sexism among members of the academic establishment.
  - (B) Women who define criticism as artistic may be seen by the academic establishment as being incapable of critical thinking.
  - (C) The debate over the role of the literary critic is often seen as a political one.
  - (D) Women scholars are only now entering academia in substantial numbers.
  - (E) The woman who is a critic is forced to construct a theory of literary criticism.
22. Which of the following is most likely to be one of the “utilitarian political objectives” mentioned by the author in line 16?
- (A) To forge a new theory of literary criticism

- (B) To pursue truth in a disinterested manner
- (C) To demonstrate that women are interested in literary criticism that can be viewed either subjectively or objectively
- (D) To convince the academic establishment to revise the ways in which it assesses women scholars' professional qualities
- (E) To dissuade women who are literary critics from taking a subjective approach to literary criticism

23. It can be inferred that the author would define as “political” (line 30) questions that

- (A) are contested largely through contentions over power
- (B) are primarily academic in nature and open to abstract analysis
- (C) are not in themselves important
- (D) cannot be resolved without extensive debate
- (E) will be debated by both men and women

[This passage was excerpted from an article published in 1979.]

Quantum mechanics is a highly successful theory: it supplies methods for accurately calculating the results of diverse experiments, especially with minute particles. The predictions of quantum mechanics, however, give only the probability of an event, not a deterministic statement of whether or not the event will occur. Because of this probabilism, Einstein remained strongly dissatisfied with the theory throughout his life, though he did not maintain that quantum mechanics is wrong. Rather, he held that it is incomplete: in quantum mechanics the motion of a particle must be described in terms of probabilities, he argued, only because some parameters that determine the motion have not been specified. If these hypothetical “hidden parameters” were known, a fully deterministic trajectory could be defined. Significantly, this hidden-parameter quantum theory leads to experimental predictions different from those of traditional quantum mechanics. Einstein's ideas have been tested by experiments performed since his death, and as most of these experiments support traditional quantum mechanics, Einstein's approach is almost certainly erroneous.

24. The author regards the idea that traditional quantum mechanics is incomplete with

- (A) approval
- (B) surprise
- (C) indifference
- (D) apprehension
- (E) skepticism

25. It can be inferred from the passage that the author's conclusion that Einstein's approach is “erroneous” (line 22) might have to be modified because

- (A) it is theoretically possible to generate plausible theories with hidden parameters within them

- (B) some experimental tests of Einstein's theory do not disconfirm the hidden-parameter theory of quantum mechanics
  - (C) it is possible for a theory to have hidden parameters and yet be probabilistic
  - (D) traditional quantum mechanics has not yet been used to analyze all of the phenomena to which it could be applied
  - (E) there are too many possible hidden parameters to develop meaningful tests of hidden-parameter theories
26. According to the passage, Einstein posed objections to the
- (A) existence of hidden parameters in quantum theory
  - (B) probabilistic nature of quantum mechanics
  - (C) idea that quantum mechanics is incomplete
  - (D) results of experiments testing quantum theory
  - (E) importance accorded quantum mechanics in physics
27. The passage suggests that which of the following would have resulted if the experiments mentioned in lines 18-20 had not supported the predictions of traditional quantum mechanics?
- (A) Einstein, had he been alive, would have revised his approach to quantum mechanics.
  - (B) Hidden-parameter theories would have been considered inaccurate descriptions of real-world phenomena.
  - (C) A deterministic description of the motion of a particle might still be considered possible.
  - (D) Quantum mechanics would have ceased to attract the attention of physicists.
  - (E) Einstein, had he been alive, would have abandoned attempts to specify the hidden parameters that describe motion.

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## SECTION A

The 1960's witnessed two profound social movements: the civil rights movement and the movement protesting the war in Vietnam. Although they overlapped in time, they were largely distinct. For a brief moment in 1967, however, it appeared that the two movements might unite under the leadership of Martin Luther King, Jr.

King's role in the antiwar movement appears to require little explanation, since he was the foremost advocate of nonviolence of his time. But King's stance on the Vietnam War cannot be explained in terms of pacifism alone. After all, he was something of a latecomer to the antiwar movement, even though by 1965 he was convinced that the role of the United States in the war was indefensible. Why then the two years that passed before he translated his private misgivings into public dissent? Perhaps he believed that he could not criticize American foreign

policy without endangering the support for civil rights that he had won from the federal government.

17. According to the passage, the delay referred to in lines 12-15 is perhaps attributable to which of the following?
- (A) King's ambivalence concerning the role of the United States in the war in Vietnam
  - (B) King's attempts to consolidate support for his leadership within the civil rights movement
  - (C) King's desire to keep the leadership of the civil rights movement distinct from that of the antiwar movement
  - (D) King's desire to draw support for the civil rights movement from the leadership of the antiwar movement
  - (E) King's reluctance to jeopardize federal support for the civil rights movement
18. The author supports the claim that "King's stance on the Vietnam War cannot be explained in terms of pacifism alone" (lines 10-12) by implying which of the following?
- (A) There is little evidence that King was ever a student of pacifist doctrine.
  - (B) King, despite pacifist sympathies, was not convinced that the policy of the federal government in Vietnam was wrong.
  - (C) King's belief in nonviolence was formulated in terms of domestic policy rather than in terms of international issues.
  - (D) Had King's actions been based on pacifism alone, he would have joined the antiwar movement earlier than he actually did.
  - (E) Opponents of United States foreign policy within the federal government convinced King of their need for support.
19. Which of the following can be inferred from the passage about the movement opposing the war in Vietnam?
- (A) It preceded the civil rights movement.
  - (B) It began in 1965.
  - (C) It was supported by many who otherwise opposed public dissent.
  - (D) It drew support from most civil rights leaders.
  - (E) It was well underway by 1967.
20. Which of the following best describes the passage?
- (A) It discusses an apparent inconsistency and suggests a reason for it.
  - (B) It outlines a sequence of historical events.
  - (C) It shows why a commonly held view is inaccurate.
  - (D) It evaluates an explanation and finally accepts that explanation.
  - (E) It contrasts two views of an issue.



What causes a helix in nature to appear with either a dextral ("right-handed," or clockwise) twist or a sinistral ("left-handed," or counterclockwise) twist is one of the most intriguing puzzles in the science of form. Most spiral-shaped snail species are predominantly dextral. But at one time, handedness (twist direction of the shell) was equally distributed within some snail species that have become predominantly dextral or, in a few species, predominantly sinistral. What mechanisms, control handedness and keep left-handedness rare?

It would seem unlikely that evolution should discriminate against sinistral snails if sinistral and dextral snails are exact mirror images, for any disadvantage that a sinistral twist in itself could confer on its possessor is almost inconceivable. But left- and right-handed snails are not actually true mirror images of one another. Their shapes are noticeably different. Sinistral rarity might, then, be a consequence of possible disadvantages conferred by these other concomitant structural features. In addition, perhaps left- and right-handed snails cannot mate with each other, having incompatible twist directions. Presumably an individual of the rarer form would have relative difficulty in finding a mate of the same hand, thus keeping the rare form rare or creating geographically separated right- and left-handed populations.

But this evolutionary mechanism combining dissymmetry, anatomy, and chance does not provide an adequate explanation of why right-handedness should have become predominant. It does not explain, for example, why the infrequent unions between snails of opposing hands produce fewer offspring of the rarer than the commoner form in species where each parent contributes equally to handedness. Nor does it explain why, in a species where one parent determines handedness, a brood is not exclusively right- or left-handed when the offspring would have the same genetic predisposition. In the European pond snail *Lymnaea peregra*, a predominantly dextral species whose handedness is maternally determined, a brood might be expected to be exclusively right or left-handed—and this often occurs. However, some broods possess a few snails of the opposing hand, and in predominantly sinistral broods, the incidence of dextrality is surprisingly high.

Here, the evolutionary theory must defer to a theory based on an explicit developmental mechanism that can favor either right or left-handedness. In the case of *Lymnaea peregra*, studies indicate that a dextral gene is expressed during egg formation; i.e., before egg fertilization, the gene produces a protein, found in the cytoplasm of the egg, that controls the pattern of cell division and thus handedness. In experiments, an injection of cytoplasm from dextral eggs changes the pattern of sinistral eggs, but an injection from sinistral eggs does not influence dextral eggs. One explanation for the differing effects is that all *Lymnaea peregra* eggs begin left-handed but most switch to being right-handed. Thus, the path to a solution to the puzzle of handedness in all snails appears to be as twisted as the helix itself.

21. Which of the following would serve as an example of "concomitant structural features" (line 19) that might disadvantage a snail of the rarer form?
- (A) A shell and body that are an exact mirror image of a snail of the commoner form
  - (B) A smaller population of the snails of the rarer form
  - (C) A chip or fracture in the shell caused by an object falling on it
  - (D) A pattern on the shell that better camouflages it

- (E) A smaller shell opening that restricts mobility and ingestion relative to that of a snail of the commoner form
22. The second paragraph of the passage is primarily concerned with offering possible reasons why
- (A) it is unlikely that evolutionary mechanisms could discriminate against sinistral snails
  - (B) sinistrality is relatively uncommon among snail species
  - (C) dextral and sinistral populations of a snail species tend to intermingle
  - (D) a theory based on a developmental mechanism inadequately accounts for the predominance of dextrality across snail species
  - (E) dextral snails breed more readily than sinistral snails, even within predominantly sinistral populations
23. In describing the “evolutionary mechanism” (line 27), the author mentions which of the following?
- (A) The favorable conditions for nurturing new offspring
  - (B) The variable environmental conditions that affect survival of adult snails
  - (C) The availability of potential mates for breeding
  - (D) The structural identity of offspring to parents of the same hand
  - (E) The frequency of unions between snails of different species
24. According to the passage, which of the following is true of *Lymnaea peregra*?
- (A) Handedness within the species was at one time equally distributed between left and right.
  - (B) Under laboratory conditions, dextral eggs from *Lymnaea peregra* can be artificially induced to develop into sinistral snails.
  - (C) Broods of *Lymnaea peregra* are, without variation, exclusively sinistral or dextral.
  - (D) Handedness in *Lymnaea peregra* offspring is determined by only one of the parents.
  - (E) Geographic factors have played a larger role than has genetics in the evolution of the species.
25. The passage implies that in *Lymnaea peregra*, there will generally be
- (A) more offspring of the nondominant hand in broods where handedness is determined after, rather than before, fertilization
  - (B) a sinistral gene that produces a protein in the cytoplasm of the egg cell
  - (C) fewer sinistral offspring in dextral broods than dextral offspring in sinistral broods
  - (D) equal numbers of exclusively left-and right-handed broods
  - (E) an increasing occurrence of left-handedness in successive broods

26. It can be inferred from the passage that a predominantly sinistral snail species might stay predominantly sinistral for each of the following reasons EXCEPT for
- (A) a developmental mechanism that affects the cell-division pattern of snails
  - (B) structural features that advantage dextral snails of the species
  - (C) a relatively small number of snails of the same hand for dextral snails of the species to mate with
  - (D) anatomical incompatibility that prevents mating between snails of opposing hands within the species
  - (E) geographic separation of sinistral and dextral populations
27. Which of the following accurately describes the relationship between the evolutionary and developmental theories discussed in the passage?
- (A) Although the two theories reach the same conclusion, each is based on different assumptions.
  - (B) They present contradictory explanations of the same phenomenon.
  - (C) The second theory accounts for certain phenomena that the first cannot explain.
  - (D) The second theory demonstrates why the first is valid only for very unusual, special cases.
  - (E) They are identical and interchangeable in that the second theory merely restates the first in less technical terms.

## SECTION B

Recently some scientists have concluded that meteorites found on Earth and long believed to have a Martian origin might actually have been blasted free of Mars's gravity by the impact on Mars of other meteorites. This conclusion has led to another question: whether meteorite impacts on Earth have similarly driven rocks from this planet to Mars.

According to astronomer S. A. Phinney, kicking a rock hard enough to free it from Earth's gravity would require a meteorite capable of making a crater more than 60 miles across. Moreover, even if Earth rocks were freed by meteorite impact, Mars's orbit is much larger than Earth's, so Phinney estimates that the probability of these rocks hitting Mars is about one-tenth as great as that of Mars's rocks hitting Earth. To demonstrate this estimate, Phinney used a computer to calculate where 1,000 hypothetical particles would go if ejected from Earth in random directions. He found that 17 of the 1,000 particles would hit Mars.

17. The passage is primarily concerned with
- (A) presenting an argument to support a particular hypothesis
  - (B) suggesting an answer to a theoretical question
  - (C) questioning the assumptions of a research project
  - (D) criticizing experimental results
  - (E) explaining the origin of certain scientific data

18. According to the passage, which of the following events may have initiated the process that led to the presence on Earth of meteorites from Mars?
- (A) A meteorite struck the Earth with tremendous velocity.
  - (B) A meteorite collided with Mars.
  - (C) Approximately 1,000 rocks were ejected from Mars.
  - (D) The orbits of Earth and Mars brought the planets to their closest points.
  - (E) Rocks from a meteorite impact broke free of Earth's gravity.
19. The passage suggests that which of the following is true concerning the probability that a rock, if ejected from Mars, will hit the Earth?
- (A) The probability is increased when particles are ejected from Mars in random directions.
  - (B) The probability is increased by the presence of large craters on the surface of Mars.
  - (C) The probability is decreased when Mars's orbit brings the planet close to Earth.
  - (D) The probability is greater than the probability that a rock from Earth will hit Mars.
  - (E) The probability is less than the probability that a rock from Earth will escape Earth's gravity.
20. Which of the following, if true, would cast most doubt on Phinney's estimate of the probability of Earth rocks hitting Mars?
- (A) Rather than going in random directions, about 25 percent of all particles ejected from Earth go in the same direction into space.
  - (B) Approximately 100 meteorites large enough to make a noticeable crater hit the Earth each year.
  - (C) No rocks of Earth origin have been detected on Mars.
  - (D) The velocity of rocks escaping from Earth's gravity is lower than the velocity of meteorites hitting the Earth.
  - (E) No craters more than 60 miles across have been found on Mars.

A "scientific" view of language was dominant among philosophers and linguists who affected to develop a scientific analysis of human thought and behavior in the early part of this century. Under the force of this view, it was perhaps inevitable that the art of rhetoric should pass from the status of being regarded as of questionable worth (because although it might be both a source of pleasure and a means to urge people to right action, it might also be a means to distort truth and a source of misguided action) to the status of being wholly condemned. If people are regarded only as machines guided by logic, as they were by these "scientific" thinkers, rhetoric is likely to be held in low regard; for the most obvious truth about rhetoric is that it speaks to the whole person. It presents its arguments first to the person as a rational being, because persuasive discourse, if honestly conceived, always has a basis in reasoning. Logical argument is the plot, *as it were*, of any speech or essay that is respectfully intended to

persuade people. Yet it is a characterizing feature of rhetoric that it goes beyond this and appeals to the parts of our nature that are involved in feeling, desiring, acting, and suffering. It recalls relevant instances of the emotional reactions of people to circumstances—real or fictional—that are similar to our own circumstances. Such is the purpose of both historical accounts and fables in persuasive discourse: they indicate literally or symbolically how people may react emotionally, with hope or fear, to particular circumstances. A speech attempting to persuade people can achieve little unless it takes into account the aspect of their being related to such hopes and fears.

Rhetoric, then, is addressed to human beings living at particular times and in particular places. From the point of view of rhetoric, we are not merely logical thinking machines, creatures abstracted from time and space. The study of rhetoric should therefore be considered the most humanistic of the humanities, since rhetoric is not directed only to our rational selves. It takes into account what the “scientistic” view **leaves out**. If it is a weakness to harbor feelings, then rhetoric may be thought of as dealing in weakness. But those who reject the idea of rhetoric because they believe it deals in lies and who at the same time hope to move people to action, must either be liars themselves or be very naive; pure logic has never been a motivating force unless it has been subordinated to human purposes, feelings, and desires, and thereby ceased to be pure logic.

21. According to the passage, to reject rhetoric and still hope to persuade people is
- (A) an aim of most speakers and writers
  - (B) an indication either of dishonesty or of credulity
  - (C) a way of displaying distrust of the audience’s motives
  - (D) a characteristic of most humanistic discourse
  - (E) a way of avoiding excessively abstract reasoning
22. It can be inferred from the passage that in the late nineteenth century rhetoric was regarded as
- (A) the only necessary element of persuasive discourse
  - (B) a dubious art in at least two ways
  - (C) an outmoded and tedious amplification of logic
  - (D) an open offense to the rational mind
  - (E) the most important of the humanistic studies
23. The passage suggests that the disparagement of rhetoric by some people can be traced to their
- (A) reaction against science
  - (B) lack of training in logic
  - (C) desire to persuade people as completely as possible
  - (D) misunderstanding of the use of the term “scientistic”
  - (E) view of human motivation
24. The passage suggests that a speech that attempts to persuade people to act is

- likely to fail if it does NOT
- (A) distort the truth a little to make it more acceptable to the audience
  - (B) appeal to the self-interest as well as the humanitarianism of the audience
  - (C) address listeners' emotions as well as their intellects
  - (D) concede the logic of other points of view
  - (E) show how an immediately desirable action is consistent with timeless principles
25. The passage suggests that to consider people as "thinking machines" (line 37) is to consider them as
- (A) beings separated from a historical context
  - (B) replaceable parts of a larger social machine
  - (C) more complex than other animals
  - (D) liars rather than honest people
  - (E) infallible in their reasoning
26. Which of the following persuasive devices is NOT used in the passage?
- (A) A sample of an actual speech delivered by an orator
  - (B) The contrast of different points of view
  - (C) The repetition of key ideas and expressions
  - (D) An analogy that seeks to explain logical argument
  - (E) Evaluative or judgmental words
27. Which of the following best states the author's main point about logical argument?
- (A) It is a sterile, abstract discipline, of little use in real life.
  - (B) It is an essential element of persuasive discourse, but only one such element.
  - (C) It is an important means of persuading people to act against their desires.
  - (D) It is the lowest order of discourse because it is the least imaginative.
  - (E) It is essential to persuasive discourse because it deals with universal truths.

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## SECTION A

Hank Morgan, the hero of Mark Twain's *A Connecticut Yankee in King Arthur's Court*, is a nineteenth-century master mechanic who mysteriously awakens in sixth-century Britain, launches what he hopes will be a peaceful revolution to transform Arthurian Britain into an industrialized modern democracy. The novel, written as a **spoof** of Thomas Malory's *Morte d'Arthur*, a popular collection of fifteenth-century legends about sixth-century Britain, has been made into three upbeat movies and two musical comedies. None of these translations to screen and stage, however, dramatize the anarchy **at the conclusion of** *A Connecticut Yankee*, which



ends with the violent overthrow of Morgan's three-year-old progressive order and his return to the nineteenth century, where he apparently commits suicide after being labeled a lunatic for his incoherent babblings about drawbridges and battlements. The American public, although enjoying Twain's humor, evidently rejected his cynicism about technological advancement and change through peaceful revolution as antithetical to the United States doctrine of progress.

17. According to the passage, which of the following is a true statement about the reception of *A Connecticut Yankee in King Arthur's Court* by the American public?
- (A) The public had too strong a belief in the doctrine of progress to accept the cynicism demonstrated at the conclusion of Twain's novel.
  - (B) Twain's novel received little public recognition until the work was adapted for motion pictures and plays.
  - (C) Although the public enjoyed Twain's humor, his use of both sixth-century and nineteenth-century characters confused many people.
  - (D) The public has continued to enjoy Twain's story, but the last part of the novel seems too violent to American minds.
  - (E) Because of the cynicism at the end of the book, the public rejected Twain's work in favor of the work of Thomas Malory.
18. The author uses the examples of "three upbeat movies and two musical comedies" (lines 9-10) primarily in order to demonstrate that
- (A) well-written novels like *A Connecticut Yankee in King Arthur's Court*, regardless of their tone or theme, can be translated to the stage and screen
  - (B) the American public has traditionally been more interested in watching plays and movies than in reading novels like *A Connecticut Yankee in King Arthur's Court*
  - (C) Twain's overall message in *A Connecticut Yankee in King Arthur's Court* is one that had a profound impact on the American public
  - (D) Twain's *A Connecticut Yankee in King Arthur's Court* has been a more popular version of the Arthurian legends than has Malory's *Morte d'Arthur*
  - (E) *A Connecticut Yankee in King Arthur's Court* has been accepted as an enjoyable and humorous tale in versions that have omitted the anarchy at the novel's conclusion
19. The author of the passage characterizes Thomas Malory's *Morte d'Arthur* as which of the following?
- (A) The best-known and most authoritative collection of Arthurian tales written in the English language
  - (B) A collection of legends that have been used as the basis for three movies and two musical comedies
  - (C) A historical account of King Arthur, the sixth-century king of Britain
  - (D) A collection of legends about sixth-century Britain that have existed since at

least the fifteenth century

(E) The novel about the life of King Arthur that inspired Twain's cynicism about nineteenth-century notions of progress

20. It can be inferred from the passage that Mark Twain would most probably have believed in which of the following statements about societal change?

(A) Revolutions, in order to be successful in changing society, have to be carried out without violence.

(B) Technological advancements are limited in their ability to change society and will likely bring liabilities along with any potential benefits.

(C) The belief in the unmitigated benefits of societal change is antithetical to the American doctrine of progress.

(D) The political system of sixth-century Britain was more conducive to societal change than was the political system of nineteenth-century America.

(E) Technological advances and peaceful revolutions, although sometimes accompanied by unintended violence and resistance to societal change, eventually lead to a more progressive order.

The intensive work of materials scientists and solid-state physicists has given rise to a class of solids known as amorphous metallic alloys, or glassy metals. There is a growing interest among theoretical and applied researchers alike in the structural properties of these materials.

When a molten metal or metallic alloy is cooled to a solid, a crystalline structure is formed that depends on the particular alloy composition. In contrast, molten nonmetallic glass-forming materials, when cooled, do not assume a crystalline structure, but instead retain a structure somewhat like that of the liquid—an amorphous structure. At room temperature, the natural long-term tendency for both types of materials is to assume the crystalline structure. The difference between the two is in the kinetics or rate of formation of the crystalline structure, which is controlled by factors such as the nature of the chemical bonding and the ease with which atoms move relative to each other. Thus, in metals, the kinetics favors rapid formation of a crystalline structure, whereas in nonmetallic glasses the rate of formation is so slow that almost any cooling rate is sufficient to result in an amorphous structure. For glassy metals to be formed, the molten metal must be cooled extremely rapidly so that crystallization is suppressed.

The structure of glassy metals is thought to be similar to that of liquid metals. One of the first attempts to model the structure of a liquid was that by the late J. D. Bernal of the University of London, who packed hard spheres into a rubber vessel in such a way as to obtain the maximum possible density. The resulting dense, random-packed structure was the basis for many attempts to model the structure of glassy metals. Calculations of the density of alloys based on Bernal-type models of the alloys metal component agreed fairly well with the experimentally determined values from measurements on alloys consisting of a noble metal together with a metalloid, such as alloys of palladium and silicon, or alloys consisting of iron, phosphorus, and carbon, although small discrepancies remained. One difference between real alloys and the hard spheres used in Bernal models is that the components of an alloy have different sizes, so that models based on two sizes of spheres are more appropriate for a binary

alloy, for example. The smaller metalloid atoms of the alloy might fit into holes in the dense, random-packed structure of the larger metal atoms.

One of the most promising properties of glassy metals is their high strength combined with high malleability. In usual crystalline materials, one finds an **inverse relation** between the two properties, whereas for many practical applications simultaneous presence of both properties is desirable. One residual obstacle to practical applications that is likely to be overcome is the fact that glassy metals will crystallize at relatively low temperatures when heated slightly.

21. The author is primarily concerned with discussing
- (A) crystalline solids and their behavior at different temperatures
  - (B) molten materials and the kinetics of the formation of their crystalline structure
  - (C) glassy metals and their structural characteristics
  - (D) metallic alloys and problems in determining their density
  - (E) amorphous materials and their practical utilization
22. The author implies that the rate at which the molten materials discussed in the passage are cooled is a determinant of the
- (A) chemical composition of the resulting solids
  - (B) strength of the chemical bonds that are formed
  - (C) kinetics of the materials' crystalline structure
  - (D) structure the materials assume
  - (E) stability of the materials' crystalline structure
23. The author's speculation about the appropriateness of models using spheres of two sizes for binary alloys would be strongly supported if models using spheres of two sizes yielded
- (A) values for density identical to values yielded by one-sphere models using the smaller spheres only
  - (B) values for density agreeing nearly perfectly with experimentally determined values
  - (C) values for density agreeing nearly perfectly with values yielded by models using spheres of three sizes
  - (D) significantly different values for density depending on the size ratio between the two kinds of spheres used
  - (E) the same values for density as the values for appropriately chosen models that use only medium-sized spheres
24. The author's attitude toward the prospects for the economic utilization of glassy metals is one of
- (A) disinterest
  - (B) impatience
  - (C) optimism

- (D) apprehension  
(E) skepticism
25. According to the passage, which of the following determines the crystalline structure of a metallic alloy?
- (A) At what rate the molten alloy is cooled  
(B) How rapid the rate of formation of the crystalline phase is  
(C) How the different-sized atoms fit into a dense, random-packed structure  
(D) What the alloy consists of and in what ratios  
(E) At what temperature the molten alloy becomes solid
26. Which of the following best describes the relationship between the structure of liquid metals and the structure of glassy metals, as it is presented in the passage?
- (A) The latter is an illustrative example of the former.  
(B) The latter is a large-scale version of the former.  
(C) The former is a structural elaboration of the latter.  
(D) The former provides an instructive contrast to the latter.  
(E) The former is a fair approximation of the latter.
27. It can be inferred from the passage that, theoretically, molten nonmetallic glasses assume a crystalline structure rather than an amorphous structure only if they are cooled
- (A) very evenly, regardless of the rate  
(B) rapidly, followed by gentle heating  
(C) extremely slowly  
(D) to room temperature  
(E) to extremely low temperatures

## SECTION B

In a perfectly free and open market economy, the type of employer—government or private—should have little or no impact on the earnings differentials between women and men. However, if there is discrimination against one sex, it is unlikely that the degree of discrimination by government and private employers will be the same. Differences in the degree of discrimination would result in earnings differentials associated with the type of employer. Given the nature of government and private employers, it seems most likely that discrimination by private employers would be greater. Thus, one would expect that, if women are being discriminated against, government employment would have a positive effect on women's earnings as compared with their earnings from private employment. The results of a study by Fuchs support this assumption. Fuchs's results suggest that the earnings of women in an industry composed entirely of government employers would be 14.6 percent greater than the earnings of women in an industry composed exclusively of private employees, other things being equal.

In addition, both Fuchs and Sanborn have suggested that the effect of discrimination by consumers on the earnings of self-employed women may be greater than the effect of either government or private employer discrimination on the earnings of women employees. To test this hypothesis, Brown selected a large sample of White male and female workers from the 1970 Census and divided them into three categories: private employees, government employees, and self-employed. (Black workers were excluded from the sample to avoid picking up earnings differentials that were the result of racial disparities.) Brown's research design controlled for education, labor-force participation, mobility, motivation, and age in order to eliminate these factors as explanations of the study's results. Brown's results suggest that men and women are not treated the same by employers and consumers. For men, self-employment is the highest earnings category, with private employment next, and government lowest. For women, this order is reversed.

One can infer from Brown's results that consumers discriminate against self-employed women. In addition, self-employed women may have more difficulty than men in getting good employees and may encounter discrimination from suppliers and from financial institutions.

Brown's results are clearly consistent with Fuch's argument that discrimination by consumers has a greater impact on the earnings of women than does discrimination by either government or private employers. Also, the fact that women do better working for government than for private employers implies that private employers are discriminating against women. The results do not prove that government does not discriminate against women. They do, however, demonstrate that if government is discriminating against women, its discrimination is not having as much effect on women's earnings as is discrimination in the private sector.

17. The passage mentions all of the following as difficulties that self-employed women may encounter EXCEPT:
- (A) discrimination from suppliers
  - (B) discrimination from consumers
  - (C) discrimination from financial institutions
  - (D) problems in obtaining good employees
  - (E) problems in obtaining government assistance
18. The author would be most likely to agree with which of the following conclusions about discrimination against women by private employers and by government employers?
- (A) Both private employers and government employers discriminate, with equal effects on women's earnings.
  - (B) Both private employers and government employers discriminate, but the discrimination by private employers has a greater effect on women's earnings.
  - (C) Both private employers and government employers discriminate, but the discrimination by government employers has a greater effect on women's earnings.
  - (D) Private employers discriminate; it is possible that government employers

discriminate.

(E) Private employers discriminate; government employers do not discriminate.

19. A study of the practices of financial institutions that revealed no discrimination against self-employed women would tend to contradict which of the following?

(A) Some tentative results of Fuchs's study

(B) Some explicit results of Brown's study

(C) A suggestion made by the author

(D) Fuchs's hypothesis

(E) Sanborn's hypothesis

20. According to Brown's study, women's earnings categories occur in which or the following orders, from highest earnings to lowest earnings?

(A) Government employment, self-employment, private employment

(B) Government employment, private employment, self-employment

(C) Private employment, self-employment, government employment

(D) Private employment, government employment, self-employment

(E) Self-employment, private employment, government employment

21. The passage explicitly answers which of the following questions?

(A) Why were Black workers excluded from the sample used in Brown's study?

(B) Why do private employers illuminate more against women than do government employers?

(C) Why do self-employed women have more difficulty than men in hiring high-quality employees?

(D) Why do suppliers discriminate against self-employed women?

(E) Are Black women and Black men treated similarly by employers and consumers?

22. It can be inferred from the passage that the statements in the last paragraph are most probably which of the following?

(A) Brown's elaboration of his research results

(B) Brown's tentative inference from his data

(C) Brown's conclusions, based on common-sense reasoning

(D) The author's conclusions, based on Fuchs's and Brown's results

(E) The author's criticisms of Fuchs's argument, based on Brown's results

23. Which of the following titles best describes the content of the passage as a whole?

(A) The Necessity for Earnings Differentials in a Free Market Economy

(B) Why Discrimination Against Employed Women by Government Employers and Private Employers Differs from Discrimination Against Self-Employed



## Women by Consumers

- (C) How Discrimination Affects Women's Choice of Type of Employment
- (D) The Relative Effect of Private Employer Discrimination on Men's Earnings as Compared to Women's Earnings
- (E) The Relative Effect of Discrimination by Government Employers, Private Employers, and Consumers on Women's Earnings

The success of fluoride in combating dental decay is well established and, *without a doubt*, socially beneficial. However, fluoride's toxic properties have been known for a century. In humans excessive intake (for adults, over 4 milligrams per day) over many years can lead to skeletal fluorosis, a well-defined skeletal disorder, and in some plant species, fluoride is more toxic than ozone, sulfur dioxide, or pesticides.

Some important questions remain. For example, the precise lower limit at which the fluoride content of bone becomes toxic is still undetermined. And while fluoride intake from water and air can be evaluated relatively easily, it is much harder to estimate how much a given population ingests from foodstuffs because of the wide variations in individual eating habits and in fluoride concentrations in foodstuffs. These difficulties suggest that we should be wary of indiscriminately using fluoride, even in the form of fluoride-containing dental products.

24. In the passage, the author is primarily concerned with
- (A) analyzing and categorizing
  - (B) comparing and contrasting
  - (C) synthesizing and predicting
  - (D) describing and cautioning
  - (E) summarizing and reinterpreting
25. The passage suggests that it would be easier to calculate fluoride intake from food if
- (A) adequate diets were available for most people.
  - (B) individual eating habits were more uniform
  - (C) the fluoride content of food was more varied
  - (D) more people were aware of the fluoride content of food
  - (E) methods for measuring the fluoride content of food were more generally agreed on
26. One function of the second paragraph of the passage is to
- (A) raise doubts about fluoride's toxicity
  - (B) introduce the issue of fluoride's toxicity
  - (C) differentiate a toxic from a nontoxic amount of fluoride
  - (D) indicate that necessary knowledge of fluoride remains incomplete
  - (E) discuss the foodstuffs that are most likely to contain significant concentrations of fluoride

27. The passage suggests which of the following about the effect of fluoride on humans?
- (A) The effect is more easily measured than is the effect of exposure to pesticides.
  - (B) The effect of fluoride intake from water and air is relatively difficult to monitor.
  - (C) In general the effect is not likely to be as harmful as the effect of exposure to sulfur dioxide.
  - (D) An intake of 4 milligrams over a long period of time usually leads to a skeletal disorder in humans.
  - (E) An intake of slightly more than 4 milligrams for only a few months is not likely to be life-threatening.

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## SECTION A

It is now established that the Milky Way is far more extended and of much greater mass than was hitherto thought. However, all that is visible of the constituents of the Milky Way's corona (outer edge), where much of the galaxy's mass must be located, is a tiny fraction of the corona's mass. Thus, most of the Milky Way's outlying matter must be dark.

Why? Three facts are salient. First, dwarf galaxies and globular clusters, into which most of the stars of the Milky Way's corona are probably bound, consist mainly of old stars. Second, old stars are not highly luminous. Third, no one has detected in the corona the clouds of gaseous matter such as hydrogen and carbon monoxide that are characteristic of the bright parts of a galaxy. At present, therefore, the best explanation—though still quite tentative—for the darkness of the corona is that the corona is composed mainly of old, burned-out stars.

17. The passage as a whole is primarily concerned with
- (A) analyzing a current debate
  - (B) criticizing a well-established theory
  - (C) showing how new facts support a previously dismissed hypothesis
  - (D) stating a conclusion and adducing evidence that may justify it
  - (E) contrasting two types of phenomena and showing how they are related
18. According to the passage, a bright part of a galaxy typically includes
- (A) dwarf galaxies and clusters of stars
  - (B) a balanced mixture of old and new stars
  - (C) a large portion of the galaxy's mass
  - (D) part of the corona of the galaxy
  - (E) gases such as hydrogen and carbon monoxide
19. It can be inferred from the passage that, compared with what they now think,

until fairly recently astronomers believed that the Milky Way

- (A) was much darker
- (B) was much smaller
- (C) was moving much more slowly
- (D) had a much larger corona
- (E) had much less gaseous matter

20. The passage presents which of the following as incontrovertible?

- I. The low luminosity of old stars
  - II. The absence of clouds of gaseous matter from the corona of the Milky Way
  - III. The predominance of globular clusters and dwarf galaxies in the corona of the Milky Way
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II, and III

One of the principal themes of Walzer's critique of liberal capitalism is that it is insufficiently egalitarian. Walzer's case against the economic inequality generated by capitalism and in favor of "a radical redistribution of wealth" is presented in a widely cited essay entitled "In Defense of Equality."

The most striking feature of Walzer's critique is that, far from rejecting the principle of reward according to merit, Walzer insists on its validity. People who excel should receive the superior benefits appropriate to their excellence. But people exhibit a great variety of qualities—"intelligence, physical strength, agility and grace, artistic creativity, mechanical skill, leadership, endurance, memory, psychological insight, the capacity for hard work—even moral strength, sensitivity, the ability to express compassion." Each deserves its proper recompense, and hence a proper distribution of material goods should reflect human differences as measured on all these different scales. Yet, under capitalism, the ability to make money ("the green thumb of bourgeois society") enables its possessor to acquire almost "every other sort of social good," such as the respect and esteem of others.

The centerpiece of Walzer's argument is the invocation of a quotation from Pascal's *Pensees*, which concludes: "Tyranny is the wish to obtain by one means what can only be had by another." Pascal believes that we owe different duties to different qualities. So we might say that infatuation is the proper response to charm, and awe the proper response to strength. In this light, Walzer characterizes capitalism as the tyranny of money (or of the ability to make it). And Walzer advocates as the means of eliminating this tyranny and of restoring genuine equality "the abolition of the power of money outside its sphere." What Walzer envisions is a society in which wealth is no longer convertible into social goods with which it has no intrinsic connection.

Walzer's argument is a puzzling one. After all, why should those qualities unrelated to the

production of material goods be rewarded with material goods? Is it not tyrannical, in Pascal's sense, to insist that those who excel in "sensitivity" or "the ability to express compassion" merit equal wealth with those who excel in qualities (such as "the capacity for hard work") essential in producing wealth? Yet Walzer's argument, however deficient, does point to one of the most serious weaknesses of capitalism—namely, that it brings to predominant positions in a society people who, no matter how legitimately they have earned their material rewards, often lack those other qualities that evoke affection or admiration. Some even argue plausibly that this weakness may be irremediable: in any society that, like a capitalist society, seeks to become ever wealthier in material terms disproportionate rewards are bound to flow to the people who are instrumental in producing the increase in its wealth.

21. The primary purpose of the passage is to
- (A) argue that Walzer's critique of liberal capitalism is the cornerstone of Walzer's thinking
  - (B) identify and to deprecate the origins of the intellectual tradition championed by Walzer
  - (C) present more clearly than does the essay "In Defense of Equality" the distinctive features of Walzer's politico-economic theories
  - (D) demonstrate that Walzer's critique of liberal capitalism is neither original nor persuasive
  - (E) outline and to examine critically Walzer's position on economic equality
22. The author mentions all of the following as issues addressed by Walzer EXCEPT:
- (A) proper recompense for individual excellence
  - (B) proper interpretation of "economic equality"
  - (C) proper level of a society's wealth
  - (D) grounds for calling capitalism "the tyranny of money"
  - (E) exchangeability of money for social goods
23. The argumentation in the passage turns importantly on the question of what should be the proper relation between
- (A) "liberal capitalism" (line 2) and "bourgeois society" (lines 20-21)
  - (B) "reward" (line 8) and "recompense" (line 17)
  - (C) "sensitivity" (line 15) and "the ability to express compassion" (lines 15-16)
  - (D) "distribution of material goods" (lines 17-18) and "redistribution of wealth" (lines 4-5)
  - (E) "social goods" (line 37) and "material goods" (line 41)
24. The passage provides sufficient information to answer which of the following questions?
- (A) What weight in relation to other qualities should a quality like sensitivity have, according to Walzer, in determining the proper distribution of goods?
  - (B) Which quality does Walzer deem too highly valued under liberal capitalism?

- (C) Which are the social goods that are, according to Walzer, outside the reach of the power of money?
- (D) What practical steps does Walzer suggest be taken to relieve the economic inequality generated by capitalism?
- (E) What deficiencies in Walzer's own argument does Walzer acknowledge?
25. The author implies that Walzer's interpretation of the principle of reward according to merit is distinctive for its
- (A) insistence on maximizing everyone's rewards
- (B) emphasis on equality
- (C) proven validity
- (D) broad conception of what constitutes merit
- (E) broad conception of what constitutes a reward
26. The author's interpretation of the principle that "we owe different duties to different qualities" (lines 28-29) suggests that which of the following would most probably be the duty paired with the quality of veracity?
- (A) Dignity
- (B) Trust
- (C) Affection
- (D) Obedience
- (E) Integrity
27. The author implies that sensitivity is not a quality that
- (A) is essential in producing wealth
- (B) wealthy people lack
- (C) can be sensibly measured on a scale
- (D) characterizes tyrannical people
- (E) is owed a duty in Pascal's sense

## SECTION B

The outpouring of contemporary American Indian literature in the last two decades, often called the Native American Renaissance, represents for many the first opportunity to experience Native American poetry. The appreciation of traditional oral American Indian literature has been limited, hampered by poor translations and by the difficulty, even in the rare culturally sensitive and aesthetically satisfying translation, of completely conveying the original's verse structure, tone, and syntax.

By writing in English and experimenting with European literary forms, contemporary American Indian writers have broadened their potential audience, while clearly retaining many essential characteristics of their ancestral oral traditions. For example, Pulitzer-prizewinning author N. Scott Momaday's poetry often treats art and mortality in a manner that recalls British

romantic poetry, while his poetic response to the power of natural forces recalls Cherokee oral literature. In the same way, his novels, an art form European in origin, display an eloquence that echoes the oratorical grandeur of the great nineteenth-century American Indian chiefs.

17. According to the passage, Momaday's poetry shares which of the following with British romantic poetry?
- (A) Verse structure
  - (B) Oratorical techniques
  - (C) Manner of treating certain themes
  - (D) Use of certain syntactical constructions
  - (E) Patterns of rhythm and rhyme
18. Which of the following is most likely one of the reasons that the author mentions the work of N. Scott Momaday?
- (A) To illustrate how the author believes that members of the Native American Renaissance have broadened their potential audience
  - (B) To emphasize the similarities between Momaday's writings and their European literary models
  - (C) To demonstrate the contemporary appeal of traditional Native American oral literature
  - (D) To suggest that contemporary American Indian writers have sacrificed traditional values for popular literary success
  - (E) To imply the continuing popularity of translations of oral American Indian literature
19. Which of the following can be inferred from the passage about written translations of oral Native American poetry?
- (A) They were less widely read than are the works of contemporary Native American poets writing in English.
  - (B) They were often made by writers who were intimately familiar with both English and Native American languages.
  - (C) They often gave their readers aesthetic satisfaction, despite their inaccuracies.
  - (D) They usually lacked complex verse structure.
  - (E) They were overly dependent on European literary models.
20. The passage suggests which of the following about American Indian poets before the Native American Renaissance?
- (A) Art and mortality were rarely the subjects of their poetry.
  - (B) Their oratorical grandeur reached its peak in the nineteenth century.
  - (C) They occasionally translated their own poetry.
  - (D) They seldom wrote poetry in English.
  - (E) They emphasized structure, tone, and syntax rather than literary form.



Recent findings suggest that visual signals are fed into at least three separate processing systems in the brain, each with its own distinct function. One system appears to process information about shape perception; a second, information about color; a third, information about movement, location, and spatial organization. An understanding of the functions and capabilities of these three systems can shed light on how artists manipulate materials to create surprising visual effects.

It is possible to summarize the functions of the three subsystems of the visual system as follows. The parvo system carries highly detailed information about stationary objects and about borders that are formed by contrasting colors. It does not, however, carry information about specific colors. Because much of the information about the shape of objects can be represented by their borders, we suspect that this system is important in shape perception. The blob system processes information about colors, but not about movement, shape discrimination, or depth. The magno system carries information about movement and depth. It is good at detecting motion but poor at scrutinizing stationary images. In addition it appears to be colorblind; it is unable to perceive borders that are visible only on the basis of color contrast.

Cells in the parvo system can distinguish between two colors at any relative brightness of the two. Cells in the color-blind magno system, on the other hand, are analogous to a black-and-white photograph in the way they function: they signal information about the brightness of surfaces but not about their colors. For any pair of colors there is a particular brightness ratio at which two colors, for example red and green, will appear as the same shade of gray in a black-and-white photograph, hence any border between them will vanish. Similarly at some relative red-to-green brightness level, the red and green will appear identical to the magno system. The red and green are then called equiluminant. A border between two equiluminant colors has color contrast but no luminance contrast.

Many artists have seemed to be empirically aware of these underlying principles and have used them to maximize particular effects. Some of the peculiar effects of Op Art, for example, probably arise from color combinations that are strong activators of the parvo system but are weak stimuli for the magno system. An object that is equiluminant with its background looks vibrant and unstable. The reason is that the parvo system can signal the object's shape but the magno system cannot see its borders and therefore cannot signal either the movement or the position of the object. Hence it seems to jump around, drift, or vibrate on the canvas.

21. The passage is primarily concerned with
- (A) describing subsystems of the visual system and showing their relevance to art
  - (B) comparing three theories on how the visual system analyzes images in a work of art
  - (C) explaining how artists use color contrasts to create particular visual effects
  - (D) explaining how the visual system distinguishes among different colors
  - (E) describing functions of the first three phases of the visual system
22. Which of the following would create visual effects most similar to those discussed in lines 43-48?
- (A) A watercolor in which colors are applied imprecisely to outlined shapes

- (B) A painting in which different shades of the same color are used to obscure the boundaries between objects
  - (C) A black-and-white sketch in which shading is used to convey a sense of depth
  - (D) An advertisement in which key words are at the same level of brightness as a background of contrasting color
  - (E) A design in which two different shades of gray are juxtaposed to heighten the contrast between them
23. The passage provides information about which of the following?
- (A) Why the same system can process information about movement and location
  - (B) Why the parvo system is considered to be responsible for shape perception
  - (C) Why the blob system can process information about colors but not movement
  - (D) The mechanism that enables the blob system to distinguish between stationary objects
  - (E) The mechanism that enables the magno system to carry information about shape discrimination
24. According to the passage, which of the following is true of the visual system?
- (A) It processes visual signals in three consecutive stages.
  - (B) It processes visual signals through separate processing systems in the brain.
  - (C) It consists of only three separate systems.
  - (D) It consists of a single hierarchical system rather than a multipartite system.
  - (E) It consists of separate system with high overlap in processing functions.
25. The author mentions a “black-and-white photograph” (line 29) most probably in order to explain
- (A) how the parvo system distinguishes between different shapes and colors
  - (B) how the magno system uses luminosity to identify borders between objects
  - (C) the mechanism that makes the magno system color-blind
  - (D) why the magno system is capable of perceiving moving images
  - (E) the brightness ratio at which colors become indistinguishable to the parvo system
26. The author uses all of the following in the discussion in the third paragraph EXCEPT:
- (A) an example
  - (B) definition of terms
  - (C) contrast
  - (D) a rhetorical question
  - (E) analogy
27. The passage suggests which of the following about the magno system?

- (A) It perceives borders on the basis of luminance contrast.
- (B) It perceives shapes on the basis of color contrast.
- (C) It is better at perceiving stationary objects than it is at detecting movement.
- (D) It can detect motion but it cannot signal the position of an object.
- (E) It is better at processing information about movement than it is at processing information about depth.

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## SECTION A

Although, recent years have seen substantial reductions in noxious pollutants from individual motor vehicles, the number of such vehicles has been steadily increasing consequently, more than 100 cities in the United States still have levels of carbon monoxide, particulate matter, and ozone (generated by photochemical reactions with hydrocarbons from vehicle exhaust) that exceed legally established limits. There is a growing realization that the only effective way to achieve further reductions in vehicle emissions—short of a massive shift away from the private automobile—is to replace conventional diesel fuel and gasoline with cleaner-burning fuels such as compressed natural gas, liquefied petroleum gas, ethanol, or methanol.

All of these alternatives are carbon-based fuels whose molecules are smaller and simpler than those of gasoline. These molecules burn more cleanly than gasoline, in part because they have fewer, if any, carbon-carbon bonds, and the hydrocarbons they do emit are less likely to generate ozone. The combustion of larger molecules, which have multiple carbon-carbon bonds, involves a more complex series of reactions. These reactions increase the probability of incomplete combustion and are more likely to release uncombusted and photochemically active hydrocarbon compounds into the atmosphere. On the other hand, alternative fuels do have drawbacks. Compressed natural gas would require that vehicles have a set of heavy fuel tanks—a serious liability in terms of performance and fuel efficiency—and liquefied petroleum gas faces fundamental limits on supply.

Ethanol and methanol, on the other hand, have important advantages over other carbon-based alternative fuels: they have a higher energy content per volume and would require minimal changes in the existing network for distributing motor fuel. Ethanol is commonly used as a gasoline supplement, but it is currently about twice as expensive as methanol, the low cost of which is one of its attractive features. Methanol's most attractive feature, however, is that it can reduce by about 90 percent the vehicle emissions that form ozone, the most serious urban air pollutant.

Like any alternative fuel, methanol has its critics. Yet much of the criticism is based on the use of "gasoline clone" vehicles that do not incorporate even the simplest design improvements that are made possible with the use of methanol. It is true, for example, that a given volume of methanol provides only about one-half of the energy that gasoline and diesel fuel do; other things being equal, the fuel tank would have to be somewhat larger and heavier. However, since methanol-fueled vehicles could be designed to be much more efficient than "gasoline clone"

vehicles fueled with methanol, they would need comparatively less fuel. Vehicles incorporating only the simplest of the engine improvements that methanol makes feasible would still contribute to an immediate lessening of urban air pollution.

17. The author of the passage is primarily concerned with
- (A) countering a flawed argument that dismisses a possible solution to a problem
  - (B) reconciling contradictory points of view about the nature of a problem
  - (C) identifying the strengths of possible solutions to a problem
  - (D) discussing a problem and arguing in favor of one solution to it
  - (E) outlining a plan of action to solve a problem and discussing the obstacles blocking that plan
18. According to the passage, incomplete combustion is more likely to occur with gasoline than with an alternative fuel because
- (A) the combustion of gasoline releases photochemically active hydrocarbons
  - (B) the combustion of gasoline involves an intricate series of reactions
  - (C) gasoline molecules have a simple molecular structure
  - (D) gasoline is composed of small molecules.
  - (E) gasoline is a carbon-based fuel
19. The passage suggests which of the following about air pollution?
- (A) Further attempts to reduce emissions from gasoline-fueled vehicles will not help lower urban air-pollution levels.
  - (B) Attempts to reduce the pollutants that an individual gasoline-fueled vehicle emits have been largely unsuccessful.
  - (C) Few serious attempts have been made to reduce the amount of pollutants emitted by gasoline-fueled vehicles.
  - (D) Pollutants emitted by gasoline-fueled vehicles are not the most critical source of urban air pollution.
  - (E) Reductions in pollutants emitted by individual vehicles have been offset by increases in pollution from sources other than gasoline-fueled vehicles.
20. which of the following most closely parallels the situation described in the first sentence of the passage?
- (A) Although a town reduces its public services in order to avoid a tax increase, the town's tax rate exceeds that of other towns in the surrounding area.
  - (B) Although a state passes strict laws to limit the type of toxic material that can be disposed of in public landfills, illegal dumping continues to increase.
  - (C) Although a town's citizens reduce their individual use of water, the town's water supplies continue to dwindle because of a steady increase in the total population of the town.
  - (D) Although a country attempts to increase the sale of domestic goods by adding a tax to the price of imported goods, the sale of imported goods within the

country continues to increase.

(E) Although a country reduces the speed limit on its national highways, the number of fatalities caused by automobile accidents continues to increase.

21. The author describes which of the following as the most appealing feature of methanol?

(A) It is substantially less expensive than ethanol.

(B) It could be provided to consumers through the existing motor fuel distribution system.

(C) It has a higher energy content than other alternative fuels.

(D) Its use would make design improvements in individual vehicles feasible.

(E) Its use would substantially reduce ozone levels.

22. It can be inferred from the passage that a vehicle specifically designed to use methanol for fuel would

(A) be somewhat lighter in total body weight than a conventional vehicle fueled with gasoline

(B) be more expensive to operate than a conventional vehicle fueled with gasoline

(C) have a larger and more powerful engine than a conventional vehicle fueled with gasoline

(D) have a larger and heavier fuel tank than a “gasoline clone” vehicle fueled with methanol

(E) average more miles per gallon than a “gasoline clone” vehicle fueled with methanol

23. It can be inferred that the author of the passage most likely regards the criticism of methanol in the last paragraph as

(A) flawed because of the assumptions on which it is based

(B) inapplicable because of an inconsistency in the critics’ arguments

(C) misguided because of its exclusively technological focus

(D) inaccurate because it ignores consumers’ concerns

(E) invalid because it reflects the personal bias of the critics

Paule Marshall's *Brown Girl, Brownstones* (1959) was a landmark in the depiction of female characters in Black American literature. Marshall avoided the oppressed and tragic heroine in conflict with White society that had been typical of the protest novels of the early twentieth century. Like her immediate predecessors, Zora Neale Hurston and Gwendolyn Brooks, she focused her novel on an ordinary Black woman's search for identity within the context of a Black community. But Marshall extended the analysis of Black female characters begun by Hurston and Brooks by depicting her heroine's development in terms of the relationship between her Barbadian American parents, and by exploring how male and female roles were defined by their immigrant culture, which in turn was influenced by the materialism of White America. By placing characters within a wider cultural context, Marshall attacked racial and sexual

stereotypes and paved the way for explorations of race, class, and gender in the novels of the 1970's.

24. The passage is primarily concerned with
- (A) comparing the works of three Black American authors
  - (B) describing common themes in Black American literature
  - (C) discussing an important work in Black American literature
  - (D) providing insights about Black American literature in the early twentieth century
  - (E) providing historical information about the writing of Black American novels in the second half the twentieth century
25. According to the passage, Hurston, Brooks, and Marshall are alike in that they
- (A) did not examine the effects of White culture on their characters' lives
  - (B) were heavily influenced by the protest novels of the early twentieth century
  - (C) used Black communities as the settings for their novels
  - (D) wrote primarily about the difficulties their characters encountered in White culture
  - (E) wrote exclusively about female characters and the experiences of women
26. The author's description of the way in which Marshall depicts her heroine's development is most probably intended to
- (A) continue the discussion of similarities in the works of Brooks, Hurston, and Marshall
  - (B) describe the specific racial and sexual stereotypes that Marshall attacked
  - (C) contrast the characters in Marshall's novels with those in later works
  - (D) show how Marshall extends the portrayal of character initiated by her predecessors
  - (E) compare themes in Marshall's early work with themes in her later novels
27. It can be inferred that the author of the passage would describe *Brown Girl, Brownstones* as being
- (A) completely different from novels written before 1959
  - (B) highly influenced by novels written in the early twentieth century
  - (C) similar to the protest novels that preceded it
  - (D) important in the late 1950's but dated today
  - (E) an important influence on novels written in the 1970's

## SECTION B

Many philosophers disagree over the definition of morality, but most disputants fall into one of two categories: egocentrics, who define morality as the pursuit of self-fulfillment, and sociocentrics, who define morality as an individual's obligations to society. Where does the truth



lie? Fortunately, the stem of the word "morality" provides some clues. The word "mores" originally referred to the customs of preliterate cultures. Mores, which embodied each culture's ideal principles for governing every citizen, were developed in the belief that the foundation of a community lies in the cultivation of individual powers to be placed in service to the community. These mores were concerned with such skills as food-gathering and warfare as well as an individual's relationships with others. Thus, I submit, "morality" must be concerned with what is honored by the community at large. However, self-fulfillment is important to morality because unfulfilled citizens, no matter how virtuous, cannot perform the duties morality assigns them.

17. The primary purpose of this passage is to
- (A) summarize an argument
  - (B) resolve a dispute
  - (C) trace a word's origin
  - (D) prove a hypothesis
  - (E) initiate a debate
18. According to the passage, mores in preliterate cultures concerned such skills as warfare and food-gathering because these skills were
- (A) characteristic of an individual's self-fulfillment
  - (B) examples of a culture's traditions
  - (C) manifestations of an individual's ideals
  - (D) demonstrations of an individual's contributions to the community
  - (E) examples of a community's governing principles
19. It can be inferred from the passage that the author would be most likely to agree with which of the following statements regarding sociocentrics and egocentrics?
- (A) The position of the sociocentrics is stronger than that of the egocentrics.
  - (B) The positions of the egocentrics and sociocentrics are of equal merit.
  - (C) There is no merit in the position of the egocentrics.
  - (D) Neither position contributes very much to an understanding of the definition of morality.
  - (E) The dispute between the egocentrics and sociocentrics is based on trivial issues.
20. With which of the following statements regarding the relationship between the individual and morality would the author be most likely to agree?
- (A) Failure in social obligations is the price of success in individual endeavors.
  - (B) The unfulfilled citizen cannot fulfill his moral obligations to the community.
  - (C) Morality is unconcerned with conflicts among citizens.
  - (D) The unfulfilled citizen is without virtue.
  - (E) Wealth harms a citizen's moral standing in the community.

(This passage was written in 1975.)

The complications frequently accompanying diabetes, such as impairment of vision and of kidney function, are now thought to result from the lack of continuous control of blood glucose concentrations. The healthy pancreas, in response to increases in blood glucose concentration, releases small quantities of insulin throughout the day and thereby maintains the concentration within physiological limits (normoglycemia). But the diabetic generally receives only one large dose daily. The diabetic's blood glucose concentration can thus fluctuate greatly during the interval between doses, and it has been suggested that the complications result from the periods of high concentrations of blood glucose (hyperglycemia). Many investigators thus believe that restoration of normoglycemia might halt the progression of such complications and perhaps even reverse them.

There are three primary techniques that have been investigated for restoration of normoglycemia. They are: transplantation of whole, healthy pancreases; transplantation of islets of Langerhans, that portion of the pancreas that actually secretes insulin; and implantation of artificial pancreases. There has, in fact, been a great deal of success in the development of these techniques and each seems, on the whole, promising. Nonetheless, it will undoubtedly be many years before any one of them is accepted as a treatment for diabetes.

To many people, the obvious approach would seem to be simply to transplant pancreases from cadavers in the same manner that kidneys and other organs are routinely transplanted. That was the rationale in 1966 when the first recorded pancreas transplant was performed. Between 1966 and 1975, there were forty-six pancreas transplants in forty-five other patients in the United States and five other countries. But only one of these patients is still alive with a functioning graft, and surgeons have found that the procedure is not as simple as they once thought.

The surviving patient has required no insulin since the operation. Another patient survived 638 days without requiring insulin. And one patient survived a transplantation for more than a year, but died when he chose not to take the immunosuppressive drugs. These results, though meager, suggest that the procedure has the potential for success.

The rest of the patients, however, either rejected the transplant or died within a short period. There does not appear to be any technical problem with the procedure. Rather, most of the patients were already so severely debilitated by the complications of diabetes that they could not withstand the surgery and the immunosuppressive regimen required to prevent rejection. More than half of the patients, furthermore, also required a kidney transplant. Most investigators now agree that the simultaneous transplantation of both organs is too great a shock to the patient and greatly increases the total risk.

21. Which of the following best states one of the main conclusions of the passage?

- (A) Although the techniques for pancreas transplants appear to be theoretically correct, there are problems that must be solved before the operation can be used as a treatment for diabetes.
- (B) Although the techniques for pancreas transplants are still being developed, the experimental results show that the operation will be a successful treatment for diabetes in the near future.
- (C) Although pancreas transplants are reliable, many diabetics are reluctant to

- undergo the operation because of the side effects of immunosuppressive drugs.
- (D) Although pancreas transplants alone are not generally successful, the operation can be used in conjunction with other procedures to treat diabetes.
- (E) Although pancreas transplants have not been successful in treating diabetes, research indicates that other procedures may soon be developed.
22. According to the passage, widely spaced doses of insulin can cause.
- (A) reversal of normal kidney function
- (B) delay in the onset of diabetes
- (C) radical changes in the concentration of blood glucose
- (D) restoration of normoglycemia
- (E) marked variations in the islets of Langerhans
23. According to the passage, a periodic high concentration of blood glucose in diabetics is a possible cause of
- (A) deterioration of the pancreas
- (B) damage to the eyes and kidneys
- (C) rejection of transplanted organs
- (D) inadequate secretion of insulin
- (E) increased production of blood cells
24. It can be inferred from the passage that one of the important contributing causes of the failure of most pancreas transplants has been the
- (A) reluctance of patients to cooperate with physicians
- (B) imperfect techniques used in the operations
- (C) scarcity of immunosuppressive drugs
- (D) unavailability of healthy pancreases
- (E) weakened condition of the patients
25. The author provides information that would answer which of the following questions?
- I. What is hyperglycemia?
- II. What is one cause of hyperglycemia?
- III. What are some of the organs that can be adversely affected by hyperglycemia?
- (A) I only
- (B) II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III

26. On the basis of the information in the passage, which of the following can be inferred about the islets of Langerhans?
- I. They are important for the normal control of blood glucose concentration.
  - II. They can be transplanted independently of other pancreatic cells.
  - III. They regulate immunosuppressive reactions.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II, and III
27. The passage suggests that the author considers the data concerning the success of pancreas transplants to be
- (A) invalid
  - (B) indirect
  - (C) inaccurate
  - (D) insufficient
  - (E) inappropriate

### SECTION C

In February 1848 the people of Paris rose in revolt against the constitutional monarchy of Louis-Philippe. Despite the existence of excellent narrative accounts, the February Days, as this revolt is called, have been largely ignored by social historians of the past two decades. For each of the three other major insurrections in nineteenth-century Paris—July 1830, June 1848, and May 1871—there exists at least a sketch of participants' backgrounds and an analysis, more or less rigorous, of the reasons for the occurrence of the uprisings. Only in the case of the February Revolution do we lack a useful description of participants that might characterize it in the light of what social history has taught us about the process of revolutionary mobilization.

Two reasons for this relative neglect seem obvious. First, the insurrection of February has been overshadowed by that of June. The February Revolution overthrew a regime, to be sure, but met with so little resistance that it failed to generate any real sense of historical drama. Its successor, on the other hand, appeared to pit key socioeconomic groups in a life-or-death struggle and was widely seen by contemporary observers as marking a historical departure. Through their interpretations, which exert a continuing influence on our understanding of the revolutionary process, the impact of the events of June has been magnified, while, as an unintended consequence, the significance of the February insurrection has been diminished. Second, like other "successful" insurrections, the events of February failed to generate the most desirable kinds of historical records. Although the June insurrection of 1848 and the Paris Commune of 1871 would be considered watersheds of nineteenth-century French history by any standard, they also present the social historian with a signal advantage: these failed insurrections created a mass of invaluable documentation as a by-product of authorities' efforts

to search out and punish the rebels.

Quite different is the outcome of successful insurrections like those of July 1830 and February 1848. Experiences are retold, but participants typically resume their daily routines without ever recording their activities. Those who played salient roles may become the objects of highly embellished verbal accounts or in rare cases, of celebratory articles in contemporary periodicals. And it is true that the publicly acknowledged leaders of an uprising frequently write memoirs. However, such documents are likely to be highly unreliable, unrepresentative, and unsystematically preserved, especially when compared to the detailed judicial dossiers prepared for everyone arrested following a failed insurrection. As a consequence, it may prove difficult or impossible to establish for a successful revolution a comprehensive and trustworthy picture of those who participated, or to answer even the most basic questions one might pose concerning the social origins of the insurgents.

17. According to the passage, “a useful description of participants” (lines 11-12) exists for which of the following insurrections of nineteenth-century France?
- I. The July Insurrection of 1830
  - II. The February Revolution of 1848
  - III. The June insurrection of 1848
  - IV. The May insurrection of 1871
- (A) I and III only  
(B) II and IV only  
(C) I, II, and III only  
(D) I, III, and IV only  
(E) II, III, and IV only
18. It can be inferred from the passage that support for the objectives of the February Revolution was
- (A) negligible  
(B) misguided  
(C) fanatical  
(D) spontaneous  
(E) widespread
19. Which of the following, best describes the organization of the second paragraph?
- (A) The thesis of the passage is stated and supporting evidence systematically presented.  
(B) Two views regarding the thesis presented in the first paragraph are compared and contrasted.  
(C) Evidence refuting the thesis presented in the first paragraph is systematically presented.  
(D) The thesis presented in the first paragraph is systematically supported.  
(E) The thesis presented in the first paragraph is further defined and a conclusion

drawn.

20. It can be inferred from the passage that the author considers which of the following essential for understanding a revolutionary mobilization?
- (A) A comprehensive theory of revolution that can be applied to the major insurrections of the nineteenth century
  - (B) Awareness of the events necessary for a revolution to be successful
  - (C) Access to narratives and memoirs written by eyewitnesses of a given revolution
  - (D) The historical perspective provided by the passage of a considerable amount of time
  - (E) Knowledge of the socioeconomic backgrounds of a revolution's participants
21. Which of the following can be inferred about the "detailed judicial dossiers" referred to in line 49?
- (A) Information contained in the dossiers sheds light on the social origins of a revolution's participants.
  - (B) The dossiers closely resemble the narratives written by the revolution's leaders in their personal memoirs.
  - (C) The information that such dossiers contain is untrustworthy and unrepresentative of a revolution's participants.
  - (D) Social historians prefer to avoid such dossiers whenever possible because they are excessively detailed.
  - (E) The February Revolution of 1848 produced more of these dossiers than did the June insurrection.
22. Which of the following is the most logical objection to the claim made in lines 38-39?
- (A) The February Revolution of 1848 is much less significant than the July insurrection of 1830.
  - (B) The backgrounds and motivations of participants in the July insurrection of 1830 have been identified, however cursorily.
  - (C) Even less is known about the July insurrection of 1830 than about the February Revolution of 1848.
  - (D) Historical records made during the July insurrection of 1830 are less reliable than those made during the May insurrection of 1871.
  - (E) The importance of the July insurrection of 1830 has been magnified at the expense of the significance of the February Revolution of 1848.
23. With which of the following statements regarding revolution would the author most likely agree?
- (A) Revolutionary mobilization requires a great deal of planning by people representing disaffected groups.



- (B) The objectives of the February Revolution were more radical than those of the June insurrection.
- (C) The process of revolutionary mobilization varies greatly from one revolution to the next.
- (D) Revolutions vary greatly in the usefulness of the historical records that they produce.
- (E) As knowledge of the February Revolution increases, chances are good that its importance will eventually eclipse that of the June insurrection.

One advantage of breeding African bees with other bee types (Africanization) may be resistance to the parasitic mite *Varroa jacobsoni*, a major threat to modern beekeeping. In parts of Europe, this mite is devastating honeybees and killing many colonies despite preventive measures by beekeepers. But in Brazil *Varroa jacobsoni* has been present in Africanized bees since 1972 without the loss of a single colony, even though beekeepers there undertook no preventive measures. The mites lay eggs within the brood cells of immature bees, and developing mites feed on the hemolymph (blood) of bee pupae. But fewer mites reproduce in Africanized bees than in European bees. Some researchers point out that this resistance may be related to the Africanized worker bee's shorter development period, which prevents some mites from reaching maturity. Recently the mite has become a serious problem in colonies of European bees in North America. Africanization of these bees may be the best safeguard against this parasite.

24. The passage suggests that which of the following was true of the honeybee colonies described in line 4-6?
- (A) Their life expectancy, when free of disease, was shorter than that of European bee colonies in North America.
  - (B) They were not Africanized.
  - (C) Their life cycle did not accommodate the feeding habits of *Varroa jacobsoni*.
  - (D) They responded well to measures to control *Varroa jacobsoni*.
  - (E) They were managed using methods that were more modern than those employed in Brazil.
25. The author cites all of the following as evidence that Africanized bees' resistance to *Varroa jacobsoni* is superior to that of European bees EXCEPT:
- (A) Fewer *Varroa jacobsoni* mites reproduce in Africanized bees.
  - (B) *Varroa jacobsoni* is killing many bee colonies in Europe.
  - (C) Beekeepers in Brazil have not used preventive measures to protect their colonies.
  - (D) Brazilian bee colonies have endured *Varroa jacobsoni* since 1972.
  - (E) At least some European bee colonies have been saved by preventive measures.
26. According to the passage, research suggests that one possible reason the Africanized bees in Brazil have successfully resisted *Varroa jacobsoni* is that

- (A) the life cycle of the Africanized bee may limit the *Varroa jacobsoni* mite's opportunity to reach full development
  - (B) the Africanized bees may have had an opportunity to develop a chemical resistance to *Varroa jacobsoni*
  - (C) the location of bee colonies in Brazil may provide a natural deterrent to *Varroa jacobsoni*
  - (D) *Varroa jacobsoni* may be relatively new to Brazil and may not have had time to become widespread
  - (E) beekeepers may have developed effective control techniques for *Varroa jacobsoni*
27. The author's argument regarding the resistance of Africanized bees to *Varroa jacobsoni* would be most weakened if which of the following were true?
- (A) The bees in Brazil were resistant before being Africanized.
  - (B) The number of bee colonies in North American increased dramatically whereas the number in Brazil remained unchanged.
  - (C) Mites found in European bees reproduce at a faster rate than mites of identical species found in the bees in Brazil.
  - (D) Africanized bees retain many of the characteristics of European bees.
  - (E) Bee colonies in Europe continue to produce greater quantities of honey than do those in Brazil.

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## SECTION A

National character is not formally considered by social scientists in discussing economic and social development today. They believe that people differ and that these differences should be taken into account somehow, but they have as yet discovered no way to include such variables in their formal models of economic and social development. The difficulty lies in the nature of the data that supposedly define different national characters. Anthropologists and others are on much firmer ground when they attempt to describe the cultural norms for a small homogeneous tribe or village than when they undertake the formidable task of discovering the norms that exist in a complex modern **nation-state** composed of many disparate groups. The situation is further complicated by the nature of judgments about character, since such judgments are overly dependent on impressions and since, furthermore, impressions are usually stated in qualitative terms, it is impossible to make a reliable comparison between the national characters of two countries.

17. The author's main point in the passage is that national character
- (A) is too elusive to merit attention by anthropologists and other social scientists
  - (B) is of greater interest to social scientists today than it has been in the past
  - (C) is still too difficult to describe with the precision required by many social

scientists

- (D) has become increasingly irrelevant because of the complexity of modern life
- (E) can be described more accurately by anthropologists than by other social scientists

18. Given the information in the passage, which of the following is NOT true of modern nation-states?
- (A) They are complex.
  - (B) They are heterogeneous.
  - (C) They are of interest to social scientists.
  - (D) They lack cultural norms.
  - (E) They differ from one another in terms of national character.
19. It can be inferred from the passage that the social scientists mentioned in lines 1-7 would agree with which of the following statements?
- I. It is extremely difficult to create models that account for both economic and social development.
  - II. Models of economic and social development would be improved by the inclusion of adequate descriptions of national character.
  - III. It is important to supplement formal models of economic and social development with qualitative impressions of national character.
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and III only
  - (E) II and III only
20. Which of the following best describes the organization of the passage?
- (A) A problem is presented and reasons for its existence are supplied.
  - (B) A controversial view is presented and evidence for its validity is supplied.
  - (C) A hypothesis is presented and possible means of verifying it are suggested.
  - (D) A recent development is described and then analyzed.
  - (E) A dispute is summarized and one side defended.

One of the simplest and best known kinds of crystal is the ionic salt, of which a typical example is sodium chloride or ordinary table salt. The fundamental components of an ionic salt are ions: atoms or molecules that have become electrically charged by gaining or losing one or more electrons. In forming sodium chloride, for example, sodium atoms give up an electron (thereby becoming positively charged) and chlorine atoms gain an electron (thereby becoming negatively charged). The ions are attracted to one another by their opposite charges, and they stack together compactly, like tightly packed spheres.

Recently, scientists at Michigan State University created a new kind of crystal called an

electride. In electrides, the anions (negative ions) are completely replaced by electrons, which are trapped in naturally formed cavities within a framework of regularly stacked cations (positive ions). Electrides are the first examples of ionic salts in which all these anionic sites are occupied solely by electrons.

Unlike other types of anions, anionic electrons do not behave as if they were simple charged spheres. In particular, because of their low mass and their tendency to interact with one another over great distances, they cannot be “pinned down” to any one location. Instead, they wander close to and among the atoms lining the cavity and interact with electrons in nearby cavities, perhaps changing places with them.

The properties of an electride depend largely on the distance between the cavities that hold trapped electrons. When the trapped electrons are far apart, they do not interact strongly, and so behave somewhat like an array of isolated negative charges. When they are closer together, they begin to display properties associated with large ensembles of identical particles. When they are still closer, the ensemble properties dominate and the electrons “delocalize”: they are no longer tightly bound within individual cavities but are more or less free to pass through the spaces within the framework of positive ions.

By synthesizing electrides from a variety of materials, one can vary the geometry of the anionic cavities and their relation to the surrounding cations. The resulting properties may make it possible for electrides to become a basis for economically useful new materials and devices. For instance, because the electrons in some electrides are very weakly bound, these crystals could be effective as photosensitive detectors, in which an impinging photon liberates an electron, resulting in a small electric current. The same weak binding could also make electrides useful in solar-energy converters and as cathodes in batteries. One obstacle is the tendency of electrides to decompose through reaction with air and water. Researchers are seeking ways to increase their stability.

21. The passage is primarily concerned with discussing
- (A) a way to isolate electrons
  - (B) the characteristics of a new kind of crystal
  - (C) the structure of an ionic salt
  - (D) commercial uses for electrides
  - (E) the properties of ions
22. In the first paragraph, the author is primarily concerned with
- (A) introducing a variant on the standard atomic theory
  - (B) describing how chlorine atoms can become negatively charged
  - (C) describing some early research at Michigan State University
  - (D) presenting the identifying properties of an electride
  - (E) providing background for the technical discussion to follow
23. It can be inferred from the passage that the differences between the behavior of anionic electrons and normal anions result from which of the following features of electrons, as compared to normal anions?

- I. The much lower mass of electrons
  - II. The much greater tendency of electrons to interact with one another over large distances
  - III. The much greater likelihood of electrons to remain trapped in naturally formed anionic cavities
- (A) I only  
(B) II only  
(C) I and II only  
(D) I and III only  
(E) II and III only
24. According to the passage, the defining characteristic of an electride is which of the following?
- (A) Its positive ions are of particularly low mass.  
(B) Its ions possess identical electrical charges.  
(C) It contains a framework of regularly stacked ions.  
(D) Its ions demonstrate strong mutual attraction.  
(E) Its negative ions consist solely of electrons.
25. It can be inferred from the passage that anions behaving as “simple charged spheres” (line 22) could be expected to
- (A) readily lose electrons and become positively charged  
(B) move freely in and out of their cavities  
(C) respond to photons by liberating electrons  
(D) stack with other anions to create a regular framework  
(E) remain fixed relative to their cations
26. It can be inferred from the passage that an electride behaves most like a normal ionic crystal when the electride has which of the following features?
- (A) The anionic cavities are widely separated.  
(B) All of the trapped electrons are able to delocalize.  
(C) The trapped electrons are liberated by impinging photons.  
(D) The ions are tightly packed together.  
(E) Most of the cations have lost their electrical charge.
27. With which of the following statements regarding electrides would the author most likely agree?
- (A) They have proven themselves to be of great commercial value.  
(B) Their future commercial value is promising but uncertain.  
(C) They are interesting but of no practical value.  
(D) They have commercial value mainly in solar-energy applications.

- (E) Their principal importance will lie in scientific research.

## SECTION B

Typically the queen honeybee is mother to all the bees in a hive; after mating with several male drones from other colonies, she lays fertilized eggs that develop into all-female worker bees and lays unfertilized eggs that become all-male drones. When a queen dies, workers often lay unfertilized eggs that hatch into drones. Yet workers rarely reproduce while a queen reigns.

According to **natural selection** theory, a worker would enhance her fitness—or ability to propagate her genes—by hatching her own eggs in addition to or in place of the queen’s. But a typical worker’s fitness would be diminished if other workers’ sons, who have less genetic material in common with the worker, supplanted the queen’s sons (the worker’s brothers). Researchers, testing the hypothesis that workers usually somehow block each other’s attempts to reproduce, put unfertilized eggs laid by workers and by the queen into a hive. Other workers quickly devoured the workers’ eggs while leaving the queen’s eggs alone.

17. The author refers to the experiment described in lines 16-19 in order to
- (A) explain how worker bees are prevented from mating with drones
  - (B) explain how worker bees hatch and nurture the queen’s young
  - (C) demonstrate the universality of natural selection
  - (D) show that worker bees are capable of thwarting each other’s attempts to reproduce
  - (E) provide a model of daily life in a typical honeybee hive
18. The inner workings in a honeybee hive that regulate reproduction, as they are described in the passage, are most similar to which of the following types of human societies?
- (A) A totalitarian society in which citizens’ “policing” of each other’s actions helps to maintain the status quo.
  - (B) A pacifist state in which the individuals are strongly opposed to the use of violence or aggression to settle disputes.
  - (C) A democratic society in which the voice of the majority rules.
  - (D) A parliamentary society in which a few members, organized as a cabinet wield executive power.
  - (E) An anarchic state in which order and stable social structures are lacking.
19. The passage best supports which of the following inferences about the fitness of honeybees?
- (A) Reproduction diminishes any individual honeybee’s fitness.
  - (B) An individual worker’s fitness can be maintained without the individual herself reproducing.
  - (C) A hierarchy of stronger and weaker individuals among the worker bees determines which individuals will reproduce when a queen dies.



- (D) While a queen reigns, the fitness of the worker bees is increased and that of the drones is diminished.
- (E) Fitness encourages worker bees to hatch honeybee eggs without regard for the relatedness of the young to the “parent.”
20. The passage suggests which of the following about the eggs laid by worker bees?
- (A) One of the eggs hatches into the next queen.
- (B) The eggs are invariably destroyed by other worker bees.
- (C) Each worker tries to hide her eggs from the other worker bees.
- (D) The eggs hatch only if the worker has mated with a drone from another hive.
- (E) The eggs are less likely to be harmed by other workers if the queen is dead.

In the fields of Delano, California, in 1965, Luis Valdez started the Teatro Campesino (Farmworker's Theater), and with it initiated the renaissance of Mexican American theater. The Teatro Campesino had an avowedly political purpose: to rally *campesinos* (farmworkers) in support of the farm workers' strike then being organized by Cesar Chavez. Valdez' dramatic presentations, called *actos*, spoke to a *campesino* audience and addressed topics and themes directly related to the strike. Valdez' early *actos* were composed of a series of scenes about the strike experience acted by *campesino* volunteers. His later *actos* were presented by a newly constituted professional company, still called the Teatro Campesino, and addressed such themes as the impact of the Vietnam War on Mexican Americans and the dangers of assimilation, themes relevant to urban Mexican Americans as well as to *campesinos*. All Valdez' *actos* contained elements of song and dance, relied little on stage effects or props, and featured the use of masks. These dramatic elements, along with an intensely social or political purpose and the use of a mixture of Spanish, English, and Mexican American dialects in the dialogues, which realistically capture the flavor of Mexican American conversation, are still characteristic both of the *acto* and of most other forms of Mexican American theater today.

Innovative as it is, the *acto* owes much to the theater traditions of other periods and regions. Like early Spanish American religious dramas, secular folk dramas, and the Mexican *carpas* of a somewhat later period, *actos* are usually performed outdoors by traveling groups of players or by local theater groups. The improvised comic satire of the *actos* is often attributed to Valdez' study of the Italian *commedia dell'arte* of the sixteenth century, although some critics see it as a direct reflection of the comic and improvisational qualities of the more contemporary and local *carpas* of Mexican theater. The Italian influence is likely, whatever Valdez immediate source: the Mexican *carpas* themselves are said to have originated from the theater pieces of a sixteenth-century Spanish writer inspired by encounters with Italian *commedia dell'arte* troupes on tour in Spain. The English-language theater has provided elements as well: Valdez himself has acknowledged his debt to the agitprop socialist theater that appeared in the United States during the 1920's and 1930's. In particular, his *actos* contain the same assortment of semiallegorical characters and the same blend of music, chorus, and dialogue found in some of the agitprop pieces, as well as the same fierce spirit of social and political critique. Finally, many of Valdez' later theater pieces freely incorporate characters, plots and symbols drawn from the indigenous myths and rituals of the pre-Hispanic peoples of Latin America. In fact, no other art form illustrates more clearly the depth and complexity of the

Mexican American heritage itself than does the *acto* of Luis Valdez and the Teatro Campesino.

21. According to the passage, the original impetus behind the establishment of the Teatro Campesino was which of the following?
- (A) To help urban Mexican Americans understand the problems confronting striking *campesinos* in California
  - (B) To promote an attitude of pride in the depth and richness of the Mexican American heritage among striking *campesinos*
  - (C) To provide striking *campesinos* an opportunity to use their creative talents to express their political opinions
  - (D) To allow its founder to express his personal support of the *campesinos*' strike effort
  - (E) To mobilize *campesinos* to support the farm workers' strike in California
22. The author cites all of the following as probable influences on Valdez' development of the *acto* EXCEPT the
- (A) theater of sixteenth-century Italy
  - (B) *carpas* of Mexico
  - (C) drama of classical Greece
  - (D) English-language theater of the United States
  - (E) myths and rituals of pre-Hispanic America
23. The passage suggests that which of the following was true of the later *actos* of the Teatro Campesino?
- (A) They were more politically effective than were earlier *actos*.
  - (B) They were presented primarily outdoors, whereas earlier *actos* were presented inside theaters.
  - (C) They used a greater mixture of dialects than did the earlier *actos*.
  - (D) They addressed a broader audience than did the earlier *actos*.
  - (E) They differed from earlier *actos* in that they contained fewer improvisational elements.
24. Which of the following best describes the author's evaluation of the views of the critics cited in lines 36-39?
- (A) Their views, if correct, do not preclude the existence of an Italian influence on the *acto*.
  - (B) Their views are unlikely to be correct, given the differences existing between Mexican and Mexican American theater.
  - (C) Their views concerning the Mexican *carpas* are essentially correct, but they lack familiarity with the *acto*.
  - (D) Their views are probably more correct than the views of those who have attributed the comic and improvisational elements of the *acto* to earlier sources.

- (E) Their views betray a lack of familiarity with the *commedia dell'arte*.
25. The passage suggests that which of the following explains the characteristic use of a mixture of Spanish, English, and Mexican American dialects in the works of Mexican American playwrights?
- (A) Mexican American playwrights wish to include in their works elements drawn from the traditions and history of pre-Hispanic America.
  - (B) Mexican American playwrights try to guarantee that their works are fully understood by the broadest possible audience, including those who may speak only one language.
  - (C) Such a linguistic mix faithfully reflects the linguistic diversity of Mexican American culture, and is easily understood by most Mexican Americans.
  - (D) Many Mexican American playwrights are quite familiar with both the Spanish-language and the English-language theater traditions.
  - (E) Many different languages are still spoken within the confines of the United States, although English is still the most common first language of its citizens.
26. According to the passage, which of the following elements characteristic of the *acto* are also found in some agitprop theater pieces?
- (A) The use of masks
  - (B) Comic improvisation
  - (C) An outdoor setting
  - (D) Minimal use of complex stage effects or props
  - (E) An assortment of semiallegorical characters
27. Which of the following, if true, most strengthens the author's argument concerning the debt of the *acto* to the theater traditions of other periods and regions?
- (A) Many popular forms of theater rely heavily on improvisation.
  - (B) Plays resembling the *acto* in structure were written in the 1970's by West African playwrights who are interested in dramatizing the richness of their own cultures.
  - (C) The use of masks has, **at one time or another**, been characteristic of the theater traditions of almost all cultures, even those most isolated from outside influences.
  - (D) During a strike, it is common for union members to present musical skits dramatizing the values of solidarity and resistance.
  - (E) Before 1965 Luis Valdez had attended many performances of traditional Mexican theater groups touring the western United States.

## SECTION A

Analyzing the physics of dance can add fundamentally to a dancer's skill. Although dancers seldom see themselves totally in physical terms—as body mass moving through space under the influence of well-known forces and obeying physical laws—neither can they afford to ignore the physics of movement. For example, no matter how much a dancer wishes to leap off the floor and then start turning, the law of conservation of angular momentum absolutely prevents such a movement.

Some movements involving primarily vertical or horizontal motions of the body as a whole, in which rotations can be ignored, can be studied using simple equations of linear motion in three dimensions. However, rotational motions require more complex approaches that involve analyses of the way the body's mass is distributed, the axes of rotation involved in different types of movement, and the sources of the forces that produce the rotational movement.

17. The primary purpose of the passage is to
  - (A) initiate a debate over two approaches to analyzing a field of study
  - (B) describe how one field of knowledge can be applied to another field
  - (C) point out the contradictions between two distinct theories
  - (D) define and elaborate on an accepted scientific principle
  - (E) discuss the application of a new theory within a new setting
18. The author mentions all of the following as contributing to an understanding of the physics of dance EXCEPT:
  - (A) the law of conservation of angular momentum
  - (B) analyses of the way in which the body's mass is distributed
  - (C) equations of linear motion in three dimensions
  - (D) analyses of the sources that produce rotational motions
  - (E) the technical terms for movements such as leaps and turns
19. The author implies that dancers can become more skilled by doing which of the following?
  - (A) Ignoring rotational movements
  - (B) Understanding the forces that permit various movements
  - (C) Solving simple linear equations
  - (D) Learning the technical terms utilized by choreographers
  - (E) Circumventing the law of conservation of angular momentum
20. Analysis of which of the following would require the kind of complex approach described in lines 14-19?
  - (A) A long leap across space
  - (B) A short jump upward with a return to the same place
  - (C) A sustained and controlled turn in place

- (D) Short, rapid steps forward and then backward without turning
- (E) Quick sidesteps in a diagonal line

Human relations have commanded people's attention from early times. The ways of people have been recorded in innumerable myths, folktales, novels, poems, plays, and popular or philosophical essays. Although the full significance of a human relationship may not be directly evident, the complexity of feelings and actions that can be understood at a glance is surprisingly great. For this reason psychology holds a unique position among the sciences. "Intuitive" knowledge may be remarkably penetrating and can significantly help us understand human behavior, whereas in the physical sciences such commonsense knowledge is relatively primitive. If we erased all knowledge of scientific physics from our modern world, not only would we not have cars and television sets, we might even find that the ordinary person was unable to cope with the fundamental mechanical problems of pulleys and levers. On the other hand if we removed all knowledge of scientific psychology from our world, problems in interpersonal relations might easily be coped with and solved much as before. We would still "know" how to avoid doing something asked of us and how to get someone to agree with us; we would still "know" when someone was angry and when someone was pleased. One could even offer sensible explanations for the "whys" of much of the self's behavior and feelings. In other words, the ordinary person has a great and profound understanding of the self and of other people which, though unformulated or only vaguely conceived, enables one to interact with others in more or less adaptive ways. Kohler, in referring to the lack of great discoveries in psychology as compared with physics, accounts for this by saying that "people were acquainted with practically all territories of mental life a long time before the founding of scientific psychology."

Paradoxically, with all this natural, intuitive, commonsense capacity to grasp human relations, the science of human relations has been one of the last to develop. Different explanations of this paradox have been suggested. One is that science would destroy the vain and pleasing illusions people have about themselves; but we might ask why people have always loved to read pessimistic, debunking writings, from *Ecclesiastes* to Freud. It has also been proposed that just because we know so much about people intuitively, there has been less incentive for studying them scientifically; why should one develop a theory, carry out systematic observations, or make predictions about the obvious? In any case, the field of human relations, with its vast literary documentation but meager scientific treatment, is in great contrast to the field of physics in which there are relatively few nonscientific books.

21. According to the passage, it has been suggested that the science of human relations was slow to develop because
- (A) intuitive knowledge of human relations is derived from philosophy
  - (B) early scientists were more interested in the physical world
  - (C) scientific studies of human relations appear to investigate the obvious
  - (D) the scientific method is difficult to apply to the study of human relations
  - (E) people generally seem to be more attracted to literary than to scientific writings about human relations
22. The author's statement that "Psychology holds a unique position among the sciences" (lines 8-9) is supported by which of the following claims in the

passage?

- (A) The full meaning of a human relationship may not be obvious.
- (B) Commonsense understanding of human relations can be incisive.
- (C) Intuitive knowledge in the physical sciences is relatively advanced.
- (D) Subjective bias is difficult to control in psychological research.
- (E) Psychological facts are too imprecise to lead to great discoveries.

23. According to the passage, an understanding of the self can be
- (A) highly biased due to unconscious factors
  - (B) profound even when vaguely conceived
  - (C) improved by specialized training
  - (D) irrelevant for understanding human relations
  - (E) more reliable than knowledge about other people
24. It can be inferred that the author would most likely agree with which of the following statements regarding people who lived before the advent of scientific psychology?
- (A) Their understanding of human relations was quite limited.
  - (B) They were uninterested in acquiring knowledge of the physical world.
  - (C) They misunderstood others more frequently than do people today.
  - (D) Their intuitions about human relations were reasonably sophisticated.
  - (E) They were more likely to hold pleasing illusions about themselves than are people today.
25. The author implies that attempts to treat human relations scientifically have thus far been relatively
- (A) unilluminating
  - (B) paradoxical
  - (C) pessimistic
  - (D) encouraging
  - (E) uninterpretable
26. The author refers to people who are attracted to “pessimistic, debunking writings” (line 44) in order to support which of the following ideas?
- (A) Interesting books about human relations are typically pessimistic.
  - (B) People tend to ignore scientific explanations of human relations.
  - (C) People rarely hold pleasing illusions about themselves.
  - (D) A scientific approach human relations would undermine the pleasing illusions people hold of themselves.
  - (E) It is doubtful that the science of human relations developed slowly because of a desire to maintain pleasing illusions.



27. It can be inferred that the author assumes that commonsense knowledge of human relations is
- (A) equally well developed among all adults within a given society
  - (B) considerably more accurate in some societies than in others
  - (C) biased insofar as it is based on myths and folktales
  - (D) typically unrelated to an individual's interactions with other people
  - (E) usually sufficiently accurate to facilitate interactions with others

## SECTION B

Although a historical lack of access to formal Spanish-language education initially limited the opportunities of some Chicanos to hone their skills as writers of Spanish, their bilingual culture clearly fostered an exuberant and compelling oral tradition. It has thus generally been by way of the emphasis on oral literary creativity that these Chicano writers, whose English-language works are sometimes uninspired, developed the powerful and arresting language that characterized their Spanish-language works. This Spanish-English difference is not surprising. When writing in Spanish, these authors stayed close to the spoken traditions of their communities where publication, support, and instructive response would come quickly in local or regional newspapers. Works in English, however, often required the elimination of nuance or colloquialism, the adoption of a formal tone, and the adjustment of themes or ideas to satisfy the different demands of national publications.

17. The passage is primarily concerned with doing which of the following?
- (A) Debating the historical value of a literary movement
  - (B) Describing and accounting for a difference in literary styles
  - (C) Explaining a publishing decision and evaluating its results
  - (D) Analyzing the expectations of a particular group of readers
  - (E) Classifying several kinds of literary production
18. According to the author, the Chicano oral experience contributed directly to which of the following characteristics in the work of some Chicano writers?
- (A) A sensitivity to and adeptness in using the spoken language
  - (B) A tendency to appear in national rather than regional publications
  - (C) A style reflecting the influence of Spanish language education
  - (D) A reliance on a rather formal style
  - (E) A capacity to appeal to a broad range of audiences
19. Which of the following best describes the function of the last two sentences of the passage (lines 11-19)?
- (A) They expand on an advantage mentioned in the first sentence of the passage (lines 1-5).
  - (B) They outline the consequences of a limitation discussed in the first sentence of the passage (lines 1-5).

- (C) They provide explicit examples drawn from the oral and the written works mentioned in the second sentence of the passage (lines 5-10).
  - (D) They explain the causes of a phenomenon mentioned in the third sentence of the passage (lines 10-11).
  - (E) They limit the applicability of a generalization made in the third sentence of the passage (lines 10-11).
20. The passage suggests that which of the following was probably characteristic of the “national publications” mentioned in line 19?
- (A) They primarily presented scholarly material of little interest to a general audience.
  - (B) They sometimes published articles treating controversial themes.
  - (C) They encouraged authors to feature local issues in articles in order to increase circulation.
  - (D) They included a significant number of articles by minority authors.
  - (E) They took a stylistically formal approach to material of interest to a general audience.

The two claws of the mature American lobster are decidedly different from each other. The crusher claw is short and stout; the cutter claw is long and slender. Such bilateral asymmetry, in which the right side of the body is, in all other respects, a mirror image of the left side, is not unlike handedness in humans. But where the majority of humans are right-handed, in lobsters the crusher claw appears with equal probability on either the right or left side of the body.

Bilateral asymmetry of the claws comes about gradually. In the juvenile fourth and fifth stages of development, the paired claws are symmetrical and cutterlike. Asymmetry begins to appear in the juvenile sixth stage of development, and the paired claws further diverge toward well-defined cutter and crusher claws during succeeding stages. An intriguing aspect of this development was discovered by Victor Emmel. He found that if one of the paired claws is removed during the fourth or fifth stage, the intact claw invariably becomes a crusher, while the regenerated claw becomes a cutter. Removal of a claw during a later juvenile stage or during adulthood, when asymmetry is present, does not alter the asymmetry; the intact and the regenerate claws retain their original structures.

These observations indicate that the conditions that trigger differentiation must operate in a random manner when the paired claws are intact but in a nonrandom manner when one of the claws is lost. One possible explanation is that differential use of the claws determines their asymmetry. Perhaps the claw that is used more becomes the crusher. This would explain why, when one of the claws is missing during the fourth or fifth stage, the intact claw always becomes a crusher. With two intact claws, initial use of one claw might prompt the animal to use it more than the other throughout the juvenile fourth and fifth stages, causing it to become a crusher.

To test this hypothesis, researchers raised lobsters in the juvenile fourth and fifth stages of development in a laboratory environment in which the lobsters could manipulate oyster chips. (Not coincidentally, at this stage of development lobsters typically change from a habitat where

they drift passively, to the ocean floor where they have the opportunity to be more active by burrowing in the substrate.) Under these conditions, the lobsters developed asymmetric claws, half with crusher claws on the left, and half with crusher claws on the right. In contrast, when juvenile lobsters were reared in a smooth tank without the oyster chips, the majority developed two cutter claws. This unusual configuration of symmetrical cutter claws did not change when the lobsters were subsequently placed in a manipulatable environment or when they lost and regenerated one or both claws.

21. The passage is primarily concerned with
- (A) drawing an analogy between asymmetry in lobsters and handedness in humans
  - (B) developing a method for predicting whether crusher claws in lobsters will appear on the left or right side
  - (C) explaining differences between lobsters' crusher claws and cutter claws
  - (D) discussing a possible explanation for the way bilateral asymmetry is determined in lobsters
  - (E) summarizing the stages of development of the lobster
22. Each of the following statements about the development of a lobster's crusher claw is supported by information in the passage EXCEPT:
- (A) It can be stopped on one side and begun on the other after the juvenile sixth stage.
  - (B) It occurs gradually over a number of stages.
  - (C) It is initially apparent in the juvenile sixth stage.
  - (D) It can occur even when a prospective crusher claw is removed in the juvenile sixth stage.
  - (E) It is less likely in the absence of a manipulatable environment.
23. Which of the following experimental results, if observed, would most clearly contradict the findings of Victor Emmel?
- (A) A left cutterlike claw is removed in the fifth stage and a crusher claw develops on the right side.
  - (B) A left cutterlike claw is removed in the fourth stage and a crusher claw develops on the left side.
  - (C) A left cutterlike claw is removed in the sixth stage and a crusher claw develops on the right side.
  - (D) Both cutterlike claws are removed in the fifth stage and a crusher claw develops on the left side.
  - (E) Both cutterlike claws are removed in the fourth stage and a crusher claw develops on the right side.
24. It can be inferred that of the two laboratory environments mentioned in the passage, the one with oyster chips was designed to

- (A) prove that the presence of oyster chips was not necessary for the development of a crusher claw
  - (B) prove that the relative length of time that the lobsters were exposed to the oyster-chip environment had little impact on the development of a crusher claw
  - (C) eliminate the environment as a possible influence in the development of a crusher claw
  - (D) control on which side the crusher claw develops
  - (E) simulate the conditions that lobsters encounter in their natural environment
25. It can be inferred from the passage that one difference between lobsters in the earlier stages of development and those in the juvenile fourth and fifth stages is that lobsters in the early stages are
- (A) likely to be less active
  - (B) likely to be less symmetrical
  - (C) more likely to lose a claw
  - (D) more likely to replace a crusher claw with a cutter claw
  - (E) more likely to regenerate a lost claw
26. Which of the following conditions does the passage suggest is a possible cause for the failure of a lobster to develop a crusher claw?
- (A) The loss of a claw during the third or earlier stage of development
  - (B) The loss of a claw during the fourth or fifth stage of development
  - (C) The loss of a claw during the sixth stage of development
  - (D) Development in an environment devoid of material that can be manipulated
  - (E) Development in an environment that changes frequently throughout the stages of development
27. The author regards the idea that differentiation is triggered randomly when paired claws remain intact as
- (A) irrefutable considering the authoritative nature of Emmel's observations
  - (B) likely in view of present evidence
  - (C) contradictory to conventional thinking on lobster-claw differentiation
  - (D) purely speculative because it is based on scattered research and experimentation
  - (E) unlikely because of apparent inconsistencies with theories on handedness in humans

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SECTION A

Defenders of special protective labor legislation for women often maintain that eliminating such laws would destroy the fruits of a century-long struggle for the protection of women workers. Even a brief examination of the historic practice of courts and employers would show that the fruit of such laws has been bitter: they are, *in practice*, more of a curse than a blessing.

Sex-defined protective laws have often been based on stereotypical assumptions concerning women's needs and abilities, and employers have frequently used them as legal excuses for discriminating against women. After the Second World War, for example, businesses and government sought to persuade women to vacate jobs in factories, thus making room in the labor force for returning veterans. The revival or passage of state laws limiting the daily or weekly work hours of women conveniently accomplished this. Employers had only to declare that overtime hours were a necessary condition of employment or promotion in their factory, and women could be quite legally fired, refused jobs, or kept at low wage levels, all *in the name of* "protecting" their health. By validating such laws when they are challenged by lawsuits, the courts have colluded over the years in establishing different, less advantageous employment terms for women than for men, thus reducing women's competitiveness on the job market. At the same time, even the most well-intentioned lawmakers, courts, and employers have often been blind to the real needs of women. The lawmakers and the courts continue to permit employers to offer employee health insurance plans that cover all known human medical disabilities except those relating to pregnancy and childbirth.

Finally, labor laws protecting only special groups are often ineffective at protecting the workers who are actually in the workplace. Some chemicals, for example, pose reproductive risks for women of childbearing years; manufacturers using the chemicals comply with laws protecting women against these hazards by refusing to hire them. Thus the sex-defined legislation protects the hypothetical female worker, but has no effect whatever on the safety of any actual employee. The health risks to male employees in such industries cannot be negligible, since chemicals toxic enough to cause birth defects in fetuses or sterility in women are presumably harmful to the human metabolism. Protective laws aimed at changing production materials or techniques in order to reduce such hazards would benefit all employees without discriminating against any.

In sum, protective labor laws for women are discriminatory and do not meet their intended purpose. Legislators should recognize that women are in the work force to stay, and that their needs—good health care, a decent wage, and a safe workplace—are the needs of all workers. Laws that ignore these facts violate women's rights for equal protection in employment.

17. According to the author, which of the following resulted from the passage or revival of state laws limiting the work hours of women workers?
- (A) Women workers were compelled to leave their jobs in factories.
  - (B) Many employers had difficulty in providing jobs for returning veterans.
  - (C) Many employers found it hard to attract women workers.
  - (D) The health of most women factory workers improved.
  - (E) Employment practices that addressed the real needs of women workers became common.
18. The author places the word "protecting" in quotation marks in line 21 most likely

in order to suggest that

- (A) she is quoting the actual wording of the laws in question
- (B) the protective nature of the laws in question should not be overlooked
- (C) protecting the health of workers is important to those who support protective labor laws
- (D) the laws in question were really used to the detriment of women workers, despite being overtly protective in intent
- (E) the health of workers is not **in need of** protection, even in jobs where many hours of overtime work are required

19. The passage suggests that which of the following is a shortcoming of protective labor laws that **single out** a particular group of workers for protection?
- (A) Such laws are often too weak to be effective at protecting the group in question.
  - (B) Such laws are usually drafted by legislators who, do not have the best interests of workers at heart.
  - (C) Such laws exert no pressure on employers to eliminate hazards in the workplace.
  - (D) Compliance with such laws is often costly for employers and provokes lawsuits by employees claiming discrimination.
  - (E) Employer compliance with such laws results in increased tension among workers on the job, because such laws unfairly privilege one group of employees over another.
20. According to the first paragraph of the passage, the author considers which of the following to be most helpful in determining the value of special protective labor legislation for women?
- (A) A comparative study of patterns of work-related illnesses in states that had such laws and in states that did not
  - (B) An estimate of how many women workers are in favor of such laws
  - (C) An analysis of the cost to employers of complying with such laws
  - (D) A consideration of what intentions the advocates of such laws really had concerning women workers
  - (E) An examination of the actual effects that such laws have had in the past on women workers
21. The main point of the passage is that special protective labor laws for women workers are
- (A) unnecessary because most workers are well protected by existing labor laws
  - (B) harmful to the economic interests of women workers while offering them little or no actual protection
  - (C) not worth preserving even though they do represent a hard-won legacy of the



labor movement

- (D) controversial because male workers receive less protection than they require
- (E) inadequate in that they often do not prevent employers from exposing women workers to many health hazards

22. The author implies that which of the following is characteristic of many employee health insurance plans?
- (A) They cover all the common medical conditions affecting men, but only some of those affecting women.
  - (B) They lack the special provisions for women workers that proposed special labor laws for women would provide.
  - (C) They pay the medical costs associated with pregnancy and childbirth only for the spouses of male employees, not for female employees.
  - (D) They meet minimum legal requirements, but do not adequately safeguard the health of either male or female employees.
  - (E) They have recently been improved as a result of the passage of new labor laws, but continue to exclude coverage of certain uncommon medical conditions affecting women.
23. According to the passage, special labor laws protecting women workers tend generally to have which of the following effects?
- (A) They tend to modify the stereotypes employees often hold concerning women.
  - (B) They increase the advantage to employers of hiring men instead of women, making it less likely that women will be hired.
  - (C) They decrease the likelihood that employers will offer more protection to women workers than that which is absolutely required by law.
  - (D) They increase the tendency of employers to deny health insurance and disability plans to women workers.
  - (E) They have little impact of any kind on women workers, since typically very few women are employed in those classes of jobs covered by the laws.

While it is true that living organisms are profoundly affected by their environment, it is equally important to remember that many organisms are also capable of altering their habitat significantly, sometimes limiting their own growth. The influence of the biological component of an ecosystem is often greater in fresh waters than in marine or terrestrial systems, because of the small size of many freshwater bodies. Many of the important effects of organisms are related to their physiology, especially growth and respiration. By their growth many species can deplete essential nutrients within the system, thus limiting their own growth or that of other species. Lund has demonstrated that in Lake Windermere the alga *Asterionella* is unable to grow in conditions that it itself has created. Once a year, in the spring, this plant starts to grow rapidly in the lake, using up so much silica from the water that by late spring there is no longer enough to maintain its own growth. The population decreases dramatically as a result.

24. Which of the following is an example of the type of organism described in lines 2-5?
- (A) A kind of ant that feeds on the sweet juice exuded by the twigs of a species of thorn tree that grows in dry areas.
  - (B) A kind of fish that, after growing to maturity in the ocean, returns to fresh water.
  - (C) A kind of flower that has markings distinctly perceptible in ultraviolet light to the species of bee that pollinates the flower.
  - (D) A kind of tree with seeds that germinate readily only in a sunny spot and then develop into mature trees that shade the area below them.
  - (E) A kind of butterfly, itself nonpoisonous, with the same markings as a kind of butterfly that birds refuse to eat because it is poisonous.
25. It can be inferred from the passage that which of the followings is true about *Asterionella* plants in Lake Windermere?
- (A) They are not present except in early spring.
  - (B) They contribute silica to the waters as they grow.
  - (C) They are food for other organisms.
  - (D) They form a silica-rich layer on the lake bottom.
  - (E) Their growth peaks in the spring.
26. The passage indicates that organisms frequently have the strongest effects on their environment in
- (A) oceans, since oceans contain the largest organisms living on Earth
  - (B) oceans, since oceans provide habitats for many different kinds of species
  - (C) freshwater bodies, since such effects become pronounced in relatively small spaces
  - (D) freshwater lakes, since nutrients in freshwater lakes are present only in small amounts
  - (E) land areas, since there exist major influences of climate on the kinds of small organisms supported in land areas
27. The primary topic of the passage is the way in which
- (A) organisms are affected by the amount of nutrients available
  - (B) organisms can change their own surroundings
  - (C) elements of freshwater habitats impede the growth of small organisms
  - (D) the reproduction of organisms is controlled by factors in the environment
  - (E) plant matter in a given locale can increase up to a limit

## SECTION B

It is their sensitive response to human circumstance that accounts for the persistence of

certain universal ideas. Rabbi Meir, a second-century scholar, admonished his disciples to look not at the pitcher but at its contents because, he stated, "Many a new pitcher has been found to be full of old wine." This was his way of emphasizing the importance of the distinction between form and idea, and of stressing that the integrity of an idea is more important than the form of its expression.

Creative ideas not only produce their own instruments of survival as time and circumstances demand, but permit the substitution of new forms for old under the pressure of changed circumstances. For example democracy, as an idea, originated in ancient Greece and was carried from there to Western Europe and the Americas. But it did not retain the ancient Greek form: it passed through several reforming processes and exists today in many countries. Democratic governments differ in form because democracy is in principle dynamic and has therefore responded to local needs.

17. The author is primarily concerned with
- (A) illustrating the importance of a historical figure
  - (B) discussing an important characteristic of human ideas
  - (C) describing the history of the growth of democracy
  - (D) contrasting ancient and modern views of the importance of creative ideas
  - (E) evaluating the contribution of ancient Greece to modern government
18. According to the passage, democracy is an example of
- (A) a human circumstance that has molded creative ideas
  - (B) an instrument of survival that has altered its original form
  - (C) an attribute of a creative idea that has allowed that idea to persist
  - (D) a creative idea that has persisted because of its adaptability
  - (E) a reforming process that has culminated in the creation of modern governments
19. The "new pitcher" mentioned in line 6 is the equivalent of which of the following elements in the author's discussion of democracy (lines 15-22)?
- (A) Ancient Greece
  - (B) The idea of democracy
  - (C) A modern democratic government
  - (D) A dynamic principle
  - (E) The Greek form of democracy
20. It can be inferred from the passage that the author would disagree most with which of the following assertions?
- (A) Changing circumstances sometimes give rise to original ideas.
  - (B) Creative ideas have universal applications.
  - (C) Changing human needs influence universal ideas.
  - (D) Democratic institutions are appropriate in the modern world.

(E) An idea must be expressed in a traditional way.

Before 1965 many scientists pictured the circulation of the ocean's water mass as consisting of large, slow-moving currents, such as the **Gulf Stream**. That view, based on 100 years of observations made around the globe, produced only a rough approximation of the true circulation. But in the 1950's and the 1960's, researchers began to employ newly developed techniques and equipment, including subsurface floats that move with ocean currents and emit identification signals, and ocean-current meters that record data for months at fixed locations in the ocean. These instruments disclosed an unexpected level of variability in the deep ocean. Rather than being characterized by smooth, large-scale currents that change seasonally (if at all), the seas are dominated by what oceanographers call mesoscale fields: fluctuating, energetic flows whose velocity can reach ten times the mean velocity of the major currents.

Mesoscale phenomena—the oceanic analogue of weather systems—often extend to distances of 100 kilometers and persist for 100 days (weather systems generally extend about 1,000 kilometers and last 3 to 5 days in any given area). More than 90 percent of the kinetic energy of the entire ocean may be accounted for by mesoscale variability rather than by large-scale currents. Mesoscale phenomena may, in fact, play a significant role in oceanic mixing, air-sea interactions, and occasional—but far-reaching—climatic events such as El Nino, the atmospheric-oceanic disturbance in the equatorial Pacific that affects global weather patterns.

Unfortunately, it is not feasible to use conventional techniques to measure mesoscale fields. To measure them properly, monitoring equipment would have to be laid out on a grid at intervals of at most 50 kilometers, with sensors at each grid point lowered deep in the ocean and kept there for many months. Because using these techniques would be prohibitively expensive and time-consuming, it was proposed in 1979 that **tomography** be adapted to measuring the physical properties of the ocean. In medical tomography x-rays map the human body's density variations (and hence internal organs); the information from the x-rays, transmitted through the body along many different paths, is recombined to form three-dimensional images of the body's interior. It is primarily this multiplicative increase in data obtained from the **multipath transmission** of signals that accounts for oceanographers' attraction to tomography: it allows the measurement of vast areas with relatively few instruments. Researchers reasoned that low-frequency sound waves, because they are so well described mathematically and because even small perturbations in emitted sound waves can be detected, could be transmitted through the ocean over many different paths and that the properties of the ocean's interior—its temperature, salinity, density, and speed of currents—could be deduced on the basis of how the ocean altered the signals. Their initial trials were highly successful, and ocean acoustic tomography was born.

21. According to the passage, scientists are able to use ocean acoustic tomography to deduce the properties of the ocean's interior in part because
- (A) low-frequency sound waves are well described mathematically
  - (B) mesoscale phenomena are so large as to be easily detectable
  - (C) information from sound waves can be recombined more easily than information from x-rays

- (D) tomography is better suited to measuring mesoscale phenomena than to measuring small-scale systems
- (E) density variations in the ocean are mathematically predictable
22. The passage suggests that medical tomography operates on the principle that
- (A) x-rays are superior to sound waves for producing three-dimensional images
- (B) sound waves are altered as they pass through regions of varying density
- (C) images of the body's interior can be produced by analyzing a single x-ray transmission through the body
- (D) the varying densities within the human body allow x-rays to map the internal organs
- (E) information from x-rays and sound waves can be combined to produce a highly detailed image of the body's interior
23. Which of the following is most similar to medical tomography as it is described in the passage?
- (A) The use of ocean-current meters to determine the direction and velocity of the ocean's mesoscale fields
- (B) The use of earthquake shockwave data collected at several different locations and combined to create a three-dimensional image of the Earth's interior
- (C) The use of a grid-point sensory system to map global weather patterns
- (D) The use of subsurface floats to map large-scale circulation in the ocean
- (E) The use of computer technology to halt the progress of a particular disease within the human body's internal organs
24. The author mentions El Nino (line 27) primarily in order to emphasize which of the following points?
- (A) The brief duration of weather patterns
- (B) The variability of mesoscale phenomena
- (C) The difficulty of measuring the ocean's large-scale currents
- (D) The effectiveness of low-frequency sound waves in mapping the ocean
- (E) The possible impact of mesoscale fields on weather conditions
25. Which of the following best describes the organization of the third paragraph of the passage?
- (A) A theory is proposed, considered, and then attended.
- (B) Opposing views are presented, elaborated, and then reconciled.
- (C) A problem is described, then a solution is discussed and its effectiveness is affirmed.
- (D) An argument is advanced, then refuted, and an alternative is suggested.
- (E) A hypothesis is presented, qualified, and then reaffirmed.
26. The passage suggests that which of the following would be true if the ocean's

circulation consisted primarily of large, slow-moving currents?

- (A) The influence of mesoscale fields on global weather patterns would remain the same.
- (B) Large-scale currents would exhibit more variability than is actually observed.
- (C) The majority of the ocean's kinetic energy would be derived from mesoscale fields.
- (D) Atmospheric-oceanic disturbances such as El Nino would occur more often.
- (E) Conventional measuring techniques would be a feasible method of studying the physical properties of the ocean.

27. Which of the following, if presented as the first sentence of a succeeding paragraph, would most logically continue the discussion presented in the passage?

- (A) Timekeeping in medical tomography must be precise because the changes in travel time caused by density fluctuations are slight.
- (B) To understand how ocean acoustic tomography works, it is necessary to know how sound travels in the ocean.
- (C) Ships are another possibility, but they would need to stop every 50 kilometers to lower measuring instruments.
- (D) These variations amount to only about 2 to 3 percent of the average speed of sound in water, which is about 1,500 meters per second.
- (E) The device used in medical tomography emits a specially coded signal, easily distinguishable from background noise.

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## SECTION A

The Fourteenth Amendment to the United States Constitution, ratified in 1868, prohibits state governments from denying citizens the "equal protection of the laws." Although precisely what the framers of the amendment meant by this equal protection clause remains unclear, all interpreters agree that the framers' immediate objective was to provide a constitutional warrant for the Civil Rights Act of 1866, which guaranteed the citizenship of all persons born in the United States and subject to United States jurisdiction. This declaration, which was echoed in the text of the Fourteenth Amendment, was designed primarily to counter the Supreme Court's ruling in *Dred Scott v. Sandford* that Black people in the United States could be denied citizenship. The act was vetoed by President Andrew Johnson, who argued that the Thirteenth Amendment, which abolished slavery, did not provide Congress with the authority to extend citizenship and equal protection to the freed slaves. Although Congress promptly overrode Johnson's veto, supporters of the act sought to ensure its constitutional foundations with the passage of the Fourteenth Amendment.

The broad language of the amendment strongly suggests that its framers were proposing



to write into the Constitution not a laundry list of specific civil rights but a principle of equal citizenship that forbids organized society from treating any individual as a member of an inferior class. Yet for the first eight decades of the amendment's existence, the Supreme Court's interpretation of the amendment betrayed this ideal of equality. In the *Civil Rights Cases* of 1883, for example, the Court invented the "state action" limitation, which asserts that "private" decisions by owners of public accommodations and other commercial businesses to segregate their facilities are insulated from the reach of the Fourteenth Amendment's guarantee of equal protection under the law.

After the Second World War, a judicial climate more hospitable to equal protection claims culminated in the Supreme Court's ruling in *Brown v. Board of Education* that racially segregated schools violated the equal protection clause of the Fourteenth Amendment. Two doctrines embraced by the Supreme Court during this period extended the amendment's reach. First, the Court required especially strict scrutiny of legislation that employed a "suspect classification," meaning discrimination against a group on grounds that could be construed as racial. This doctrine has broadened the application of the Fourteenth Amendment to other, nonracial forms of discrimination, for while some justices have refused to find any legislative classification other than race to be constitutionally disfavored, most have been receptive to arguments that at least some nonracial discriminations, sexual discrimination in particular, are "suspect" and deserve this heightened scrutiny by the courts. Second, the Court relaxed the state action limitation on the Fourteenth Amendment, bringing new forms of private conduct within the amendment's reach.

17. Which of the following best describes the main idea of the passage?
- (A) By presenting a list of specific rights, framers of the Fourteenth Amendment were attempting to provide a constitutional basis for broad judicial protection of the principle of equal citizenship.
  - (B) Only after the Supreme Court adopted the suspect classification approach to reviewing potentially discriminatory legislation was the applicability of the Fourteenth Amendment extended to include sexual discrimination.
  - (C) Not until after the Second World War did the Supreme Court begin to interpret the Fourteenth Amendment in a manner consistent with the principle of equal citizenship that it expresses.
  - (D) Interpreters of the Fourteenth Amendment have yet to reach consensus with regard to what its framers meant by the equal protection clause.
  - (E) Although the reluctance of judges to extend the reach of the Fourteenth Amendment to nonracial discrimination has betrayed the principle of equal citizenship, the Supreme Court's use of the state action limitation to insulate private activity from the amendment's reach has been more harmful.
18. The passage suggests that the principal effect of the state action limitation was to
- (A) allow some discriminatory practices to continue unimpeded by the Fourteenth Amendment
  - (B) influence the Supreme Court's ruling in *Brown v. Board of Education*

- (C) provide expanded guidelines describing prohibited actions
  - (D) prohibit states from enacting laws that violated the intent of the Civil Rights Act of 1866
  - (E) shift to state governments the responsibility for enforcement of laws prohibiting discriminatory practices
19. The author's position regarding the intent of the framers of the Fourteenth Amendment would be most seriously undermined if which of the following were true?
- (A) The framers had anticipated state action limitations as they are described in the passage.
  - (B) The framers had merely sought to prevent discriminatory acts by federal officials.
  - (C) The framers were concerned that the Civil Rights Act of 1866 would be overturned by the Supreme Court.
  - (D) The framers were aware that the phrase "equal protection of the laws" had broad implications.
  - (E) The framers believed that racial as well as non-racial forms of discrimination were unacceptable.
20. According to the passage, the original proponents of the Fourteenth Amendment were primarily concerned with
- (A) detailing the rights afforded by the principle of equal citizenship
  - (B) providing support in the Constitution for equal protection for all citizens of the United States
  - (C) closing a loophole that could be used to deny individuals the right to sue for enforcement of their civil rights
  - (D) asserting that the civil rights protected by the Constitution included nonracial discrimination as well as racial discrimination
  - (E) granting state governments broader discretion in interpreting the Civil Rights Act of 1866
21. The author implies that the Fourteenth Amendment might not have been enacted if
- (A) Congress' authority with regard to legislating civil rights had not been challenged
  - (B) the framers had anticipated the Supreme Court's ruling in *Brown v. Board of Education*
  - (C) the framers had believed that it would be used in deciding cases of discrimination involving non-racial groups
  - (D) most state governments had been willing to protect citizens' civil rights
  - (E) its essential elements had not been implicit in the Thirteenth Amendment

22. According to the passage, which of the following most accurately indicates the sequence of the events listed below?
- I. Civil Rights Act of 1866
  - II. Dred Scott v. Sandford
  - III. Fourteenth Amendment
  - IV. Veto by President Johnson
- (A) I, II, III, IV
  - (B) I, IV, II, III
  - (C) I, IV, III, II
  - (D) II, I, IV, III
  - (E) III, II, I, IV
23. Which of the following can be inferred about the second of the two doctrines referred to in lines 39-41 of the passage?
- (A) It caused some justices to rule that all types of discrimination are prohibited by the Constitution.
  - (B) It shifted the focus of the Supreme Court from racial to nonracial discrimination.
  - (C) It narrowed the concern of the Supreme Court to legislation that employed a suspect classification.
  - (D) It caused legislators who were writing new legislation to reject language that could be construed as permitting racial discrimination.
  - (E) It made it more difficult for commercial businesses to practice racial discrimination.
- The Earth's magnetic field is generated as the molten iron of the Earth's outer core revolves around its solid inner core. When surges in the molten iron occur, magnetic tempests are created. At the Earth's surface, these tempests can be detected by changes in the strength of the Earth's magnetic field. For reasons not fully understood, the field itself reverses periodically every million years or so. During the past million years, for instance, the magnetic north pole has migrated between the Antarctic and the Arctic.
- Clearly, geophysicists who seek to explain and forecast changes in the field must understand what happens in the outer core. Unlike meteorologists, however, they cannot rely on observations made in their own lifetimes. Whereas atmospheric storms arise in a matter of hours and last for days, magnetic tempests develop over decades and persist for centuries. Fortunately scientists have been recording changes in the Earth's magnetic field for more than 300 years.
24. In the passage, the author is primarily concerned with
- (A) analyzing a complicated scientific phenomenon and its impact on the Earth's surface features
  - (B) describing a natural phenomenon and the challenges its study presents to researchers

- (C) discussing a scientific field of research and the gaps in researchers' methodological approaches to it
  - (D) comparing two distinct fields of physical science and the different research methods employed in each
  - (E) proposing an explanation for a geophysical phenomenon and an experiment that could help confirm that explanation
25. The passage suggests which of the following about surges in the Earth's outer core?
- (A) They occur cyclically every few decades.
  - (B) They can be predicted by changes in the Earth's inner core.
  - (C) They are detected through indirect means.
  - (D) They are linked to disturbances in the Earth's atmosphere.
  - (E) They last for periods of about 1 million years.
26. It can be inferred from the passage that geophysicists seeking to explain magnetic tempests ought to conduct research on the Earth's outer core because the Earth's outer core
- (A) is more fully understood than the Earth's magnetic field
  - (B) is more easily observed than the Earth's magnetic field
  - (C) has been the subject of extensive scientific observation for 300 years
  - (D) is involved in generating the Earth's magnetic field
  - (E) reflects changes in the inner core caused by magnetic tempests
27. In the second paragraph, the author is primarily concerned with
- (A) stating a limitation that helps determine a research methodology
  - (B) making a comparative analysis of two different research methodologies
  - (C) assessing the amount of empirical data in the field of physical science
  - (D) suggesting an optimistic way of viewing a widely feared phenomenon
  - (E) describing a fundamental issue and discussing its future impact on society

## SECTION B

The defoliation of millions of acres of trees by massive infestations of **gypsy moth** caterpillars is a recurring phenomenon in the northeastern United States. In studying these outbreaks, scientists have discovered that affected trees fight back by releasing toxic chemicals, mainly phenols, into their foliage. These noxious substances limit caterpillars' growth and reduce the number of eggs that female moths lay. Phenols also make the eggs smaller, which reduces the growth of the following year's caterpillars. Because the number of eggs a female moth produces is directly related to her size, and because her size is determined entirely by her feeding success as a caterpillar, the trees' defensive mechanism has an impact on moth fecundity.

The gypsy moth is also subject to attack by the nucleopolyhedrosis virus, or **wilt disease**, a particularly important killer of the caterpillars in outbreak years. Caterpillars contract wilt disease when they eat a leaf to which the virus, encased in a protein globule, has become attached. Once ingested by a caterpillar, the protein globule dissolves, releasing thousands of viruses, or virions, that after about two weeks multiply enough to fill the entire body cavity. When the caterpillar dies, the virions are released to the outside, encased in a new protein globule synthesized from the caterpillar's tissues and ready to be picked up by other caterpillars.

Knowing that phenols, including tannins, often act by associating with and altering the activity of proteins, researchers focused on the effects on caterpillars of ingesting the virus and leaves together. They found that on tannin-rich oak leaves, the virus is considerably less effective at killing caterpillars than when it is on aspen leaves, which are lower in phenols. In general, the more concentrated the phenols in tree leaves, the less deadly the virus. Thus, while highly concentrated phenols in tree leaves reduce the caterpillar population by limiting the size of caterpillars and, consequently, the size of the female's egg cluster, these same chemicals also help caterpillars survive by disabling the wilt virus. Forest stands of red oaks, with their tannin-rich foliage, may even provide caterpillars with safe havens from disease. In stands dominated by trees such as aspen, however, incipient gypsy moth outbreaks are quickly suppressed by viral epidemics.

Further research has shown that caterpillars become virtually immune to the wilt virus as the trees on which they feed respond to increasing defoliation. The trees' own defenses raise the threshold of caterpillar vulnerability to the disease, allowing populations to grow denser without becoming more susceptible to infection. For these reasons, the benefits to the caterpillars of ingesting phenols appear to outweigh the costs. Given the presence of the virus, the trees' defensive tactic apparently has **backfired**.

17. Which of the following statements best expresses the main point of the passage?
- (A) Recurring outbreaks of infestation by gypsy moth caterpillars have had a devastating impact on trees in the northeastern United States.
  - (B) A mechanism used by trees to combat the threat from gypsy moth caterpillars has actually made some trees more vulnerable to that threat.
  - (C) Although deadly to gypsy moth caterpillars, wilt disease has failed to significantly affect the population density of the caterpillars.
  - (D) The tree species with the highest levels of phenols in their foliage are the most successful in defending themselves against gypsy moth caterpillars.
  - (E) In their efforts to develop new methods for controlling gypsy moth caterpillars, researchers have focused on the effects of phenols in tree leaves on the insects' growth and reproduction.
18. In lines 12-14, the phrase "the trees' defensive mechanism has an impact on moth fecundity" refers to which of the following phenomena?
- (A) Female moths that ingest phenols are more susceptible to wilt virus, which causes them to lay smaller eggs.

- (B) Highly concentrated phenols in tree leaves limit caterpillars' food supply, thereby reducing the gypsy moth population.
  - (C) Phenols attack the protein globule that protects moth egg clusters, making them vulnerable to wilt virus and lowering their survival rate.
  - (D) Phenols in oak leaves drive gypsy moths into forest stands dominated by aspens, where they succumb to viral epidemics.
  - (E) The consumption of phenols by caterpillars results in undersized female gypsy moths, which tend to produce small egg clusters.
19. It can be inferred from the passage that wilt disease virions depend for their survival on
- (A) protein synthesized from the tissues of a host caterpillar
  - (B) aspen leaves with high concentrations of phenols
  - (C) tannin-rich oak leaves
  - (D) nutrients that they synthesize from gypsy moth egg clusters
  - (E) a rising threshold of caterpillar vulnerability to wilt disease
20. Which of the following, if true, would most clearly demonstrate the operation of the trees' defensive mechanism as it is described in the first paragraph of the passage?
- (A) Caterpillars feeding on red oaks that were more than 50 percent defoliated grew to be only two-thirds the size of those feeding on trees with relatively intact foliage.
  - (B) Oak leaves in areas unaffected by gypsy moths were found to have higher levels of tannin on average than aspen leaves in areas infested with gypsy moths.
  - (C) The survival rate of gypsy moth caterpillars exposed to the wilt virus was 40 percent higher for those that fed on aspen leaves than for those that ate oak leaves.
  - (D) Female gypsy moths produced an average of 25 percent fewer eggs in areas where the wilt virus flourished than did moths in areas that were free of the virus.
  - (E) Gypsy moth egg clusters deposited on oak trees were found to have relatively large individual eggs compared to those deposited on aspen trees.
21. Which of the following best describes the function of the third paragraph of the passage?
- (A) It resolves a contradiction between the ideas presented in the first and second paragraphs.
  - (B) It introduces research data to support the theory outlined in the second paragraph.
  - (C) It draws a conclusion from conflicting evidence presented in the first two paragraphs.



- (D) It shows how phenomena described in the first and second paragraphs act in combination.
- (E) It elaborates on the thesis introduced in the first paragraph after a digression in the second paragraph.
22. It can be inferred from the passage that gypsy moth caterpillars become immune to the wilt virus as a result of
- (A) consuming a wide range of nutrients from a variety of leaf types
- (B) feeding on leaves that contain high levels of phenols
- (C) producing fewer offspring, which favors the survival of the hardiest individuals
- (D) ingesting the virus together with leaves that do not contain tannin
- (E) growing population density, which outstrips the ability of the virus to multiply and spread
23. Which of the following statements about gypsy moth caterpillars is supported by information presented in the passage?
- (A) Wilt disease is more likely to strike small gypsy moth caterpillars than large ones.
- (B) The concentration of phenols in tree leaves increases as the gypsy moth caterpillar population dies off.
- (C) Female gypsy moth caterpillars stop growing after they ingest leaves containing phenols.
- (D) Differing concentrations of phenols in leaves have differing effects on the ability of the wilt virus to kill gypsy moth caterpillars.
- (E) The longer a gypsy moth population is exposed to wilt disease, the greater the likelihood that the gypsy moth caterpillars will become immune to the virus.

The **sweep** of narrative in A. N. Wilson's biography of C. S. Lewis is impressive and there is much that is acute and well argued. But much in this work is careless and unworthy of its author. Wilson, a novelist and an accomplished biographer, has failed to do what any writer on such a subject as Lewis ought to do, namely **work out** a coherent view of how the various literary works by the subject are to be described and commented on. Decisions have to be made on what to look at in detail and what to **pass by** with just a mention. Wilson has not thought this problem out. For instance, *Till We Have Faces*, Lewis' treatment of the Eros and Psyche story and one of his best-executed and most moving works, is merely mentioned by Wilson, though it illuminates Lewis' spiritual development, whereas Lewis' minor work *Pilgrim's Regress* is looked at in considerable detail.

24. The author of the passage implies that Wilson's examination of *Pilgrim's Regress*
- (A) is not as coherent as his treatment of *Till We Have Faces*
- (B) would have been more appropriate in a separate treatise because of the scope of *Pilgrim's Regress*
- (C) demonstrates how Wilson's narrow focus ignores the general themes of

- Lewis' works
- (D) was more extensive than warranted because of the relative unimportance of *Pilgrim's Regress*
- (E) was disproportionately long relative to the amount of effort Lewis devoted to writing *Pilgrim's Regress*
25. The author of the passage would be most likely to agree with which of the following statements regarding *Till We Have Faces*?
- (A) It is an improvement over the Eros and Psyche story on which it is based.
- (B) It illustrated Lewis' attempt to involve his readers emotionally in the story of Eros and Psyche.
- (C) It was more highly regarded by Wilson than by Lewis himself.
- (D) It is one of the outstanding literary achievements of Lewis' career.
- (E) It is probably one of the most popular of Lewis' works.
26. Which of the following best describes the organization of the passage?
- (A) An evaluation is made, and aspects of the evaluation are expanded on with supporting evidence.
- (B) A theory is proposed, and supporting examples are provided.
- (C) A position is examined, analyzed, and rejected.
- (D) A contradiction is described, then the points of contention are evaluated and reconciled.
- (E) Opposing views are presented and evaluated, then modifications are advocated.
27. Which of the following best describes the content of the passage?
- (A) A critique of A. N. Wilson as a biographer
- (B) An evaluation of the significance of several works by C. S. Lewis
- (C) An appraisal of a biography by A. N. Wilson
- (D) A ranking of the elements necessary for a well-structured biography
- (E) A proposal for evaluating the literary merits of the works of C. S. Lewis

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## SECTION A

Influenced by the view of some twentieth-century feminists that women's position within the family is one of the central factors determining women's social position, some historians have underestimated the significance of the woman suffrage movement. These historians contend that nineteenth-century suffragist was less radical and, hence, less important than, for example, the moral reform movement or domestic feminism—two nineteenth-century movements in which women struggled for more power and autonomy within the family. True,

by emphasizing these struggles, such historians have broadened the conventional view of nineteenth-century feminism, but they do a historical disservice to suffragism. Nineteenth-century feminists and anti-feminist alike perceived the suffragists' demand for enfranchisement as the most radical element in women's protest, in part because suffragists were demanding power that was not based on the institution of the family, women's traditional sphere. When evaluating nineteenth-century feminism as a social force, contemporary historians should consider the perceptions of actual participants in the historical events.

17. The author asserts that the historians discussed in the passage have
  - (A) influenced feminist theorists who concentrate on the family
  - (B) honored the perceptions of the women who participated in the women suffrage movement
  - (C) treated feminism as a social force rather than as an intellectual tradition
  - (D) paid little attention to feminist movements
  - (E) expanded the conventional view of nineteenth-century feminism
18. The author of the passage asserts that some twentieth-century feminists have influenced some historians view of the
  - (A) significance of the woman suffrage movement
  - (B) importance to society of the family as an institution
  - (C) degree to which feminism changed nineteenth-century society
  - (D) philosophical traditions on which contemporary feminism is based
  - (E) public response to domestic feminism in the nineteenth century
19. The author of the passage suggests that which of the following was true of nineteenth-century feminists?
  - (A) Those who participated in the moral reform movement were motivated primarily by a desire to reconcile their private lives with their public positions.
  - (B) Those who advocated domestic feminism, although less visible than the suffragists, were in some ways the more radical of the two groups.
  - (C) Those who participated in the woman suffrage movement sought social roles for women that were not defined by women's familial roles.
  - (D) Those who advocated domestic feminism regarded the gaining of more autonomy within the family as a step toward more participation in public life.
  - (E) Those who participated in the nineteenth-century moral reform movement stood midway between the positions of domestic feminism and suffragism.
20. The author implies that which of the following is true of the historians discussed in the passage?
  - (A) They argue that nineteenth-century feminism was not as significant a social force as twentieth-century feminism has been.

- (B) They rely too greatly on the perceptions of the actual participants in the events they study.
- (C) Their assessment of the relative success of nineteenth-century domestic feminism does not adequately take into account the effects of antifeminist rhetoric.
- (D) Their assessment of the significance of nineteenth-century suffragism differs considerably from that of nineteenth-century feminists.
- (E) They devote too much attention to nineteenth-century suffragism at the expense of more radical movements that emerged shortly after the turn of the century.

Many objects in daily use have clearly been influenced by science, but their form and function, their dimensions and appearance, were determined by technologists, artisans, designers, inventors, and engineers—using non-scientific modes of thought. Many features and qualities of the objects that a technologist thinks about cannot be reduced to unambiguous verbal descriptions; they are dealt with in the mind by a visual, nonverbal process. In the development of Western technology, it has been non-verbal thinking, by and large, that has fixed the outlines and filled in the details of our material surroundings. Pyramids, cathedrals, and rockets exist not because of geometry or thermodynamics, but because they were first a picture in the minds of those who built them.

The creative shaping process of a technologist's mind can be seen in nearly every artifact that exists. For example, in designing a diesel engine, a technologist might impress individual ways of nonverbal thinking on the machine by continually using an intuitive sense of rightness and fitness. What would be the shape of the combustion chamber? Where should the valves be placed? Should it have a long or short piston? Such questions have a range of answers that are supplied by experience, by physical requirements, by limitations of available space, and not least by a sense of form. Some decisions, such as wall thickness and pin diameter, may depend on scientific calculations, but the nonscientific component of design remains primary.

Design courses, then, should be an essential element in engineering curricula. Nonverbal thinking, a central mechanism in engineering design, involves perceptions, the stock-in-trade of the artist, not the scientist. Because perceptive processes are not assumed to entail "hard thinking," nonverbal thought is sometimes seen as a primitive stage in the development of cognitive processes and inferior to verbal or mathematical thought. But it is paradoxical that when the staff of the *Historic American Engineering Record* wished to have drawings made of machines and isometric views of industrial processes for its historical record of American engineering, the only college students with the requisite abilities were not engineering students, but rather students attending architectural schools.

If courses in design, which in a strongly analytical engineering curriculum provide the background required for practical problem-solving, are not provided, we can expect to encounter silly but costly errors occurring in advanced engineering systems. For example, early models of high-speed railroad cars loaded with sophisticated controls were unable to operate in a snowstorm because a fan sucked snow into the electrical system. Absurd random failures that plague automatic control systems are not merely trivial aberrations; they are a reflection of the chaos that results when design is assumed to be primarily a problem in mathematics.

21. In the passage, the author is primarily concerned with
- (A) identifying the kinds of thinking that are used by technologists
  - (B) stressing the importance of nonverbal thinking in engineering design
  - (C) proposing a new role for nonscientific thinking in the development of technology
  - (D) contrasting the goals of engineers with those of technologists
  - (E) criticizing engineering schools for emphasizing science in engineering curricula
22. It can be inferred that the author thinks engineering curricula are
- (A) strengthened when they include courses in design
  - (B) weakened by the substitution of physical science courses for courses designed to develop mathematical skills
  - (C) strong because nonverbal thinking is still emphasized by most of the courses
  - (D) strong despite the errors that graduates of such curricula have made in the development of automatic control systems
  - (E) strong despite the absence of nonscientific modes of thinking
23. Which of the following statements best illustrates the main point of lines 1-28 of the passage?
- (A) When a machine like a rotary engine malfunctions, it is the technologist who is best equipped to repair it.
  - (B) Each component of an automobile—for example, the engine or the fuel tank—has a shape that has been scientifically determined to be best suited to that component's function.
  - (C) A telephone is a complex instrument designed by technologists using only nonverbal thought.
  - (D) The designer of a new refrigerator should consider the designs of other refrigerators before deciding on its final form.
  - (E) The distinctive features of a suspension bridge reflect its designer's conceptualization as well as the physical requirements of its site.
24. Which of the following statements would best serve as an introduction to the passage?
- (A) The assumption that the knowledge incorporated in technological developments must be derived from science ignores the many non-scientific decisions made by technologists.
  - (B) Analytical thought is no longer a vital component in the success of technological development.
  - (C) As knowledge of technology has increased, the tendency has been to lose sight of the important role played by scientific thought in making decisions about form, arrangement, and texture.

- (D) A movement in engineering colleges toward a technician's degree reflects a demand for graduates who have the nonverbal reasoning ability that was once common among engineers.
- (E) A technologist thinking about a machine, reasoning through the successive steps in a dynamic process, can actually turn the machine over mentally.
25. The author calls the predicament faced by the *Historic American Engineering Record* "paradoxical" (lines 36-37) most probably because
- (A) the publication needed drawings that its own staff could not make
- (B) architectural schools offered but did not require engineering design courses for their students
- (C) college students were qualified to make the drawings while practicing engineers were not
- (D) the drawings needed were so complicated that even students in architectural schools had difficulty making them
- (E) engineering students were not trained to make the type of drawings needed to record the development of their own discipline
26. According to the passage, random failures in automatic control systems are "not merely trivial aberrations" (lines 53) because
- (A) automatic control systems are designed by engineers who have little practical experience in the field
- (B) the failures are characteristic of systems designed by engineers relying too heavily on concepts in mathematics
- (C) the failures occur too often to be taken lightly
- (D) designers of automatic control systems have too little training in the analysis of mechanical difficulties
- (E) designers of automatic control systems need more help from scientists who have a better understanding of the analytical problems to be solved before such systems can work efficiently
27. The author uses the example of the early models of high-speed railroad cars primarily to
- (A) weaken the argument that modern engineering systems have major defects because of an absence of design courses in engineering curricula
- (B) support the thesis that the number of errors in modern engineering systems is likely to increase
- (C) illustrate the idea that courses in design are the most effective means for reducing the cost of designing engineering systems
- (D) support the contention that a lack of attention to the nonscientific aspects of design results in poor conceptualization by engineers
- (E) weaken the proposition that mathematics is a necessary part of the study of design



## SECTION B

One explanation for the tendency of animals to be more vigilant in smaller groups than in larger ones assumes that the vigilant behavior—looking up, for example—is aimed at predators. If individuals on the edge of a group are more vigilant because they are at greater risk of being captured, then individuals on average would have to be more vigilant in smaller groups, because the animals on the periphery of a group form a greater proportion of the whole group as the size of the group diminishes.

However, a different explanation is necessary in cases where the vigilant behavior is not directed at predators. J. Krebs has discovered that great blue herons look up more often when in smaller flocks than when in larger ones, solely as a consequence of poor feeding conditions. Krebs hypothesizes that the herons in smaller flocks are watching for herons that they might follow to better feeding pools, which usually attract larger numbers of the birds.

17. It can be inferred from the passage that in species in which vigilant behavior is directed at predators, the tendency of the animals to be more vigilant in smaller groups than in larger ones would most likely be minimized if which of the following were true?
- (A) The vigilance of animals on the periphery of a group always exceeded that of animals located in its interior, even when predators were not in the area.
  - (B) The risk of capture for individuals in a group was the same, whether they were located in the interior of the group or on its periphery.
  - (C) Animals on the periphery of a group tended to be less capable of defending themselves from attack by predators than animals located in the interior of the group.
  - (D) Animals on the periphery of a group tended to bear marks that were more distinctive to predators than animals located in the interior of the group.
  - (E) Animals on the periphery of a group tended to have shorter life spans than animals located in the interior of the group.
18. Which of the following best describes the relationship of the second paragraph to the first?
- (A) The second paragraph relies on different evidence in drawing a conclusion similar to that expressed in the first paragraph.
  - (B) The second paragraph provides further elaboration on why an assertion made at the end of the first paragraph proves to be true in most cases.
  - (C) The second paragraph provides additional information in support of a hypothesis stated in the first paragraph.
  - (D) The second paragraph provides an example of a case in which the assumption described in the first paragraph is unwarranted.
  - (E) The second paragraph describes a phenomenon that has the same cause as the phenomenon described in the first paragraph.

19. It can be inferred from the passage that the author of the passage would be most likely to agree with which of the following assertions about vigilant behavior?
- (A) The larger the group of animals, the higher the probability that individuals in the interior of the group will exhibit vigilant behavior.
  - (B) Vigilant behavior exhibited by individuals in small groups is more effective at warding off predators than the same behavior exhibited by individuals in larger groups.
  - (C) Vigilant behavior is easier to analyze in species that are preyed upon by many different predators than in species that are preyed upon by relatively few of them.
  - (D) The term “vigilant,” when used in reference to the behavior of animals, does not refer exclusively to behavior aimed at avoiding predators.
  - (E) The term “vigilant,” when used in reference to the behavior of animals, usually refers to behavior exhibited by large groups of animals.
20. The passage provides information in support of which of the following assertions?
- (A) The avoidance of predators is more important to an animal’s survival than is the quest for food.
  - (B) Vigilant behavior aimed at predators is seldom more beneficial to groups of animals than to individual animals.
  - (C) Different species of animals often develop different strategies for dealing with predators.
  - (D) The size of a group of animals does not necessarily reflect its success in finding food.
  - (E) Similar behavior in different species of animals does not necessarily serve the same purpose.

The earliest controversies about the relationship between photography and art centered on whether photography’s fidelity to appearances and dependence on a machine allowed it to be a fine art as distinct from merely a practical art. Throughout the nineteenth century, the defense of photography was identical with the struggle to establish it as a fine art. Against the charge that photography was a soulless, mechanical copying of reality, photographers asserted that it was instead a privileged way of seeing, a revolt against commonplace vision, and no less worthy an art than painting.

Ironically, now that photography is securely established as a fine art, many photographers find it pretentious or irrelevant to label it as such. Serious photographers variously claim to be finding, recording, impartially observing, witnessing events, exploring themselves—anything but making works of art. In the nineteenth century, photography’s association with the real world placed it in an ambivalent relation to art; late in the twentieth century, an ambivalent relation exists because of the Modernist heritage in art. That important photographers are no longer willing to debate whether photography is or is not a fine art, except to proclaim that their own work is not involved with art, shows the extent to which they simply take for granted the

concept of art imposed by the triumph of Modernism: the better the art, the more subversive it is of the traditional aims of art.

Photographers' disclaimers of any interest in making art tell us more about the harried status of the contemporary notion of art than about whether photography is or is not art. For example, those photographers who suppose that, by taking pictures, they are getting away from the pretensions of art as exemplified by painting remind us of those Abstract Expressionist painters who imagined they were getting away from the intellectual austerity of classical Modernist painting by concentrating on the physical act of painting. Much of photography's prestige today derives from the convergence of its aims with those of recent art, particularly with the dismissal of abstract art implicit in the phenomenon of Pop painting during the 1960's. Appreciating photographs is a relief to sensibilities tired of the mental exertions demanded by abstract art. Classical Modernist painting—that is, abstract art as developed in different ways by Picasso, Kandinsky, and Matisse—presupposes highly developed skills of looking and a familiarity with other paintings and the history of art. Photography, like Pop painting, reassures viewers that art is not hard; photography seems to be more about its subjects than about art.

Photography, however, has developed all the anxieties and self-consciousness of a classic Modernist art. Many professionals privately have begun to worry that the promotion of photography as an activity subversive of the traditional pretensions of art has gone so far that the public will forget that photography is a distinctive and exalted activity—in short, an art.

21. In the passage, the author is primarily concerned with
- (A) defining the Modernist attitude toward art
  - (B) explaining how photography emerged as a fine art after the controversies of the nineteenth century
  - (C) explaining the attitudes of serious contemporary photographers toward photography as art and placing those attitudes in their historical context
  - (D) defining the various approaches that serious contemporary photographers take toward their art and assessing the value of each of those approaches
  - (E) identifying the ways that recent movements in painting and sculpture have influenced the techniques employed by serious photographers
22. Which of the following adjectives best describes “the concept of art imposed by the triumph of Modernism” as the author represents it in lines 25-27?
- (A) Objective
  - (B) Mechanical
  - (C) Superficial
  - (D) Dramatic
  - (E) Paradoxical
23. The author introduces Abstract Expressionist painters (lines 34) in order to
- (A) provide an example of artists who, like serious contemporary photographers, disavowed traditionally accepted aims of modern art
  - (B) call attention to artists whose works often bear a physical resemblance to the

- works of serious contemporary photographers
- (C) set forth an analogy between the Abstract Expressionist painters and classical Modernist painters
- (D) provide a contrast to Pop artists and others who created works that exemplify the Modernist heritage in art
- (E) provide an explanation of why serious photography, like other contemporary visual forms, is not and should not pretend to be an art
24. According to the author, the nineteenth-century defenders of photography mentioned in the passage stressed that photography was
- (A) a means of making people familiar with remote locales and unfamiliar things
- (B) a technologically advanced activity
- (C) a device for observing the world impartially
- (D) an art comparable to painting
- (E) an art that would eventually replace the traditional arts
25. According to the passage, which of the following best explains the reaction of serious contemporary photographers to the question of whether photography is an art?
- (A) The photographers' belief that their reliance on an impersonal machine to produce their art requires the surrender of the authority of their personal vision
- (B) The photographers' fear that serious photography may not be accepted as an art by the contemporary art public
- (C) The influence of Abstract Expressionist painting and Pop Art on the subject matter of the modern photograph
- (D) The photographers' belief that the best art is subversive of art as it has previously been defined
- (E) The notorious difficulty of defining art in its relation to realistic representation
26. According to the passage, certain serious contemporary photographers expressly make which of the following claims about their photographs?
- (A) Their photographs could be created by almost anyone who had a camera and the time to devote to the activity.
- (B) Their photographs are not examples of art but are examples of the photographers' impartial observation of the world.
- (C) Their photographs are important because of their subjects but not because of the responses they evoke in viewers.
- (D) Their photographs exhibit the same ageless principles of form and shading that have been used in painting.
- (E) Their photographs represent a conscious glorification of the mechanical

aspects of twentieth-century life.

27. It can be inferred from the passage that the author most probably considers serious contemporary photography to be a
- (A) contemporary art that is struggling to be accepted as fine art
  - (B) craft requiring sensitivity but by no means an art
  - (C) mechanical copying of reality
  - (D) modern art that displays the Modernist tendency to try to subvert the prevailing aims of art
  - (E) modern art that displays the tendency of all Modernist art to become increasingly formal and abstract

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## SECTION A

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.

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 Night* 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

Experiments show that insects can function as pollinators of **cycads**, rare, palmlike 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.

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.

## SECTION B

(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
21. It can be inferred from the passage that Landsat images differ from conventional geologic maps in that Landsat images

- (A) reveal the exact size of petroleum deposits and ore deposits
  - (B) indicate the continuity of features that might not otherwise be interpreted as continuous
  - (C) predict the movements of glaciers
  - (D) provide highly accurate data about the occurrence of mineral deposits
  - (E) reveal the integrity of the media in which petroleum deposits and ore deposits are found
22. The passage provides information about each of the following topics EXCEPT:
- (A) the principal method of geologic remote sensing prior to the mid-1960's
  - (B) some of the phenomena measured by digital multi-spectral images in remote sensing
  - (C) some of the practical uses of regional geologic maps
  - (D) the kinds of problems that are difficult to solve solely through conventional methods of geologic mapping
  - (E) the specific limitations of the Landsat multi-spectral scanner
23. The passage suggests which of the following about the "conventional methods" mentioned in line 29?
- (A) They consist primarily of field surveys and laboratory measurements.
  - (B) They are not useful in providing information necessary for reconstructing geologic evolution.
  - (C) They have rarely been used by geologists since 1972.
  - (D) They are used primarily to gather compositional information about geologic features.
  - (E) They are limited primarily because of difficulties involved in interpreting film images.

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
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.

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## SECTION A

As people age, their cells become less efficient and less able to replace damaged components. At the same time their tissues stiffen. For example, the lungs and the heart muscle expand less successfully, the blood vessels become increasingly rigid, and the ligaments



and tendons tighten.

Few investigators would attribute such diverse effects to a single cause. Nevertheless, researchers have discovered that a process long known to discolor and toughen foods may also contribute to age-related impairment of both cells and tissues. That process is nonenzymatic glycosylation, whereby glucose becomes attached to proteins without the aid of enzymes. When enzymes attach glucose to proteins (enzymatic glycosylation), they do so at a specific site on a specific protein molecule for a specific purpose. In contrast, the nonenzymatic process adds glucose haphazardly to any of several sites along any available peptide chain within a protein molecule.

This nonenzymatic glycosylation of certain proteins has been understood by food chemists for decades, although few biologists recognized until recently that the same steps could take place in the body. Nonenzymatic glycosylation begins when an aldehyde group (CHO) of glucose and an amino group (NH<sub>2</sub>) of a protein are attracted to each other. The molecules combine, forming what is called a Schiff base within the protein. This combination is unstable and quickly rearranges itself into a stabler, but still reversible, substance known as an Amadori product.

If a given protein persists in the body for months or years, some of its Amadori products slowly dehydrate and rearrange themselves yet again, into new glucose-derived structures. These can combine with various kinds of molecules to form irreversible structures named advanced glycosylation end products (AGE's). Most AGE's are yellowish brown and fluorescent and have specific spectrographic properties. More important for the body, many are also able to cross-link adjacent proteins, particularly ones that give structure to tissues and organs. Although no one has yet satisfactorily described the origin of all such bridges between proteins, many investigators agree that extensive cross-linking of proteins probably contributes to the stiffening and loss of elasticity characteristic of aging tissues.

In an attempt to link this process with the development of cataracts (the browning and clouding of the lens of the eye as people age), researchers studied the effect of glucose on solutions of purified crystallin, the major protein in the lens of the eye. Glucose-free solutions remained clear, but solutions with glucose caused the proteins to form clusters, suggesting that the molecules had become cross-linked. The clusters diffracted light, making the solution opaque. The researchers also discovered that the pigmented cross-links in human cataracts have the brownish color and fluorescence characteristic of AGE's. These data suggest that nonenzymatic glycosylation of lens crystallins may contribute to cataract formation.

17. With which of the following statements concerning the stiffening of aging tissues would the author most likely agree?
- (A) It is caused to a large degree by an increased rate of cell multiplication.
  - (B) It paradoxically both helps and hinders the longevity of proteins in the human body.
  - (C) It can be counteracted in part by increased ingestion of glucose-free foods.
  - (D) It is exacerbated by increased enzymatic glycosylation.
  - (E) It probably involves the nonenzymatic glycosylation of proteins.

18. According to the passage, which of the following statements is true of the process that discolors and toughens foods?
- (A) It takes place more slowly than glycosylation in the human body.
  - (B) It requires a higher ratio of glucose to protein than glycosylation requires in the human body.
  - (C) It does not require the aid of enzymes to attach glucose to protein.
  - (D) It proceeds more quickly when the food proteins have a molecular structure similar to that of crystallin proteins.
  - (E) Its effectiveness depends heavily on the amount of environmental moisture.
19. According to the passage, which of the following is characteristic of enzymatic glycosylation of proteins?
- (A) AGE's are formed after a period of months or years.
  - (B) Proteins affected by the process are made unstable.
  - (C) Glucose attachment impairs and stiffens tissues.
  - (D) Glucose is attached to proteins for specific purposes.
  - (E) Amino groups combine with aldehyde groups to form Schiff bases.
20. According to the passage, which of the following statements is true of Amadori products in proteins?
- (A) They are more plentiful in a dehydrated environment.
  - (B) They are created through enzymatic glycosylation.
  - (C) They are composed entirely of glucose molecules.
  - (D) They are derived from Schiff bases.
  - (E) They are derived from AGE's.
21. Which of the following best describes the function of the third paragraph of the passage (lines 19-29)?
- (A) It offers evidence that contradicts the findings described in the first two paragraphs.
  - (B) It presents a specific example of the process discussed in the first two paragraphs.
  - (C) It explains a problem that the researchers mentioned in the second paragraph have yet to solve.
  - (D) It evaluates the research discoveries described in the previous paragraph.
  - (E) It begins a detailed description of the process introduced in the previous two paragraphs.
22. The passage suggests that which of the following would be LEAST important in determining whether nonenzymatic glycosylation is likely to have taken place in the proteins of a particular tissue?
- (A) The likelihood that the tissue has been exposed to free glucose

- (B) The color and spectrographic properties of structures within the tissue
  - (C) The amount of time that the proteins in the tissue have persisted in the body
  - (D) The number of amino groups within the proteins in the tissue
  - (E) The degree of elasticity that the tissue exhibits
23. If the hypothesis stated in lines 56-58 is true, it can be inferred that the crystallin proteins in the lenses of people with cataracts
- (A) have increased elasticity
  - (B) do not respond to enzymatic glycosylation
  - (C) are more susceptible to stiffening than are other proteins
  - (D) are at least several months old
  - (E) respond more acutely than other proteins to changes in moisture levels

Writing of the Iroquois nation, Smith has argued that through the chiefs' council, tribal chiefs traditionally maintained complete control over the political affairs of both the Iroquois tribal league and the individual tribes belonging to the league, whereas the sole jurisdiction over religious affairs resided with the shamans. According to Smith, this division was maintained until the late nineteenth century, when the dissolution of the chiefs' council and the consequent diminishment of the chiefs' political power fostered their increasing involvement in religious affairs.

However, Smith fails to recognize that this division of power between the tribal chiefs and shamans was not actually rooted in Iroquois tradition; rather, it resulted from the Iroquois' resettlement on reservations early in the nineteenth century. Prior to resettlement, the chiefs' council controlled only the broad policy of the tribal league; individual tribes had institutions—most important, the longhouse—to govern their own affairs. In the longhouse, the tribe's chief influenced both political and religious affairs.

24. The primary purpose of the passage is to
- (A) question the published conclusions of a scholar concerning the history of the Iroquois nation
  - (B) establish the relationship between an earlier scholar's work and new anthropological research
  - (C) summarize scholarly controversy concerning an incident from Iroquois history
  - (D) trace two generations of scholarly opinion concerning Iroquois social institutions
  - (E) differentiate between Iroquois political practices and Iroquois religious practices
25. It can be inferred that the author of the passage regards Smith's argument as
- (A) provocative and potentially useful, but flawed by poor organization
  - (B) eloquently presented, but needlessly inflammatory
  - (C) accurate in some of its particulars, but inaccurate with regard to an important

point

(D) historically sound, but overly detailed and redundant

(E) persuasive in its time, but now largely outdated

26. The author of the passage implies that which of the following occurred after the Iroquois were resettled on reservations early in the nineteenth century?

(A) Chiefs became more involved in their tribes' religious affairs.

(B) The authority of the chiefs' council over the affairs of individual tribes increased.

(C) The political influence of the Iroquois shamans was diminished.

(D) Individual tribes coalesced into the Iroquois tribal league.

(E) The longhouse became a political rather than a religious institution.

27. Which of the following best expresses an opinion presented by the author of the passage?

(A) Smith has overstated the importance of the political role played by Iroquois tribal chiefs in the nineteenth century.

(B) Smith has overlooked the fact that the Iroquois rarely allowed their shamans to exercise political authority.

(C) Smith has failed to explain why the chiefs' council was dissolved late in the nineteenth century.

(D) Smith has failed to acknowledge the role prior to the nineteenth century of the Iroquois tribal chiefs in religious affairs.

(E) Smith has failed to recognize that the very structure of Iroquois social institutions reflects religious beliefs.

## SECTION B

*Mary Barton*, particularly in its early chapters, is a moving response to the suffering of the industrial worker in the England of the 1840's. What is most impressive about the book is the intense and painstaking effort made by the author, Elizabeth Gaskell, to convey the experience of everyday life in working-class homes. Her method is partly documentary in nature: the novel includes such features as a carefully annotated reproduction of dialect, the exact details of food prices in an account of a **tea party**, an itemized description of the furniture of the Bartons' living room, and a **transcription** (again annotated) of the ballad "The Oldham Weaver." The interest of this record is considerable, even though the method has a slightly distancing effect.

As a member of the middle class, Gaskell could hardly help approaching working-class life as an outside observer and a reporter, and the reader of the novel is always conscious of this fact. But there is genuine imaginative re-creation in her accounts of the walk in Green Heys Fields, of tea at the Bartons' house, and of John Barton and his friend's discovery of the starving family in the cellar in the chapter "Poverty and Death." Indeed, for a similarly convincing re-creation of such families' emotions and responses (which are more crucial than the material

details on which the mere reporter is apt to concentrate), the English novel had to wait 60 years for the early writing of D. H. Lawrence. If Gaskell never quite conveys the sense of full participation that would completely authenticate this aspect of *Mary Barton*, she still brings to these scenes an intuitive recognition of feelings that has its own sufficient conviction.

The chapter “Old Alice’s History” brilliantly dramatizes the situation of that early generation of workers brought from the villages and the countryside to the urban industrial centers. The account of Job Legh, the weaver and naturalist who is devoted to the study of biology, vividly embodies one kind of response to an urban industrial environment: an affinity for living things that hardens, by its very contrast with its environment, into a kind of crankiness. The early chapters—about factory workers walking out in spring into Green Heys Fields; about Alice Wilson, remembering in her cellar the twig-gathering for brooms in the native village that she will never again see; about Job Legh, intent on his impaled insects—capture the characteristic responses of a generation to the new and crushing experience of industrialism. The other early chapters eloquently portray the development of the instinctive cooperation with each other that was already becoming an important tradition among workers.

17. Which of the following best describes the author’s attitude toward Gaskell’s use of the method of documentary record in *Mary Barton*?
- (A) Uncritical enthusiasm
  - (B) Unresolved ambivalence
  - (C) Qualified approval
  - (D) Resigned acceptance
  - (E) Mild irritation
18. According to the passage, *Mary Barton* and the early novels of D. H. Lawrence share which of the following?
- (A) Depiction of the feelings of working-class families
  - (B) Documentary objectivity about working-class circumstances
  - (C) Richly detailed description of working-class adjustment to urban life
  - (D) Imaginatively structured plots about working-class characters
  - (E) Experimental prose style based on working-class dialect
19. Which of the following is most closely analogous to Job Legh in *Mary Barton*, as that character is described in the passage?
- (A) An entomologist who collected butterflies as a child
  - (B) A small-town attorney whose hobby is nature photography
  - (C) A young man who leaves his family’s dairy farm to start his own business
  - (D) A city dweller who raises exotic plants on the roof of his apartment building
  - (E) A union organizer who works in a textile mill under dangerous conditions
20. It can be inferred from examples given in the last paragraph of the passage that which of the following was part of “the new and crushing experience of industrialism” (lines 46-47) for many members of the English working class in

the nineteenth century?

- (A) Extortionate food prices
- (B) Geographical displacement
- (C) Hazardous working conditions
- (D) Alienation from fellow workers
- (E) Dissolution of family ties

21. It can be inferred that the author of the passage believes that *Mary Barton* might have been an even better novel if Gaskell had

- (A) concentrated on the emotions of a single character
- (B) made no attempt to re-create experiences of which she had no firsthand knowledge
- (C) made no attempt to reproduce working-class dialects
- (D) grown up in an industrial city
- (E) managed to transcend her position as an outsider

22. Which of the following phrases could best be substituted for the phrase “this aspect of *Mary Barton*” in line 29 without changing the meaning of the passage as a whole?

- (A) the material details in an urban working-class environment
- (B) the influence of *Mary Barton* on Lawrence’s early work
- (C) the place of *Mary Barton* in the development of the English novel
- (D) the extent of the poverty and physical suffering among England’s industrial workers in the 1840’s
- (E) the portrayal of the particular feelings and responses of working-class characters

23. The author of the passage describes *Mary Barton* as each of the following EXCEPT:

- (A) insightful
- (B) meticulous
- (C) vivid
- (D) poignant
- (E) lyrical

As of the late 1980’s, neither theorists nor large-scale computer climate models could accurately predict whether cloud systems would help or hurt a warming globe. Some studies suggested that a four percent increase in stratocumulus clouds over the ocean could compensate for a doubling in atmospheric carbon dioxide, preventing a potentially disastrous planetwide temperature increase. On the other hand, an increase in cirrus clouds could increase global warming.

That clouds represented the weakest element in climate models was illustrated by a study



of fourteen such models. Comparing climate forecasts for a world with double the current amount of carbon dioxide, researchers found that the models agreed quite well if clouds were not included. But when clouds were incorporated, a wide range of forecasts was produced. With such discrepancies plaguing the models, scientists could not easily predict how quickly the world's climate would change, nor could they tell which regions would face dustier droughts or deadlier monsoons.

24. The author of the passage is primarily concerned with
- (A) confirming a theory
  - (B) supporting a statement
  - (C) presenting new information
  - (D) predicting future discoveries
  - (E) reconciling discrepant findings
25. It can be inferred that one reason the fourteen models described in the passage failed to agree was that
- (A) they failed to incorporate the most up-to-date information about the effect of clouds on climate
  - (B) they were based on faulty information about factors other than clouds that affect climate
  - (C) they were based on different assumptions about the overall effects of clouds on climate
  - (D) their originators disagreed about the kinds of forecasts the models should provide
  - (E) their originators disagreed about the factors other than clouds that should be included in the models
26. It can be inferred that the primary purpose of the models included in the study discussed in the second paragraph of the passage was to
- (A) predict future changes in the world's climate
  - (B) predict the effects of cloud systems on the world's climate
  - (C) find a way to prevent a disastrous planetwide temperature increase
  - (D) assess the percentage of the Earth's surface covered by cloud systems
  - (E) estimate by how much the amount of carbon dioxide in the Earth's atmosphere will increase
27. The information in the passage suggests that scientists would have to answer which of the following questions in order to predict the effect of clouds on the warming of the globe?
- (A) What kinds of cloud systems will form over the Earth?
  - (B) How can cloud systems be encouraged to form over the ocean?
  - (C) What are the causes of the projected planetwide temperature increase?
  - (D) What proportion of cloud systems are currently composed of cirrus of clouds?

(E) What proportion of the clouds in the atmosphere form over land masses?

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## SECTION A

For many years, Benjamin Quarles' seminal account of the participation of African Americans in the American Revolution has remained the standard work in the field. According to Quarles, the outcome of this conflict was mixed for African American slaves who enlisted in Britain's fight against its rebellious American colonies **in return for** the promise of freedom: the British treacherously resold many into slavery in the **West Indies**, while others obtained freedom in Canada and Africa. Building on Quarles' analysis of the latter group, Sylvia Frey studied the former slaves who emigrated to British colonies in Canada. According to Frey, these refugees—the most successful of the African American Revolutionary War participants—viewed themselves as the ideological heirs of the American Revolution. Frey sees this inheritance reflected in their demands for the same rights that the American revolutionaries had demanded from the British: land ownership, limits to arbitrary authority and burdensome taxes, and freedom of religion.

17. According to the passage, which of the following is true about the African American Revolutionary War participants who settled in Canada after the American Revolution?
- (A) Although they were politically unaligned with either side, they identified more with British ideology than with American ideology.
  - (B) While they were not immediately betrayed by the British, they ultimately suffered the same fate as did African American Revolutionary War participants who were resold into slavery in the West Indies.
  - (C) They settled in Canada rather than in Africa because of the greater religious freedom available in Canada.
  - (D) They were more politically active than were African American Revolutionary War participants who settled in Africa.
  - (E) They were more successful than were African American Revolutionary War participants who settled Africa.
18. Which of the following is most analogous to the relationship between the African American Revolutionary War participants who settled in Canada after the American Revolution and the American revolutionaries, as that relationship is described in the passage?
- (A) A brilliant pupil of a great musician rebels against the teacher, but adopts the teacher's musical style after the teacher's unexpected death.
  - (B) Two warring rulers finally make peace after a lifetime of strife when they realize that they have been duped by a common enemy.
  - (C) A child who has sided with a domineering parent against a defiant sibling

- later makes demands of the parent similar to those once made by the sibling.
- (D) A writer spends much of her life popularizing the work of her mentor, only to discover late in life that much of the older writer's work is plagiarized from the writings of a foreign contemporary.
- (E) Two research scientists spend much of their careers working together toward a common goal, but later quarrel over which of them should receive credit for the training of a promising student.
19. The author of the passage suggests that which of the following is true of Benjamin Quarles' work?
- (A) It introduced a new and untried research methodology.
- (B) It contained theories so controversial that they gave rise to an entire generation of scholarship.
- (C) It was a pioneering work that has not yet been displaced by subsequent scholarship.
- (D) It launched the career of a scholar who later wrote even more important works.
- (E) At the time it appeared, its author already enjoyed a well-established reputation in the field.
20. Which of the following can be inferred from the passage concerning Britain's rule in its Canadian colonies after the American Revolution?
- (A) Humiliated by their defeat by the Americans, the British sharply curtailed civil rights in their Canadian colonies.
- (B) The British largely ignored their Canadian colonies.
- (C) The British encouraged the colonization of Canada by those African Americans who had served on the American side as well as by those who had served on the British side.
- (D) Some of Britain's policies in its Canadian colonies were similar to its policies in its American colonies before the American Revolution.
- (E) To reduce the debt incurred during the war, the British imposed even higher taxes on the Canadian colonists than they had on the American colonists.

Over the years, biologists have suggested two main pathways by which **sexual selection** may have shaped the evolution of male birdsong. In the first, male competition and intrasexual selection produce relatively short, simple songs used mainly in territorial behavior. In the second, female choice and intersexual selection produce longer, more complicated songs used mainly in mate attraction; like such visual ornamentation as the peacock's tail, elaborate vocal characteristics increase the male's chances of being chosen as a mate, and he thus enjoys more reproductive success than his less ostentatious rivals. The two pathways are not mutually exclusive, and we can expect to find examples that reflect their interaction. **Teasing** them apart has been an important challenge to evolutionary biologists.

Early research confirmed the role of intrasexual selection. In a variety of experiments in

the field, males responded aggressively to recorded songs by exhibiting territorial behavior near the speakers. The breakthrough for research into intersexual selection came in the development of a new technique for investigating female response in the laboratory. When female cowbirds raised in isolation in sound-proof chambers were exposed to recordings of male song, they responded by exhibiting mating behavior. By quantifying the responses, researchers were able to determine what particular features of the song were most important. In further experiments on song sparrows, researchers found that when exposed to a single song type repeated several times or to a repertoire of different song types, females responded more to the latter. The beauty of the experimental design is that it effectively rules out confounding variables; acoustic isolation assures that the female can respond only to the song structure itself.

If intersexual selection operates as theorized, males with more complicated songs should not only attract females more readily but should also enjoy greater reproductive success. At first, however, researchers doing fieldwork with song sparrows found no correlation between larger repertoires and early mating, which has been shown to be one indicator of reproductive success; further, common measures of male quality used to predict reproductive success, such as weight, size, age, and territory, also failed to correlate with song complexity.

The confirmation researchers had been seeking was finally achieved in studies involving two varieties of warblers. Unlike the song sparrow, which repeats one of its several song types in bouts before switching to another, the warbler continuously composes much longer and more variable songs without repetition. For the first time, researchers found a significant correlation between repertoire size and early mating, and they discovered further that repertoire size had a more significant effect than any other measure of male quality on the number of young produced. The evidence suggests that warblers use their extremely elaborate songs primarily to attract females, clearly confirming the effect of intersexual selection on the evolution of birdsong.

21. The passage is primarily concerned with
- (A) showing that intrasexual selection has a greater effect on birdsong than does intersexual selection
  - (B) contrasting the role of song complexity in several species of birds
  - (C) describing research confirming the suspected relationship between intersexual selection and the complexity of birdsong
  - (D) demonstrating the superiority of laboratory work over field studies in evolutionary biology
  - (E) illustrating the effectiveness of a particular approach to experimental design in evolutionary biology
22. The author mentions the peacock's tail in line 8 most probably in order to
- (A) cite an exception to the theory of the relationship between intrasexual selection and male competition
  - (B) illustrate the importance of both of the pathways that shaped the evolution of birdsong

- (C) draw a distinction between competing theories of intersexual selection  
(D) give an example of a feature that may have evolved through intersexual selection by female choice  
(E) refute a commonly held assumption about the role of song in mate attraction
23. According to the passage, which of the following is specifically related to intrasexual selection?
- (A) Female choice  
(B) Territorial behavior  
(C) Complex song types  
(D) Large song repertoires  
(E) Visual ornamentation
24. Which of the following, if true, would most clearly demonstrate the interaction mentioned in lines 11-13?
- (A) Female larks respond similarly both to short, simple songs and to longer, more complicated songs.  
(B) Male canaries use visual ornamentation as well as elaborate song repertoires for mate attraction.  
(C) Both male and female blackbirds develop elaborate visual and vocal characteristics.  
(D) Male jays use songs to compete among themselves and to attract females.  
(E) Male robins with elaborate visual ornamentation have as much reproductive success as rivals with elaborate vocal characteristics.
25. The passage indicates that researchers raised female cowbirds in acoustic isolation in order to
- (A) eliminate confounding variables  
(B) approximate field conditions  
(C) measure reproductive success  
(D) quantify repertoire complexity  
(E) prevent early mating
26. According to the passage, the song sparrow is unlike the warbler in that the song sparrow
- (A) uses songs mainly in territorial behavior  
(B) continuously composes long and complex songs  
(C) has a much larger song repertoire  
(D) repeats one song type before switching to another  
(E) responds aggressively to recorded songs
27. The passage suggests that the song sparrow experiments mentioned in lines 37-43

failed to confirm the role of intersexual selection because

- (A) females were allowed to respond only to the song structure
- (B) song sparrows are unlike other species of birds
- (C) the experiments provided no evidence that elaborate songs increased male reproductive success
- (D) the experiments included the songs of only a small number of different song sparrows
- (E) the experiments duplicated some of the limitations of previous field studies

## SECTION B

An experiment conducted aboard Space Lab in 1983 was the first attempt to grow protein crystals in the low-gravity environment of space. That experiment is still cited as evidence that growing crystals in microgravity can increase crystal size: the authors reported that they grew lysozyme protein crystals 1,000 times larger than crystals grown in the same device on Earth. Unfortunately, the authors did not point out that their crystals were no larger than the average crystal grown using other, more standard techniques in an Earth laboratory.

No research has yet produced results that could justify the enormous costs of producing crystals on a large scale in space. To get an unbiased view of the usefulness of microgravity crystal growth, crystals grown in space must be compared with the best crystals that have been grown with standard techniques on Earth. Given the great expense of conducting such experiments with proper controls, and the limited promise of experiments performed thus far, it is questionable whether further experiments in this area should even be conducted.

17. According to the passage, which of the following is true about the Space Lab experiment conducted in 1983?
- (A) It was the first experiment to take place in the microgravity environment of space.
  - (B) It was the first experiment in which researchers in space were able to grow lysozyme protein crystals greater in size than those grown on Earth.
  - (C) Its results have been superseded by subsequent research in the field of microgravity protein crystal growth.
  - (D) Its results are still considered by some to be evidence for the advantages of microgravity protein crystal growth.
  - (E) Its results are considered by many to be invalid because nonstandard techniques were employed.
18. It can be inferred from the passage that the author would find the Space Lab experiment more impressive if which of the following were true?
- (A) The results of the Space Lab experiment could be replicated in producing other kinds of crystals in addition to lysozyme protein.
  - (B) The device used in the experiment produced larger crystals on Earth than it did in space.



- (C) The size of the crystals produced in the experiment exceeded the size of crystals grown in Earth laboratories using standard techniques.
- (D) The cost of producing the crystals in space exceeded that of producing them using standard laboratory techniques.
- (E) The standard techniques used in Earth laboratories were modified in the Space Lab experiment due to the effects of microgravity.
19. Which of the following can be inferred from the passage about the device used to grow crystals in the Space Lab experiment?
- (A) The device is more expensive to manufacture than are the devices used in standard techniques in an Earth laboratory.
- (B) The device has not been used to grow crystals in space since the Space Lab experiment of 1983.
- (C) Crystals grown in the device on Earth tend to be much smaller than crystals grown in it in space.
- (D) Crystals grown in the device in space have been exceeded in size by crystals grown in subsequent experiments in space using other devices.
- (E) The experiments in which the device was used were conducted with proper controls.
20. The passage suggests that the author would most probably agree with which of the following assessments of the results of the Space Lab experiment?
- (A) Although the results of the experiment are impressive, the experiment was too limited in scope to allow for definitive conclusions.
- (B) The results of the experiment are impressive **on the surface**, but the report is misleading.
- (C) The results of the experiment convincingly confirm what researchers have long suspected.
- (D) Because of design flaws, the experiment did not yield any results relevant to the issue under investigation.
- (E) The results of the experiment are too contradictory to allow for easy interpretation.

In 1923 the innovative Russian filmmaker Dziga Vertov described filmmaking as a process that leads viewers toward a "fresh perception of the world." Vertov's description of filmmaking should apply to films on the subject of art. Yet films on art have not had a powerful and pervasive effect on the way we see.

Publications on art flourish, but these books and articles do not necessarily succeed in teaching us to see more deeply or more clearly. Much writing in art history advances the discourse in the field but is unlikely to inform the eye of one unfamiliar with its polemics. Films, however, with their capacity to present material visually and to reach a broader audience, have the potential to enhance visual literacy (the ability to identify the details that characterize a particular style) more effectively than publications can. Unfortunately, few of the hundred or so

films on art that are made each year in the United States are broadcast nationally on prime-time television.

The fact that films on art are rarely seen on prime-time television may be due not only to limitations on distribution but also to the shortcomings of many such films. Some of these shortcomings can be attributed to the failure of art historians and filmmakers to collaborate closely enough when making films on art. These professionals are able, within their respective disciplines, to increase our awareness of visual forms. For close collaboration to occur, professionals in each discipline need to recognize that films on art can be both educational and entertaining, but this will require compromise on both sides.

A filmmaker who is creating a film about the work of an artist should not follow the standards set by rock videos and advertising. Filmmakers need to resist the impulse to move the camera quickly from detail to detail for fear of boring the viewer, to frame the image for the sake of drama alone, to add music for fear of silence. Filmmakers are aware that an art object demands concentration and, at the same time, are concerned that it may not be compelling enough—and so they hope to provide relief by interposing “real” scenes that bear only a tangential relationship to the subject. But a work of art needs to be explored on its own terms. On the other hand, art historians need to trust that one can indicate and analyze, not solely with words, but also by directing the viewer’s gaze. The specialized written language of art history needs to be relinquished or at least tempered for the screen. Only an effective collaboration between filmmakers and art historians can create films that will enhance viewers’ perceptions of art.

21. The passage suggests that a filmmaker desiring to enhance viewers’ perceptions of art should do which of the following?
- (A) Rely on the precise language of art history when developing scripts for films on art.
  - (B) Rely on dramatic narrative and music to set a film’s tone and style.
  - (C) Recognize that a work of art by itself can be compelling enough to hold a viewer’s attention.
  - (D) Depend more strongly on narration instead of camera movements to guide the viewer’s gaze.
  - (E) Emphasize the social and the historical contexts within which works of art have been created.
22. The author of the passage refers to Vertov in the first paragraph most probably in order to
- (A) provide an example of how films can be used to influence perceptions
  - (B) present evidence to support the argument that films have been used successfully to influence viewers’ perceptions
  - (C) introduce the notion that film can influence how viewers see
  - (D) contrast a traditional view of the uses of film with a more modern view
  - (E) describe how film can change a viewer’s perception of a work of art

23. Which of the following best describes the organization of the passage?
- (A) An observation about an unsatisfactory situation is offered, the reasons for the situation are discussed, and then ways to change it are suggested.
  - (B) Two opinions regarding a controversial phenomenon are contrasted, supporting evidence for each is presented, and then the two opinions are reconciled.
  - (C) Criticism of a point of view is discussed, the criticism is answered, and then the criticism is applied to another point of view.
  - (D) A point of view is described, evidence supporting the view is provided, and then a summary is presented.
  - (E) A strategy is presented, reasons for its past failure are discussed, and then a recommendation that will be abandoned is offered.
24. The passage is primarily concerned with
- (A) discussing why film's potential as a medium for presenting art to the general public has not been fully realized and how film might be made more effective in this regard
  - (B) discussing the shortcomings of films on art and the technological innovations required to increase the impact of film on visual literacy
  - (C) discussing the advantages and the disadvantages of using films rather than publications to present works of art to the general public
  - (D) presenting information to support the view that films on art must focus more on education and less on entertainment in order to increase visual literacy
  - (E) presenting information to support the view that films on art, because they reach a broader audience than many other kinds of media, have had greater success in promoting visual literacy
25. The author would most likely agree with which of the following statements about film and visual literacy?
- (A) Reading a publication about a work of art and then seeing a film about the same work is the most effective way to develop visual literacy.
  - (B) An increase in a viewer's awareness of visual forms will also lead to an increased **attention span**.
  - (C) Film has a great but not yet fully exploited capacity to increase viewers' awareness of visual forms.
  - (D) A film that focuses on the details of a work of art will hinder the development of visual literacy.
  - (E) Films on art would more effectively enhance the visual literacy of teenagers if filmmakers followed the standards set by rock videos.
26. According to the passage, art historians desiring to work with filmmakers to enhance the public's appreciation of art need to acknowledge which of the following?

- (A) The art historian's role in the creation of a film on art is likely to be a relatively minor one.
- (B) Film provides an ideal opportunity to acquaint viewers with a wide range of issues that relate incidentally to a work of art.
- (C) An in-depth analysis of a work of art is not an appropriate topic for a film on art.
- (D) Although silence may be an appropriate background when viewing a work of art in a museum, it is inappropriate in a film.
- (E) Film can use nonverbal means to achieve some of the same results that a spoken or written discourse can achieve.
27. Which of the following would describe the author's most likely reaction to a claim that films on art would more successfully promote visual literacy if they followed the standards set for rock videos?
- (A) Ambivalence
- (B) Indifference
- (C) Sympathy
- (D) Interest
- (E) Disdain

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## SECTION A

This is not to deny that the Black gospel music of the early twentieth century differed in important ways from the slave spirituals. Whereas spirituals were created and disseminated in folk fashion, gospel music was composed, published, copyrighted, and sold by professionals. Nevertheless, improvisation remained central to gospel music. One has only to listen to the recorded repertoire of gospel songs to realize that Black gospel singers rarely sang a song precisely the same way twice and never according to its exact musical notation. They performed what jazz musicians call "head arrangements" proceeding from their own feelings and from the way "the spirit" moved them at the time. This improvisatory element was reflected in the manner in which gospel music was published. Black gospel composers scored the music intended for White singing groups fully, indicating the various vocal parts and the accompaniment, but the music produced for Black singers included only a vocal line and piano accompaniment.

17. Which of the following best describes "head arrangement" as the term is used in line 11?
- (A) A published version of a gospel song produced for use by Black singers
- (B) A gospel song based on a slave spiritual
- (C) A musical score shared by a gospel singer and a jazz musician

- (D) An informally written composition intended for use by a gospel singer
- (E) An improvised performance inspired by the singer's emotions
18. The author mentions "folk fashion" (line 4) most likely in order to
- (A) counter an assertion about the role of improvisation in music created by Black people
- (B) compare early gospel music with gospel music written later in the twentieth century
- (C) make a distinction between gospel music and slave spirituals
- (D) introduce a discussion about the dissemination of slave spirituals
- (E) describe a similarity between gospel music and slave spirituals
19. The passage suggests which of the following about Black gospel music and slave spirituals?
- (A) Both became widely known in the early twentieth century.
- (B) Both had an important improvisatory element.
- (C) Both were frequently performed by jazz musicians.
- (D) Both were published with only a vocal line and piano accompaniment.
- (E) Both were disseminated chiefly by Black singing groups.
20. Of the following sentences, which is most likely to have immediately preceded the passage?
- (A) Few composers of gospel music drew on traditions such as the spiritual in creating their songs.
- (B) Spirituals and Black gospel music were derived from the same musical tradition.
- (C) The creation and singing of spirituals, practiced by Black Americans before the Civil War, continued after the war.
- (D) Spirituals and gospel music can be clearly distinguished from one another.
- (E) Improvisation was one of the primary characteristics of the gospel music created by Black musicians.

About a century ago, the Swedish physical scientist Arrhenius proposed a law of classical chemistry that relates chemical reaction rate to temperature. According to the Arrhenius equation, chemical reactions are increasingly unlikely to occur as temperatures approach **absolute zero**, and at absolute zero (zero degrees Kelvin, or minus 273 degrees Celsius) reactions stop. However, recent experimental evidence reveals that although the Arrhenius equation is generally accurate in describing the kind of chemical reaction that occurs at relatively high temperatures, at temperatures closer to zero a quantum-mechanical effect known as tunneling comes into play; this effect accounts for chemical reactions that are forbidden by the principles of classical chemistry. Specifically, entire molecules can "tunnel" through the barriers of repulsive forces from other molecules and chemically react even though these molecules do not have sufficient energy, according to classical chemistry, to overcome

the repulsive barrier.

The rate of any chemical reaction, regardless of the temperature at which it takes place, usually depends on a very important characteristic known as its activation energy. Any molecule can be imagined to reside at the bottom of a so-called potential well of energy. A chemical reaction corresponds to the transition of a molecule from the bottom of one potential well to the bottom of another. In classical chemistry, such a transition can be accomplished only by going over the potential barrier between the wells, the height of which remains constant and is called the activation energy of the reaction. In tunneling, the reacting molecules tunnel from the bottom of one to the bottom of another well without having to rise over the barrier between the two wells. Recently researchers have developed the concept of tunneling temperature: the temperature below which tunneling transitions greatly outnumber Arrhenius transitions, and classical mechanics gives way to its quantum counterpart.

This tunneling phenomenon at very low temperatures suggested my hypothesis about a cold prehistory of life: the formation of rather complex organic molecules in the deep cold of outer space, where temperatures usually reach only a few degrees Kelvin. Cosmic rays (high-energy protons and other particles) might trigger the synthesis of simple molecules, such as interstellar formaldehyde, in dark clouds of interstellar dust. Afterward complex organic molecules would be formed, slowly but surely, by means of tunneling. After I offered my hypothesis, Hoyle and Wickramasinghe argued that molecules of interstellar formaldehyde have indeed evolved into stable polysaccharides such as cellulose and starch. Their conclusions, although strongly disputed, have generated excitement among investigators such as myself who are proposing that the galactic clouds are the places where the prebiological evolution of compounds necessary to life occurred.

21. The author of the passage is primarily concerned with
- (A) describing how the principles of classical chemistry were developed
  - (B) initiating a debate about the kinds of chemical reactions required for the development of life
  - (C) explaining how current research in chemistry may be related to broader biological concerns
  - (D) reconciling opposing theories about chemical reactions
  - (E) clarifying inherent ambiguities in the laws of classical chemistry
22. According to the passage, classical chemical reactions and tunneling reactions are alike in which of the following ways?
- (A) In both types of reactions, reacting molecules have to rise over the barrier between the two wells.
  - (B) In both types of reactions, a transition is made from the bottom of one potential well to the bottom of another.
  - (C) In neither type of reaction does the height of the barrier between the wells remain constant.
  - (D) In neither type of reaction does the rate of a chemical reaction depend on its activation energy.



- (E) In both types of reactions, reacting molecules are able to go through the barrier between the two wells.
23. According to the Arrhenius equation as discussed in the passage, which of the following statements about chemical reactions is true?
- (A) Chemical reactions are less likely to occur at temperatures close to absolute zero.
  - (B) In some cases the rate of a chemical reaction is related to temperature and in other cases it is not.
  - (C) Chemical reactions frequently occur at a few degrees above absolute zero, but they are very unpredictable.
  - (D) The rate of a chemical reaction depends on many other factors besides temperature.
  - (E) Chemical reaction rate and temperature are not related.
24. The author's attitude toward the theory of a cold pre-history of life can best be described as
- (A) neutral
  - (B) skeptical
  - (C) mildly positive
  - (D) very supportive
  - (E) pointedly critical
25. The author's hypothesis concerning the cold prehistory of life would be most weakened if which of the following were true?
- (A) Cosmic rays are unlikely to trigger the formation of simple molecules.
  - (B) Tunneling occurs only in a narrow band of temperatures around zero degrees Kelvin.
  - (C) The synthesis of interstellar formaldehyde can be activated by means other than cosmic rays.
  - (D) Simple molecules can be synthesized by means of tunneling.
  - (E) Classical chemical reactions do not occur at temperatures close to absolute zero.
26. Which of the following best describes the hypothesis of Hoyle and Wickramasinghe as it is presented in the passage?
- (A) Cosmic rays can directly synthesize complex organic molecules.
  - (B) The galactic clouds are the places where prebiological evolution of compounds necessary to life occurred.
  - (C) Interstellar formaldehyde can be synthesized by tunneling.
  - (D) Molecules of interstellar formaldehyde can evolve into complex organic molecules.

- (E) Complex organic molecules can be synthesized from stable polysaccharides such as cellulose and starch.
27. Which of the following best describes the organization of the first two paragraphs of the passage?
- (A) The author cites a basic principle of classical chemistry and then describes the research from which that principle was developed.
- (B) The author cites an apparent contradiction to the principles of classical chemistry and then explains the process of a chemical reaction to show there is in fact no contradiction.
- (C) The author describes the role of heat in chemical reactions and then offers a detailed explanation of its function.
- (D) The author presents a law of classical chemistry in order to introduce a kind of chemical reaction that differs from it and then explains the essential difference between the two.
- (E) The author presents the fundamental rules of classical chemistry in order to introduce an explanation of a specific chemical reaction.

## SECTION B

Although the hormone adrenaline is known to regulate memory storage, it does not pass from the blood into brain cells. We are faced with an apparent paradox: how can a hormone that does not act directly on the brain have such a large effect on brain function?

Recently, we tested the possibility that one of the hormone's actions outside the brain might be responsible. Since one consequence of adrenaline release in an animal is an increase in blood glucose levels, we examined the effects of glucose on memory in rats. We found that glucose injected immediately after training enhances memory tested the next day. Additional evidence was provided by negative findings: drugs called adrenergic antagonists, which block peripheral adrenaline receptors, disrupted adrenaline's ability to regulate memory but did not affect memory enhancements produced by glucose that was not stimulated by adrenaline. These results are as they should be if adrenaline affects memory modulation by increasing blood glucose levels.

17. The primary purpose of the passage is to
- (A) reconcile two opposing theories
- (B) compare two different explanations for a phenomenon
- (C) describe experimental research that appears to support an unpopular theory
- (D) present evidence that may help to resolve an apparent contradiction
- (E) describe a hypothesis that has caused a controversy
18. It can be inferred from the passage that the author would most likely describe the "additional evidence" (line 12) provided by experiments with adrenergic antagonists as
- (A) revolutionary

- (B) disappointing
  - (C) incomplete
  - (D) unexpected
  - (E) corroborative
19. The passage provides information about which of the following topics?
- (A) The mechanism by which glucose affects memory storage
  - (B) The evidence that prompted scientist to test the effects of adrenaline on memory regulation
  - (C) The reason that the effects of glucose on memory were tested
  - (D) The ways that memory storage modifies the structure of the brain
  - (E) The kinds of training used to test memory enhancement in rats
20. The author refers to the results of the experiment using adrenergic antagonists as “negative findings” (line 13) most likely because the adrenergic antagonists
- (A) failed to disrupt adrenaline’s effect on memory
  - (B) did not affect glucose’s ability to enhance memory
  - (C) did not block adrenaline’s ability to increase blood glucose levels
  - (D) only partially affected adrenaline’s ability to enhance memory
  - (E) disrupted both adrenaline’s and glucose’s effect on memory

The age at which young children begin to make moral discriminations about harmful actions committed against themselves or others has been the focus of recent research into the moral development of children. Until recently, child psychologists supported pioneer developmentalist Jean. Piaget in his hypothesis that because of their immaturity, children under age seven do not take into account the intentions of a person committing accidental or deliberate harm, but rather simply assign punishment for transgressions on the basis of the magnitude of the negative consequences caused. According to Piaget, children under age seven occupy the first stage of moral development, which is characterized by moral absolutism (rules made by authorities must be obeyed) and imminent justice (if rules are broken, punishment will be meted out). Until young children mature, their moral judgments are based entirely on the effect rather than the cause of a transgression. However, in recent research, Keasey found that six-year-old children not only distinguish between accidental and intentional harm, but also judge intentional harm as naughtier, regardless of the amount of damage produced. Both of these findings seem to indicate that children, at an earlier age than Piaget claimed, advance into the second stage of moral development, moral autonomy, in which they accept social rules but view them as more arbitrary than do children in the first stage.

Keasey’s research raises two key questions for developmental psychologists about children under age seven: do they recognize justifications for harmful actions, and do they make distinctions between harmful acts that are preventable and those acts that have unforeseen harmful consequences? Studies indicate that justifications excusing harmful actions might include public duty, self-defense, and provocation. For example, Nesdale and Rule concluded that children were capable of considering whether or not an aggressor’s action was justified by

public duty: five year olds reacted very differently to “Bonnie wrecks Ann’s pretend house” depending on whether Bonnie did it “so somebody won’t fall over it” or because Bonnie wanted “to make Ann feel bad.” Thus, a child of five begins to understand that certain harmful actions, though intentional, can be justified; the constraints of moral absolutism no longer solely guide their judgments.

Psychologists have determined that during kindergarten children learn to make subtle distinctions involving harm. Darley observed that among acts involving unintentional harm, six-year-old children just entering kindergarten could not differentiate between foreseeable, and thus preventable, harm and unforeseeable harm for which the perpetrator cannot be blamed. Seven months later, however, Darley found that these same children could make both distinctions, thus demonstrating that they had become morally autonomous.

21. Which of the following best describes the passage as a whole?
- (A) An outline for future research
  - (B) An expanded definition of commonly misunderstood terms
  - (C) An analysis of a dispute between two theorists
  - (D) A discussion of research findings in an ongoing inquiry
  - (E) A confirmation of an established authority’s theory
22. According to the passage, Darley found that after seven months of kindergarten six year olds acquired which of the following abilities?
- (A) Differentiating between foreseeable and unforeseeable harm
  - (B) Identifying with the perpetrator of a harmful action
  - (C) Justifying harmful actions that result from provocation
  - (D) Evaluating the magnitude of negative consequences resulting from the breaking of rules
  - (E) Recognizing the difference between moral absolutism and moral autonomy
23. According to the passage, Piaget and Keasey would not have agreed on which of the following points?
- (A) The kinds of excuses children give for harmful acts they commit
  - (B) The age at which children begin to discriminate between intentional and unintentional harm
  - (C) The intentions children have in perpetrating harm
  - (D) The circumstances under which children punish harmful acts
  - (E) The justifications children recognize for mitigating punishment for harmful acts
24. It can be inferred that the term “public duty” (line 33) in the context of the passage means which of the following?
- (A) The necessity to apprehend perpetrators.
  - (B) The responsibility to punish transgressors

- (C) An obligation to prevent harm to another
  - (D) The assignment of punishment for harmful action
  - (E) A justification for punishing transgressions
25. According to the passage, Keasey's findings support which of the following conclusions about six-year-old children?
- (A) They have the ability to make autonomous moral judgments.
  - (B) They regard moral absolutism as a threat to their moral autonomy.
  - (C) They do not understand the concept of public duty.
  - (D) They accept moral judgment made by their peers more easily than do older children.
  - (E) They make arbitrary moral judgments.
26. It can be inferred from the passage that Piaget would be likely to agree with which of the following statements about the punishment that children under seven assign to wrongdoing?
- (A) The severity of the assigned punishment is determined by the perceived magnitude of negative consequences more than by any other factor.
  - (B) The punishment is to be administered immediately following the transgression.
  - (C) The children assign punishment less arbitrarily than they do when they reach the age of moral autonomy.
  - (D) The punishment for acts of unintentional harm is less severe than it is for acts involving accidental harm.
  - (E) The more developmentally immature a child, the more severe the punishment that the child will assign.
27. According to the passage, the research of Nesdale and Rule suggests which of the following about five-year-old children?
- (A) Their reactions to intentional and accidental harm determine the severity of the punishments they assign.
  - (B) They, as perpetrators of harmful acts, disregard the feelings of the children they harm.
  - (C) They take into account the motivations of actions when judging the behavior of other children.
  - (D) They view public duty as a justification for accidental, but not intentional, harm.
  - (E) They justify any action that protects them from harm.

Geologists Harris and Gass hypothesized that the Red Sea rift developed along the line of a suture (a splice in the Earth's crust) formed during the late Proterozoic era, and that significant observable differences in the composition of the upper layers of rocks deposited on either side of the suture give clues to the different natures of the underlying igneous rocks.

Other geologists argued that neither the upper rock layer nor the underlying igneous rocks on the one side of the rift differ fundamentally from the corresponding layers on the other side. These geologists believe, therefore, that there is inadequate evidence to conclude that a suture underlies the rift.

In response, Harris and Gass asserted that the upper rock layers on the two sides of the rift had not been shown to be of similar age, structure, or geochemical content. Furthermore, they cited new evidence that the underlying igneous rocks on either side of the rift contain significantly different kinds of rare metals.

17. Part of the Harris and Gass hypothesis about the Red Sea rift would be weakened if it could be demonstrated that the composition of upper rock layers
- (A) cannot cause a suture to develop
  - (B) has no effect on where a suture will occur
  - (C) cannot provide information about the nature of underlying rocks
  - (D) is similar on the two sides of a rift unless a suture divides the two sides
  - (E) is usually different from the composition of underlying rocks
18. It can be inferred from the passage that the "Other geologists" (line 8) would be most likely to agree with which of the following statements?
- (A) Similar geological features along both sides of a possible suture imply the existence of that suture.
  - (B) Sutures can be discovered only where they are not obscured by superimposed geological features.
  - (C) The composition of igneous rocks permits prediction of the likelihood of a rift developing through them.
  - (D) It is possible to date igneous rocks by carefully studying the different kinds of rare metals contained in them and by observing their similarity to the layer of rock that lies above them.
  - (E) The existence of rock layers on one side of a rift that are similar in composition to rock layers on the other side suggests that no suture exists between the two sides.
19. It can be inferred from the passage that Harris and Gass have done which of the following?
- (A) Drawn detailed diagrams of the Red Sea rift.
  - (B) Based their conclusions on the way in which sutures develop in the Earth's crust.
  - (C) Rejected other geologists objections to their hypothesis about the Red Sea rift.



- (D) Suggested that the presence of rare metals in rocks indicates an underlying suture.
- (E) Asserted that rifts usually occur along the lines of sutures.
20. According to the passage, Harris and Gass have mentioned all of the following properties of rocks along the Red Sea rift EXCEPT:
- (A) age of the upper layers of rock
- (B) structure of the upper layers of rocks
- (C) geochemical content of the upper layers of rocks
- (D) metallic content of the underlying igneous rocks
- (E) age of the underlying igneous rocks

Proponents of different jazz styles have always argued that their predecessors' musical style did not include essential characteristics that define jazz as jazz. Thus, 1940's swing was belittled by beboppers of the 1950's, who were themselves attacked by free jazzers of the 1960's. The neoboppers of the 1980's and 1990's attacked almost everybody else. The titanic figure of Black saxophonist John Coltrane has complicated the arguments made by proponents of styles from bebop through neobop because in his own musical journey he drew from all those styles. His influence on all types of jazz was immeasurable. At the height of his popularity, Coltrane largely abandoned playing bebop, the style that had brought him fame, to explore the outer reaches of jazz.

Coltrane himself probably believed that the only essential characteristic of jazz was improvisation, the one constant in his journey from bebop to open-ended improvisations on modal, Indian, and African melodies. On the other hand, this dogged student and prodigious technician—who insisted on spending hours each day practicing scales from theory books—was never able to jettison completely the influence of bebop, with its fast and elaborate chains of notes and ornaments on melody.

Two stylistic characteristics shaped the way Coltrane played the tenor saxophone, he favored playing fast runs of notes built on a melody and depended on heavy, regularly accented beats. The first led Coltrane to "sheets of sound," where he raced faster and faster, pile-driving notes into each other to suggest stacked harmonies. The second meant that his sense of rhythm was almost as close to rock as to bebop.

Three recordings illustrate Coltrane's energizing explorations. Recording *Kind of Blue* with Miles Davis, Coltrane found himself outside bop, exploring modal melodies. Here he played surging, lengthy solos built largely around repeated motifs—an organizing principle unlike that of free jazz saxophone player Ornette Coleman, who modulated or altered melodies in his solos. On *Giant Steps*, Coltrane debuted as leader, introducing his own compositions. Here the sheets of sound, downbeat accents, repetitions, and great speed are part of each solo, and the variety of the shapes of his phrases is unique. Coltrane's searching explorations produced solid achievement. *My Favorite Things* was another kind of watershed. Here Coltrane played the soprano saxophone, an instrument seldom used by jazz musicians. Musically, the results were astounding. With the soprano's piping sound, ideas that had sounded dark and brooding

acquired a feeling of giddy fantasy.

When Coltrane began recording for the Impulse! label, he was still searching. His music became raucous, physical. His influence on rockers was enormous, including Jimi Hendrix, the rock guitarist, who, following Coltrane, raised the extended guitar solo using repeated motifs to a kind of rock art form.

21. The primary purpose of the passage is to
- (A) discuss the place of Coltrane in the world of jazz and describe his musical explorations
  - (B) examine the nature of bebop and contrast it with improvisational jazz
  - (C) analyze the musical sources of Coltrane's style and their influence on his work
  - (D) acknowledge the influence of Coltrane's music on rock music and rock musicians
  - (E) discuss the arguments that divide the proponents of different jazz styles
22. The author implies that which of the following would have been an effect of Coltrane's having chosen to play the tenor rather than the soprano saxophone on *My Favorite Things*?
- (A) The tone of the recording would have been more somber.
  - (B) The influence of bebop on the recording would have been more obvious.
  - (C) The music on the recording would have sounded less raucous and physical.
  - (D) His influence on rock music might have been less pervasive.
  - (E) The style of the recording would have been indistinguishable from that on *Kind of Blue*.
23. Which of the following best describes the organization of the fourth paragraph?
- (A) A thesis referred to earlier in the passage is mentioned and illustrated with three specific examples.
  - (B) A thesis is stated and three examples are given each suggesting that a correction needs to be made to a thesis referred to earlier in the passage.
  - (C) A thesis referred to earlier in the passage is mentioned, and three examples are presented and ranked in order of their support of the thesis.
  - (D) A thesis is stated, three seemingly opposing examples are presented, and their underlying correspondence is explained.
  - (E) A thesis is stated, three dissimilar examples are considered, and the thesis is restated.
24. According to the passage, John Coltrane did all of the following during his career EXCEPT:
- (A) improvise on melodies from a number of different cultures
  - (B) perform as leader as well as soloist

- (C) spend time improving his technical skills
  - (D) experiment with the sounds of various instruments
  - (E) eliminate the influence of bebop on his own music
25. The author mentions the work of Ornette Coleman in the fourth paragraph in order to do which of the following?
- (A) Expand the discussion by mentioning the work of a saxophone player who played in Coltrane's style.
  - (B) Compare Coltrane's solos with the work of another jazz artist.
  - (C) Support the idea that rational organizing principles need to be applied to artistic work.
  - (D) Show the increasing intricacy of Coltrane's work after he abandoned bebop.
  - (E) Indicate disagreement with the way Coltrane modulated the motifs in his lengthy solos.
26. According to the passage, a major difference between Coltrane and other jazz musicians was the
- (A) degree to which Coltrane's music encompassed all of jazz
  - (B) repetition of motifs that Coltrane used in his solos
  - (C) number of his own compositions that Coltrane recorded
  - (D) indifference Coltrane maintained to musical technique
  - (E) importance Coltrane placed on rhythm in jazz
27. In terms of its tone and form, the passage can best be characterized as
- (A) dogmatic explanation
  - (B) indignant denial
  - (C) enthusiastic praise
  - (D) speculative study
  - (E) lukewarm review

## SECTION B

A special mucous coating that serves as a chemical camouflage allows clown fish to live among the deadly tentacles of the unsuspecting sea **anemone**. Utterly dependent on this unlikely host for protection from predators, clown fish have evolved in isolated communities, a pattern that has led to unusual behavioral adaptations.

The rigidly defined hierarchy of each clown-fish community is dominated by a monogamous breeding pair consisting of the largest fish, a female, and the next largest, a male, attended by a fixed number of sexually immature fish ranging in size from large to tiny. A remarkable adaptation is that the development of these juveniles is somehow arrested until the hierarchy changes; then they grow in **lockstep**, maintaining their relative sizes. While the community thus economizes on limited space and food resources, life is risky for newly

spawned clown fish. On hatching, the hundreds of larvae drift off into the plankton. If, within three weeks, the defenseless larval clown fish locates a suitable anemone (either by pure chance or perhaps guided by chemicals secreted by the anemone), it may survive. However, if an anemone is fully occupied, the resident clown fish will repel any newcomer.

Though advantageous for established community members, the suspended and staggered maturation of juveniles might seem to pose a danger to the continuity of the community: there is only one successor for two breeding fish. Should one of a pair die, the remaining fish cannot swim off in search of a mate, nor is one likely to arrive. It would seem inevitable that reproduction must sometimes have to halt, pending the chance arrival and maturation of a larval fish of the appropriate sex.

This, however, turns out not to be the case. In experiments, vacancies have been contrived by removing an established fish from a community. Elimination of the breeding male triggers the prompt maturation of the largest juvenile. Each remaining juvenile also grows somewhat, and a minuscule newcomer drops in from the plankton. Removal of the female also triggers growth in all remaining fish and acceptance of a newcomer, but the female is replaced by the adult male. Within days, the male's behavior alters and physiological transformation is complete within a few months. Thus, whichever of the breeding pair is lost, a relatively large juvenile can fill the void, and reproduction can resume with a minimal loss of time. Furthermore, the new mate has already proved its ability to survive.

This transformation of a male into a female, or protandrous hermaphroditism, is rare among reef fish. The more common protogynous hermaphroditism, where females change into males, does not occur among clown fish. An intriguing question for further research is whether a juvenile clown fish can turn directly into a female or whether it must function first as a male.

17. The passage is primarily concerned with
- (A) analyzing the mutually advantageous relationship between two species
  - (B) comparing two forms of hermaphroditism among clown fish
  - (C) describing and explaining aspects of clown-fish behavior
  - (D) outlining proposed research on clown-fish reproduction
  - (E) attempting to reconcile inconsistent observations of clown-fish development
18. It can be inferred from the passage that the clown fish is able to survive in close association with the sea anemone because the
- (A) sea anemone cannot detect the presence of the clown fish
  - (B) tentacles of the sea anemone cannot grasp the slippery clown fish
  - (C) sea anemone prefers other prey
  - (D) clown fish does not actually come within the range of the sea anemone's tentacles
  - (E) clown fish has developed tolerance to the sea anemone's poison
19. According to the passage, adult clown fish would be at a disadvantage if they were not associated with sea anemones because the clown fish would
- (A) be incapable of sexual transformation

- (B) be vulnerable to predators
  - (C) have no reliable source of food
  - (D) have to lay their eggs in the open
  - (E) face competition from other clown fish
20. It can be inferred from the passage that sex change would have been less necessary for the clown fish if
- (A) the male clown fish were larger than the female
  - (B) each sea anemone were occupied by several varieties of clown fish
  - (C) many mature clown fish of both sexes occupied each sea anemone
  - (D) juvenile clown fish had a high mortality rate
  - (E) both male clown fish and female clown fish were highly territorial
21. The author mentions all of the following as characteristic of the “rigidly defined hierarchy” (line 8) of the clown-fish community EXCEPT:
- (A) At any time only one female clown fish can be reproductively active
  - (B) The mature clown fish are monogamous
  - (C) The growth of clown fish is synchronized
  - (D) The maximum number of clown fish is fixed
  - (E) There are equal numbers of male juveniles and female juveniles
22. Which of the following statements about newly hatched clown fish can be inferred from the passage?
- (A) They develop rapidly.
  - (B) They remain close to the sea anemone occupied by their parents.
  - (C) They are more sensitive to chemical signals than are adult clown fish.
  - (D) They are not protected by their parents.
  - (E) They are less vulnerable to predation than are adult fish.
23. Which of the following, if true, would be LEAST consistent with the author’s explanation of the advantage of hermaphroditism for clown fish?
- (A) The number of individuals in a clown-fish community fluctuates significantly.
  - (B) Adult clown fish frequently cannibalize their young.
  - (C) The sea anemone tolerates clown fish only during a specific stage of the anemone’s life cycle.
  - (D) Juvenile clown fish rarely reach maturity.
  - (E) Clown-fish communities are capable of efficiently recruiting solitary adult clown fish.

Comparing designs in music with visual designs raises interesting questions. We are familiar with the easy transfers of terms denoting qualities from one field to another. The basic problem can be put this way: can music sound the way a design looks? The elements of music are not the same as those of painting. They may be analogous, but to be analogous is not to be

identical. Is it possible, then, for the same broad characteristics to **emerge from** different perceptual conditions?

Two facts about the relation between broad characteristics of a work and their perceptual conditions must be kept distinct. First, the global characteristics of a visual or auditory complex are determined by the discernible parts and their relationships. Thus, any notable change in the parts or their relationships produces a change in some of the global characteristics. Second, a change in the parts or their relationships may leave other global characteristics unchanged.

24. In the first paragraph, the author is primarily concerned with establishing the fact that
- (A) comparisons are not equations
  - (B) auditory phenomena are not visual phenomena
  - (C) frequently used comparisons are usually inaccurate
  - (D) careless perceptions result from careless thought
  - (E) questions concerning perception are psychological
25. In the passage, the author is primarily concerned with
- (A) distinguishing mutually exclusive categories
  - (B) clarifying an apparent contradiction
  - (C) supporting new ideas
  - (D) analyzing a problem
  - (E) comparing opinions
26. The second paragraph is primarily concerned with establishing the idea that
- (A) different global characteristics of a work result from the same discernible parts
  - (B) the parts of a work of art influence the total perception of the work
  - (C) visual and auditory characteristics can be combined
  - (D) changes in the parts of a work remain isolated from the work as a whole
  - (E) the visual complexes in a work of art influence the work's auditory complexes
27. Which of the following statements is most likely be a continuation of the passage?
- (A) The search for broad similarities thus begins by understanding and distinguishing these two facts.
  - (B) The search for musical-visual analogies thus depends on the complexity of the works being compared.
  - (C) The search for music and art of the highest quality thus depends on very different assumptions.
  - (D) Thus music and painting exist in mutually exclusive worlds.
  - (E) Thus music and painting are too complicated to be evaluated in terms of analogies.



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## SECTION A

Investigators of monkeys' social behavior have always been struck by monkeys' aggressive potential and the consequent need for social control of their aggressive behavior. Studies directed at describing aggressive behavior and the situations that elicit it, as well as the social mechanisms that control it, were therefore among the first investigations of monkeys' social behavior.

Investigators initially believed that monkeys would compete for any resource in the environment: hungry monkeys would fight over food, thirsty monkeys would fight over water, and, in general, any time more than one monkey in a group sought the same incentive simultaneously, a dispute would result and would be resolved through some form of aggression. However, the motivating force of competition for incentives began to be doubted when experiments like Southwick's on the reduction of space or the withholding of food failed to produce more than temporary increases in intragroup aggression. Indeed, food deprivation not only failed to increase aggression but in some cases actually resulted in decreased frequencies of aggression.

Studies of animals in the wild under conditions of extreme food deprivation likewise revealed that starving monkeys devoted almost all available energy to foraging, with little energy remaining for aggressive interaction. Furthermore, accumulating evidence from later studies of a variety of primate groups, for example, the study conducted by Bernstein, indicates that one of the most potent stimuli for eliciting aggression is the introduction of an intruder into an organized group. Such introductions result in far more serious aggression than that produced in any other types of experiments contrived to produce competition.

These studies of intruders suggest that adult members of the same species introduced to one another for the first time show considerable hostility because, in the absence of a social order, one must be established to control interanimal relationships. When a single new animal is introduced into an existing social organization, the newcomer meets even more serious aggression. Whereas in the first case aggression establishes a social order, in the second case resident animals mob the intruder, thereby initially excluding the new animal from the existing social unit. The simultaneous introduction of several animals lessens the effect, **if only because** the group divides its attention among the multiple targets. If, however, the several animals introduced to a group constitute their own social unit, each group may fight the opposing group as a unit; but, again, no individual is subjected to mass attack, and the very cohesion of the groups precludes prolonged individual combat. The submission of the defeated group, rather than unleashing unchecked aggression **on the part of** the victorious group, reduces both the intensity and frequency of further attack. Monkey groups therefore seem to be organized primarily to maintain their established social order rather than to engage in hostilities per se.

17. The author of the passage is primarily concerned with

- (A) advancing a new methodology for changing a monkey's social behavior
- (B) comparing the methods of several research studies on aggression among

monkeys

- (C) explaining the reasons for researchers' interest in monkeys' social behavior
  - (D) discussing the development of investigators' theories about aggression among monkeys
  - (E) examining the effects of competition on monkeys' social behavior
18. Which of the following best summarizes the findings reported in the passage about the effects of food deprivation on monkeys' behavior?
- (A) Food deprivation has no effect on aggression among monkeys.
  - (B) Food deprivation increases aggression among monkeys because one of the most potent stimuli for eliciting aggression is the competition for incentives.
  - (C) Food deprivation may increase long-term aggression among monkeys in a laboratory setting, but it produces only temporary increases among monkeys in the wild.
  - (D) Food deprivation may temporarily increase aggression among monkeys, but it also leads to a decrease in conflict.
  - (E) Food deprivation decreases the intensity but not the frequency of aggressive incidents among monkey.
19. According to the author, studies such as Southwick's had which of the following effects on investigators' theories about monkeys' social behavior?
- (A) They suggested that existing theories about the role of aggression among monkeys did not fully account for the monkeys' ability to maintain an established social order.
  - (B) They confirmed investigators' theories about monkeys' aggressive response to competition for food and water.
  - (C) They confirmed investigators' beliefs about the motivation for continued aggression among monkeys in the same social group.
  - (D) They disproved investigators' theory that the introduction of intruders in an organized monkey group elicits intragroup aggressive behavior.
  - (E) They cast doubt on investigators' theories that could account for observed patterns of aggression among monkeys.
20. The passage suggests that investigators of monkeys social behavior have been especially interested in aggressive behavior among monkeys because
- (A) aggression is the most common social behavior among monkeys
  - (B) successful competition for incentives determines the social order in a monkey group
  - (C) situations that elicit aggressive behavior can be studied in a laboratory
  - (D) most monkeys are potentially aggressive, yet they live in social units that could not function without control of their aggressive impulses
  - (E) most monkeys are social, yet they frequently respond to newcomers entering

existing social units by attacking them

21. It can be inferred from the passage that the establishment and preservation of social order among a group of monkeys is essential in order to
- (A) keep the monkeys from straying and joining other groups
  - (B) control aggressive behavior among group members
  - (C) prevent the domination of that group by another
  - (D) protect individuals seeking to become members of that group from mass attack
  - (E) prevent aggressive competition for incentives between that group and another
22. The passage supplies information to answer which of the following questions?
- (A) How does the reduction of space affect intragroup aggression among monkeys in an experimental setting?
  - (B) Do family units within a monkey social group compete with other family units for food?
  - (C) What are the mechanisms by which the social order of an established group of monkeys controls aggression within that group?
  - (D) How do monkeys engaged in aggression with other monkeys signal submission?
  - (E) Do monkeys of different species engage in aggression with each other over food?
23. Which of the following best describes the organization of the second paragraph?
- (A) A hypothesis is explained and counter evidence is described.
  - (B) A theory is advanced and specific evidence supporting it is cited.
  - (C) Field observations are described and a conclusion about their significance is drawn.
  - (D) Two theories are explained and evidence supporting each of them is detailed.
  - (E) An explanation of a general principle is stated and specific examples of its operation are given.

Analysis of prehistoric air trapped in tiny bubbles beneath the polar ice sheets and of the composition of ice surrounding those bubbles suggests a correlation between carbon dioxide levels in the Earth's atmosphere and global temperature over the last 160,000 years. Estimates of global temperature at the time air in the bubbles was trapped rely on measuring the relative abundances of hydrogen and its heavier isotope, deuterium, in the ice surrounding the bubbles. When global temperatures are relatively low, water containing deuterium tends to condense and precipitate before reaching the poles; thus, ice deposited at the poles when the global temperature was cooler contained relatively less deuterium than ice deposited at warmer global temperatures. Estimates of global temperature based on this information, combined with analysis of the carbon dioxide content of air trapped in ice deep beneath the polar surface, suggest that during periods of postglacial warming carbon dioxide in the Earth's atmosphere increased by approximately 40 percent.

24. In the passage, the author is primarily concerned with doing which of the following?
- (A) Describing a new method of estimating decreases in global temperature that have occurred over the last 160,000 years
  - (B) Describing a method of analysis that provides information regarding the relation between the carbon dioxide content of the Earth's atmosphere and global temperature
  - (C) Presenting information that suggests that global temperature has increased over the last 160,000 years
  - (D) Describing the kinds of information that can be gleaned from a careful analysis of the contents of sheets
  - (E) Demonstrating the difficulty of arriving at a firm conclusion regarding how increases in the amount of carbon dioxide in the Earth's atmosphere affect global temperature
25. It can be inferred from the passage that during periods of postglacial warming, which of the following occurred?
- (A) The total volume of air trapped in bubbles beneath the polar ice sheets increased.
  - (B) The amount of deuterium in ice deposited at the poles increased.
  - (C) Carbon dioxide levels in the Earth atmosphere decreased.
  - (D) The amount of hydrogen in the Earth's atmosphere decreased relatively the amount of deuterium.
  - (E) The rate at which ice was deposited at the poles increased.
26. The author states that there is evidence to support which of the following assertions?
- (A) Estimates of global temperature that rely on measurements of deuterium in ice deposited at the poles are more reliable than those based on the amount of carbon dioxide contained in air bubbles beneath the polar surface.
  - (B) The amount of deuterium in the Earth's atmosphere tends to increase as global temperature decreases.
  - (C) Periods of postglacial warming are characterized by the presence of increased levels of carbon dioxide in the Earth's atmosphere.
  - (D) Increases in global temperature over the last 160,000 years are largely the result of increases in the ratio of deuterium to hydrogen in the Earth's atmosphere.
  - (E) Increases in global temperature over the last 160,000 years have been accompanied by decreases in the amount of deuterium in the ice deposited at the poles.
27. It can be inferred from the passage that the conclusion stated in the last sentence would need to be reevaluated if scientists discovered that which of the following

were true?

- (A) The amount of deuterium in ice deposited on the polar surface is significantly greater than the amount of deuterium in ice located deep beneath the polar surface.
- (B) Both the air bubbles trapped deep beneath the polar surface and the ice surrounding them contain relatively low levels of deuterium.
- (C) Air bubbles trapped deep beneath the polar surface and containing relatively high levels of carbon dioxide are surrounded by ice that contained relatively low levels of deuterium.
- (D) The current level of carbon dioxide in the Earth's atmosphere exceeds the level of carbon dioxide in the prehistoric air trapped beneath the polar surface.
- (E) Increases in the level of carbon dioxide in the Earth's atmosphere are accompanied by increases in the amount of deuterium in the ice deposited at the poles.

## SECTION 8

Bracken fern has been spreading from its woodland **strongholds** for centuries, but the rate of encroachment into open countryside has lately increased alarmingly throughout northern and western Britain. A tough competitor, bracken reduces the value of grazing land by crowding out other vegetation. The fern is itself poisonous to livestock, and also encourages proliferation of sheep ticks, which not only attack sheep but also transmit diseases. No less important to some people are bracken's effects on threatened habitats and on the use of uplands for recreational purposes, even though many appreciate its beauty.

Biological controls may be the only economic solution. One potentially cheap and self-sustaining method of halting the spread of bracken is to introduce natural enemies of the plant. Initially unrestrained by predators of their own, foreign predators are likely to be able to multiply rapidly and overwhelm intended targets. Because bracken occurs throughout the world, there is plenty of scope for this approach. Two candidates, both moths from the Southern Hemisphere, are now being studied.

Of course, biological control agents can safely be released only if it can be verified that they feed solely on the target weed. The screening tests have so far been fraught with difficulties. The first large shipment of moths succumbed to a disease. Growing enough bracken indoors is difficult, and the moths do not readily exploit cut stems. These are common problems with rearing insects for biological control.

Other problems can be foreseen. Policymakers need to consider many factors and opinions such as the cost of control compared to existing methods, and the impact of the clearance of bracken on the landscape, wildlife, and vegetation. In fact, scientists already have much of the information needed to assess the impact of biological control of bracken, but it is spread among many individuals, organizations, and government bodies. The potential gains for the environment are likely to outweigh the losses because few plants, insects, mammals, and birds live associated only with bracken, and many would benefit from a return of other vegetation or

from a more diverse mosaic of habitats. But legal consequences of attempts at biological control present a potential minefield. For example, many rural tenants still have the right of "estovers," the right to cut bracken as bedding for livestock and uses. What would happen if they were deprived of these rights? Once a biological control agent is released, it is difficult to control its spread. What consideration is due landowners who do not want to control bracken? According to law, the release of the biological control agents must be authorized by the **secretary of state** for the environment. But Britain lacks the legal and administrative machinery to assemble evidence for and against release.

17. Which of the following best states the main idea of the passage?
- (A) Studies suggest that biological control of bracken will not be technically feasible.
  - (B) Although biological control appears to be the best solution to bracken infestation, careful assessment of the consequences is required.
  - (C) Environmentalists are hoping that laboratory technicians will find a way to raise large numbers of moths in captivity.
  - (D) Bracken is currently the best solution to the proliferation of nonnative moth species.
  - (E) Even after researchers discover the most economical method of pest control, the government has no authority to implement a control program.
18. According to the passage, which of the following can be inferred about sheep ticks?
- (A) They increase where bracken spreads.
  - (B) They are dangerous only to sheep.
  - (C) They are especially adapted to woodland.
  - (D) They have no natural enemies.
  - (E) They cause disease among bracken.
19. The author cites all of the following as disadvantages of bracken encroachment EXCEPT:
- (A) Bracken is poisonous to farm animals.
  - (B) Bracken inhibits the growth of valuable vegetation.
  - (C) Bracken indirectly helps spread certain diseases.
  - (D) Bracken is aesthetically objectionable.
  - (E) Bracken disturbs habitats that some people would like to protect.
20. The final paragraph can best be described as
- (A) a summation of arguments presented in previous paragraphs
  - (B) the elimination of competing arguments to strengthen a single remaining conclusion
  - (C) an enumeration of advantages to biological control
  - (D) an expansion of the discussion from the particular example of bracken control



- to the general problem of government regulation
- (E) an overview of the variety of factors requiring further assessment
21. It can be inferred from the passage that it is advantageous to choose as the biological control agent a predator that is foreign to the targeted environment for which of the following reasons?
- (A) Conservation groups prefer not to favor one native species over another.
- (B) All local predators have already been overwhelmed by the target species.
- (C) Local predators cannot be effectively screened since they already exist in the wild.
- (D) There is little risk of an artificially introduced foreign predator multiplying out of control.
- (E) Native predator species are generally limited by their own predators.
22. It can be inferred from the passage that the screening tests performed on the biological control agent are designed primarily to determine
- (A) its effectiveness in eliminating the target species
- (B) the response of local residents to its introduction
- (C) the risk it poses to species other than the target
- (D) its resistance to the stress of shipment
- (E) the likelihood of its survival indoors
23. As it is discussed in the passage, the place of bracken within the forest habitat can best be described as
- (A) rapidly expanding
- (B) the subject of controversy
- (C) well established
- (D) circumscribed by numerous predators
- (E) a significant nutrient source

Allen and Wolkowitz's research challenges the common claim that homework—waged labor performed at home for a company—is primarily a response to women workers' needs and preferences. By focusing on a limited geographical area in order to gather in-depth information, the authors have avoided the methodological pitfalls that have plagued earlier research on homework. Their findings disprove accepted notions about homeworkers: that they are unqualified for other jobs and that they use homework as a short-term strategy for dealing with child care.

The authors conclude that the persistence of homework cannot be explained by appeal to such notions, for, in fact, homeworkers do not differ sharply from other employed women. Most homeworkers would prefer to work outside the home but are constrained from doing so by lack of opportunity. In fact, homework is driven by employers' desires to minimize fixed costs: homeworkers receive no benefits and are paid less than regular employees.

24. The passage is primarily concerned with

- (A) advocating a controversial theory
  - (B) presenting and challenging the results of a study
  - (C) describing a problem and proposing a solution
  - (D) discussing research that opposes a widely accepted belief
  - (E) comparing several explanations for the same phenomenon
25. According to the passage, which of the following has been generally believed about homework?
- (A) The benefits of homework accrue primarily to employers rather than to homeworkers.
  - (B) Homework is prevalent predominantly in rural areas.
  - (C) Homework is primarily a response to the preferences of women workers.
  - (D) Few homeworkers rely on homework for the majority of their family income.
  - (E) Most homework is seasonal and part-time rather than full-time and year-round.
26. Allen and Wolkowitz's research suggests that each of the following is true of most homeworkers EXCEPT:
- (A) They do not necessarily resort to homework as a strategy for dealing with child care.
  - (B) Their family situations are not unlike those of other employed women.
  - (C) They are as well qualified as women who work outside the home.
  - (D) They perform professional-level duties rather than manual tasks or piecework.
  - (E) They do not prefer homework to employment outside the home.
27. The passage suggests which of the following about previous research on homework?
- (A) It was conducted primarily with women who did not have extensive household responsibilities or care for small children at home.
  - (B) It was conducted with homeworkers and companies over a large geographical area.
  - (C) It indicated that women homeworkers had numerous opportunities to work outside the home.
  - (D) It indicated that homeworkers usually work for companies that are close to their homes.
  - (E) It indicated that homework was financially advantageous to large companies.

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SECTION A

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 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 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 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 (tissue outside the brain). Two different groups of scientists reported that LSD powerfully blockaded 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** 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 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 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 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 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 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 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 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 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 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 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?
- I. Nonfeminist criticism of it has been flawed.
  - II. Critics have treated it as part of modernism.
  - III. It is based on the work of late-eighteenth-century women writers.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I, II and III
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 Austen'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?

## SECTION B

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, 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 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 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 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 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 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 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 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 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 information 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 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 packing-houses is attempted, the author fails to distinguish between the wages and conditions for skilled workers 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 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 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 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

1998 11

## SECTION A

(This passage is from a book published in 1960.)

When we consider great painters of the past, the study of art and the study of illusion cannot always be separated. By illusion I mean those contrivances of color, line, shape, and so forth that lead us to see marks on a flat surface as depicting three-dimensional objects in space. I must emphasize that I am not making a plea, disguised or otherwise, for the exercise of illusionist tricks in painting today, although I am, in fact, rather critical of certain theories of non-representational art. But to argue over these theories would be to miss the point. That the discoveries and effects of representation that were the pride of earlier artists have become trivial today I would not deny for a moment. Yet I believe that we are in real danger of losing contact with past masters if we accept the fashionable doctrine that such matters never had anything to do with art. The very reason why the representation of nature can now be considered something commonplace should be of the greatest interest to art historians. Never before has there been an age when the visual image was so cheap in every sense of the word. We are surrounded and assailed by posters and advertisements, comics and magazine illustrations. We see aspects of reality represented on television, postage stamps, and food packages. Painting is taught in school and practiced as a pastime, and many modest amateurs have mastered tricks that would have looked like sheer magic to the fourteenth-century painter

**Giotto.** Even the crude colored renderings on a cereal box might have made Giotto's contemporaries gasp. Perhaps there are people who conclude from this that the cereal box is superior to a Giotto; I do not. But I think that the victory and **vulgarization** of representational skills create a problem for both art historians and critics.

In this connection it is instructive to remember the Greek saying that to marvel is the beginning of knowledge and if we cease to marvel we may be in danger of ceasing to know. I believe we must restore our sense of wonder at the capacity to conjure up by forms, lines, shades, or colors those mysterious phantoms of visual reality we call "pictures." Even comics and advertisements, rightly viewed, provide food for thought. Just as the study of poetry remains incomplete without an awareness of the language of prose, so, I believe, the study of art will be increasingly supplemented by inquiry into the "linguistics" of the visual image. The way the language of art refers to the visible world is both so obvious and so mysterious that it is still largely unknown except to artists, who use it as we use all language—without needing to know its grammar and semantics.

17. The author of the passage explicitly disagrees with which of the following statements?
- (A) In modern society even nonartists can master techniques that great artists of the fourteenth century did not employ.
  - (B) The ability to represent a three-dimensional object on a flat surface has nothing to do with art.
  - (C) In modern society the victory of representational skills has created a problem for art critics.
  - (D) The way that artists are able to represent the visible world is an area that needs a great deal more study before it can be fully understood.
  - (E) Modern painters do not frequently make use of illusionist tricks in their work.
18. The author suggests which of the following about art historians?
- (A) They do not believe that illusionist tricks have become trivial.
  - (B) They generally spend little time studying contemporary artists.
  - (C) They have not given enough consideration to how the representation of nature has become commonplace.
  - (D) They generally tend to argue about theories rather than address substantive issues.
  - (E) They are less likely than art critics to study comics or advertisements.
19. Which of the following best states the author's attitude toward comics, as expressed in the passage?
- (A) They constitute an innovative art form.
  - (B) They can be a worthwhile subject for study.
  - (C) They are critically important to an understanding of modern art.
  - (D) Their visual structure is more complex than that of medieval art.
  - (E) They can be understood best if they are examined **in conjunction with**

advertisements.

20. The author's statement regarding how artists use the language of art (lines 48-52) implies that
- (A) artists are better equipped than are art historians to provide detailed evaluations of other artists' work
  - (B) many artists have an unusually quick, intuitive understanding of language
  - (C) artists can produce works of art even if they cannot analyze their methods of doing so
  - (D) artists of the past, such as Giotto, were better educated about artistic issues than were artists of the author's time
  - (E) most artists probably consider the processes involved in their work to be closely akin to those involved in writing poetry
21. The passage asserts which of the following about commercial art?
- (A) There are many examples of commercial art whose artistic merit is equal to that of great works of art of the past.
  - (B) Commercial art is heavily influenced by whatever doctrines are fashionable in the serious art world of the time.
  - (C) The line between commercial art and great art lies primarily in how an image is used, not in the motivation for its creation.
  - (D) The level of technical skill required to produce representational imagery in commercial art and in other kinds of art cannot be compared.
  - (E) The pervasiveness of contemporary commercial art has led art historians to undervalue representational skills.
22. Which of the following can be inferred from the passage about the adherents of "certain theories of nonrepresentational art" (lines 9-10)?
- (A) They consider the use of illusion to be inappropriate in contemporary art.
  - (B) They do not agree that marks on a flat surface can ever satisfactorily convey the illusion of three-dimensional space.
  - (C) They do not discuss important works of art created in the past.
  - (D) They do not think that the representation of nature was ever the primary goal of past painters.
  - (E) They concern themselves more with types of art such as advertisements and magazine illustrations than with traditional art.
23. It can be inferred from the passage that someone who wanted to analyze the "grammar and semantics" (line 52) of the language of art would most appropriately comment on which of the following?
- (A) The relationship between the drawings in a comic strip and the accompanying text
  - (B) The amount of detail that can be included in a tiny illustration on a postage



stamp

- (C) The sociological implications of the images chosen to advertise a particular product
- (D) The degree to which various colors used in different versions of the same poster would attract the attention of **passersby**
- (E) The particular juxtaposition of shapes in an illustration that makes one shape look as though it were behind another

The 1973 Endangered Species Act made into legal policy the concept that endangered species of wildlife are precious as part of a natural ecosystem. The nearly unanimous passage of this act in the United States Congress, reflecting the rising national popularity of environmentalism, masked a bitter debate. Affected industries clung to the former wildlife policy of valuing individual species according to their economic usefulness. They fought to minimize the law's impact by limiting definitions of key terms, **but they** lost on nearly every issue. The act defined "wildlife" as almost all kinds of animals—from large mammals to invertebrates—and plants. "Taking" wildlife was defined broadly as any action that threatened an endangered species; areas vital to a species' survival could be federally protected as "critical habitats." Though these definitions legislated strong environmentalist goals, political compromises made in the enforcement of the act were to determine just what economic interests would be **set aside** for the sake of ecological stabilization.

24. According to the passage, which of the following does the Endangered Species Act define as a "critical habitat"?
- (A) A natural ecosystem that is threatened by imminent development
  - (B) An industrial or urban area in which wildlife species have almost ceased to live among humans
  - (C) A natural area that is crucial to the survival of a species and thus eligible for federal protection
  - (D) A wilderness area in which the "taking" of wildlife species is permitted rarely and only under strict federal regulation
  - (E) A natural environment that is protected under law because its wildlife has a high economic value
25. According to the passage, which of the following is an explanation for the degree of support that the Endangered Species Act received in Congress?
- (A) Concern for the environment had gained increasing national popularity.
  - (B) Ecological research had created new economic opportunities dependent on the survival of certain species.
  - (C) Congress had long wanted to change the existing wildlife policy.
  - (D) The growth of industry had endangered increasing numbers of wildlife species.
  - (E) Legislators did not anticipate that the act could be effectively enforced.
26. It can be inferred from the passage that if business interests had won the debate

on provisions of the 1973 Endangered Species Act, which of the following would have resulted?

- (A) Environmentalist concepts would not have become widely popular.
- (B) The definitions of key terms of the act would have been more restricted.
- (C) Enforcement of the act would have been more difficult.
- (D) The act would have had stronger support from Congressional leaders.
- (E) The public would have boycotted the industries that had the greatest impact in defining the act.

27. The author refers to the terms “wildlife” (line 11), “taking” (line 13), and “critical habitats” (line 16) most likely in order to

- (A) illustrate the misuse of scientific language and concepts in political processes
- (B) emphasize the importance of selecting precise language in transforming scientific concepts into law
- (C) represent terminology whose definition was crucial in writing environmentalist goals into law
- (D) demonstrate the triviality of the issues debated by industries before Congress passed the Endangered Species Act
- (E) show that broad definitions of key terms in many types of laws resulted in ambiguity and thus left room for disagreement about how the law should be enforced

## SECTION B

From the 1900's through the 1950's waitresses in the United States developed a form of unionism based on the unions' defining the skills that their occupation included and enforcing standards for the performance of those skills. This “occupational unionism” differed substantially from the “worksite unionism” prevalent among factory workers. Rather than unionizing the workforces of particular employers, waitress **locals** sought to control their occupation throughout a city. Occupational unionism operated through union hiring halls, which provided free **placement** services to employers who agreed to hire their personnel only through the union. Hiring halls offered union waitresses collective employment security, not individual job security—a basic protection offered by worksite unions. That is, when a waitress lost her job, the local did not intervene with her employer but placed her elsewhere; and when jobs were scarce, the work hours available were distributed fairly among all members rather than being assigned according to seniority.

17. The primary purpose of the passage is to

- (A) analyze a current trend in relation to the past
- (B) discuss a particular solution to a longstanding problem
- (C) analyze changes in the way that certain standards have been enforced
- (D) apply a generalization to an unusual situation
- (E) describe an approach by contrasting it with another approach

18. Which of the following statements best summarizes a distinction mentioned in the passage between waitress unions and factory workers' unions?
- (A) Waitress unions were more successful than factory workers' unions in that they were able to unionize whole cities.
  - (B) Waitress unions had an impact on only certain local areas, whereas the impact of factory workers' unions was national.
  - (C) Waitress union members held primarily part-time positions, whereas factory workers' unions placed their members in full-time jobs.
  - (D) Waitress unions emphasized the occupation of workers, whereas factory workers' unions emphasized the worksite at which workers were employed.
  - (E) Waitress unions defined the skills of their trade, whereas the skills of factory trades were determined by employers' groups.
19. According to the passage, which of the following was characteristic of the form of union that United States waitresses developed in the first half of the twentieth century?
- (A) The union represented a wide variety of restaurant and hotel service occupations.
  - (B) The union defined the skills required of waitresses and disciplined its members to meet certain standards.
  - (C) The union billed employers for its members' work and distributed the earnings among all members.
  - (D) The union negotiated the enforcement of occupational standards with each employer whose workforce joined the union.
  - (E) The union ensured that a worker could not be laid off arbitrarily by an employer.
20. The author of the passage mentions "particular employers" (line 8) primarily in order to
- (A) suggest that occupational unions found some employers difficult to satisfy
  - (B) indicate that the occupational unions served some employers but not others
  - (C) emphasize the unique focus of occupational unionism
  - (D) accentuate the hostility of some employers toward occupational unionism
  - (E) point out a weakness of worksite unionism

In prehistoric times **brachiopods** were one of the most abundant and diverse forms of life on Earth: more than 30,000 species of this clamlike creature have been cataloged from fossil records. Today brachiopods are not as numerous, and existing species are not well studied, partly because neither the animal's fleshy inner tissue nor its shell has any commercial value. Moreover, in contrast to the greater diversity of the extinct species, the approximately 300 known surviving species are relatively uniform in appearance. Many zoologists have interpreted this as a sign that the animal has been unable to compete successfully with other marine organisms in the evolutionary struggle.

Several things, however, suggest that the conventional view needs revising. For example, the genus *Lingula* has an unbroken fossil record extending over more than half a billion years to the present. Thus, if longevity is any measure, brachiopods are the most successful organisms extant. Further, recent studies suggest that diversity among species is a less important measure of evolutionary success than is the ability to withstand environmental change, such as when a layer of clay replaces sand on the ocean bottom. The relatively greater uniformity among the existing brachiopod species may offer greater protection from environmental change and hence may reflect highly successful adaptive behavior.

The adaptive advantages of uniformity for brachiopods can be seen by considering specialization, a process that occurs as a result of prolonged colonization of a uniform substrate. Those that can survive on many surfaces are called generalists, while those that can survive on a limited range of substrates are called specialists. One specialist species, for example, has valves weighted at the base, a characteristic that assures that the organism is properly positioned for feeding in mud and similar substrates; other species secrete glue allowing them to survive on the face of underwater cliffs. The fossil record demonstrates that most brachiopod lineages have followed a trend toward increased specialization. However, during periods of environmental instability, when a particular substrate to which a specialist species has adapted is no longer available, the species quickly dies out. Generalists, on the other hand, are not dependent on a particular substrate, and are thus less vulnerable to environmental change. One study of the fossil record revealed a mass extinction of brachiopods following a change in sedimentation from chalk to clay. Of the 35 brachiopod species found in the chalk, only 6 survived in the clay, all of them generalists.

As long as enough generalist species are maintained, and studies of arctic and subarctic seas suggest that generalists are often dominant members of the marine communities there, it seems unlikely that the phylum is close to extinction.

21. In the passage, the author is primarily concerned with
- (A) rejecting an earlier explanation for the longevity of certain brachiopod species
  - (B) reevaluating the implications of uniformity among existing brachiopod species
  - (C) describing the varieties of environmental change to which brachiopods are vulnerable
  - (D) reconciling opposing explanations for brachiopods' lack of evolutionary success
  - (E) elaborating the mechanisms responsible for the tendency among brachiopod species toward specialization
22. It can be inferred from the passage that many zoologists assume that a large diversity among species of a given class of organisms typically leads to which of the following?
- (A) Difficulty in classification
  - (B) A discontinuous fossil record

- (C) A greater chance of survival over time  
(D) Numerical abundance  
(E) A longer life span
23. The second paragraph makes use of which of the following?  
(A) Specific examples  
(B) Analogy  
(C) Metaphor  
(D) Quotation  
(E) Exaggeration
24. The author suggests that the scientists holding the conventional view mentioned in lines 15-16 make which of the following errors?  
(A) They mistakenly emphasize survival rather than diversity.  
(B) They misunderstand the causes of specialization.  
(C) They misuse zoological terminology.  
(D) They catalog fossilized remains improperly.  
(E) They overlook an alternative criterion of evolutionary success.
25. It can be inferred from the passage that the decision to study an organism may sometimes be influenced by  
(A) its practical or commercial benefits to society  
(B) the nature and prevalence of its fossilized remains  
(C) the relative convenience of its geographical distribution  
(D) its similarity to one or more better-known species  
(E) the degree of its physiological complexity
26. Which of the following, if true, would most strengthen the author's claim (lines 56-57) that "it seems unlikely that the phylum is close to extinction"?  
(A) Generalist species now living in arctic water give few if any indications of a tendency towards significant future specialization.  
(B) Zoologists have recently discovered that a common marine organism is a natural predator of brachiopods.  
(C) It was recently discovered that certain brachiopod species are almost always concentrated near areas rich in offshore oil deposits.  
(D) The ratio of specialist to Generalist species is slowly but steadily increasing.  
(E) It is easier for a brachiopod to survive a change in sedimentation than a change in water temperature.
27. Information in the passage supports which of the following statements about brachiopods?  
I. Few brachiopods living in prehistoric times were specialists.

- II. A tendency toward specialization, though typical, is not inevitable.
  - III. Specialist species dominate in all but arctic and subarctic waters.
- (A) I only
  - (B) II only
  - (C) II and III only
  - (D) I and III only
  - (E) I, II and III

1999 04

### SECTION A

This passage is based on an article published in 1990.

Eight times within the past million years, something in the Earth's climatic equation has changed, allowing snow in the mountains and the northern latitudes to accumulate from one season to the next instead of melting away. Each time, the enormous ice sheets resulting from this continual buildup lasted tens of thousands of years until the end of each particular glacial cycle brought a warmer climate. Scientists speculated that these glacial cycles were ultimately driven by astronomical factors: slow, cyclic changes in the **eccentricity** of the Earth's orbit and in the tilt and orientation of its spin axis. But up until around 30 years ago, the lack of an independent record of ice-age timing made the hypothesis untestable.

Then in the early 1950's Emiliani produced the first complete record of the waxings and wanings of past glaciations. It came from a seemingly odd place, the seafloor. Single-cell marine organisms called "foraminifera" house themselves in shells made from **calcium carbonate**. When the foraminifera die, sink to the bottom, and become part of seafloor sediments, the carbonate of their shells preserves certain characteristics of the seawater they inhabited. In particular, the ratio of a heavy isotope of oxygen (oxygen-18) to ordinary oxygen (oxygen-16) in the carbonate preserves the ratio of the two oxygens in water molecules.

It is now understood that the ratio of oxygen isotopes in seawater closely reflects the proportion of the world's water locked up in glaciers and ice sheets. A kind of meteorological distillation accounts for the link. Water molecules containing the heavier isotope tend to condense and fall as precipitation slightly sooner than molecules containing the lighter isotope. Hence, as water vapor evaporated from warm oceans moves away from its source, its oxygen-18 returns more quickly to the oceans than does its oxygen-16. What falls as snow on distant ice sheets and mountain glaciers is relatively depleted of oxygen-18. As the oxygen-18-poor ice builds up, the oceans become relatively enriched in the isotope. The larger the ice sheets grow, the higher the proportion of oxygen-18 becomes in seawater—and hence in the sediments.

Analyzing cores drilled from seafloor sediments, Emiliani found that the isotopic ratio rose and fell in rough accord with the Earth's astronomical cycles. Since that pioneering observation, oxygen-isotope measurements have been made on hundreds of cores. A chronology for the combined record enables scientists to show that the record contains the very same periodicities



as the orbital processes. Over the past 800,000 years, the global ice volume has peaked every 100,000 years, matching the period of the orbital eccentricity variation. In addition, “wrinkles” superposed on each cycle—small decreases or surges in ice volume—have come at intervals of roughly 23,000 and 41,000 years, in keeping with the precession and tilt frequencies of the Earth’s spin axis.

17. Which of the following best expresses the main idea of the passage?
- (A) Marine sediments have allowed scientists to amass evidence tending to confirm that astronomical cycles drive the Earth’s glacial cycles.
  - (B) The ratio between two different isotopes of oxygen in seawater correlates closely with the size of the Earth’s ice sheets.
  - (C) Surprisingly, single-cell marine organisms provide a record of the Earth’s ice ages.
  - (D) The Earth’s astronomical cycles have recently been revealed to have an unexpectedly large impact on the Earth’s climate.
  - (E) The earth has experienced eight periods of intense glaciation in the past million years, primarily as a result of substantial changes in its orbit.
18. The passage asserts that one reason that oceans become enriched in oxygen-18 as ice sheets grow is because
- (A) water molecules containing oxygen-18 condense and fall as precipitation slightly sooner than those containing oxygen-16
  - (B) the ratio of oxygen-18 to oxygen-16 in water vapor evaporated from oceans is different from that of these isotopes in seawater
  - (C) growing ice sheets tend to lose their oxygen-18 as the temperature of the oceans near them gradually decreases
  - (D) less water vapor evaporates from oceans during glacial periods and therefore less oxygen-18 is removed from the seawater
  - (E) the freezing point of seawater rich in oxygen-18 is slightly lower than that of seawater poor in oxygen-18
19. According to the passage, the large ice sheets typical of glacial cycles are most directly caused by
- (A) changes in the average temperatures in the tropics and over open oceans
  - (B) prolonged increases in the rate at which water evaporates from the oceans
  - (C) extreme seasonal variations in temperature in northern latitudes and in mountainous areas
  - (D) steadily increasing precipitation rates in northern latitudes and in mountainous areas
  - (E) the continual failure of snow to melt completely during the warmer seasons in northern latitudes and in mountainous areas
20. It can be inferred from the passage that which of the following is true of the water

locked in glaciers and ice sheets today?

- (A) It is richer in oxygen-18 than frozen water was during past glacial periods.
- (B) It is primarily located in the northern latitudes of the Earth.
- (C) Its ratio of oxygen isotopes is the same as that prevalent in seawater during the last ice age.
- (D) It is steadily decreasing in amount due to increased thawing during summer months.
- (E) In comparison with seawater, it is relatively poor in oxygen-18.

21. The discussion of the oxygen-isotope ratios in paragraph three of the passage suggests that which of the following must be assumed if the conclusions described in lines 49-58 are to be validly drawn?

- (A) The Earth's overall annual precipitation rates do not dramatically increase or decrease over time.
- (B) The various chemicals dissolved in seawater have had the same concentrations over the past million years.
- (C) Natural processes unrelated to ice formation do not result in the formation of large quantities of oxygen-18.
- (D) Water molecules falling as precipitation usually fall on the open ocean rather than on continents or polar ice packs.
- (E) Increases in global temperature do not increase the amount of water that evaporates from the oceans.

22. The passage suggests that the scientists who first constructed a coherent, continuous picture of past variations in marine-sediment isotope ratios did which of the following?

- (A) Relied primarily on the data obtained from the analysis of Emiliani's core samples.
- (B) Combined data derived from the analysis of many different core samples.
- (C) Matched the data obtained by geologists with that provided by astronomers.
- (D) Evaluated the isotope-ratio data obtained in several areas in order to eliminate all but the most reliable data.
- (E) Compared data obtained from core samples in many different marine environments with data samples derived from polar ice caps.

23. The passage suggests that the scientists mentioned in line 8 considered their reconstruction of past astronomical cycles to be

- (A) unreliable because astronomical observations have been made and recorded for only a few thousand years
- (B) adequate enough to allow that reconstruction's use in explaining glacial cycles if a record of the latter could be found
- (C) in need of confirmation through comparison with an independent source of

information about astronomical phenomena

- (D) incomplete and therefore unusable for the purposes of explaining the causes of ice ages
- (E) adequate enough for scientists to support conclusively the idea that ice ages were caused by astronomical changes

Although Victor Turner's writings have proved fruitful for fields beyond anthropology, his definition of ritual is overly restrictive. Ritual, he says, is "prescribed formal behavior for occasions not **given over** to technological routine, having reference to beliefs in mystical beings or powers." "Technological routine" refers to the means by which a social group provides for its material needs. Turner's differentiating ritual from technology helps us recognize that festivals and celebrations may have little purpose other than play, but it obscures the practical aims, such as making crops grow or healing patients, of other rituals. Further, Turner's definition implies a necessary relationship between ritual and mystical beliefs. However, not all rituals are religious; some religions have no reference to mystical beings; and individuals may be required only to participate in, not necessarily believe in, a ritual. Turner's assumption that ritual behavior follows belief thus limits the usefulness of his definition in studying ritual across cultures.

24. According to the passage, which of the following does Turner exclude from his conception of ritual?
- (A) Behavior based on beliefs
  - (B) Behavior based on formal rules
  - (C) Celebrations whose purpose is play
  - (D) Routines directed toward practical ends
  - (E) Festivals honoring supernatural beings
25. The passage suggests that an assumption underlying Turner's definition of ritual is that
- (A) anthropological concepts apply to other fields
  - (B) festivals and ceremonies are related cultural phenomena
  - (C) there is a relationship between play and practical ends
  - (D) rituals refer only to belief in mystical beings or powers
  - (E) mystical beings and powers have certain common attributes across cultures
26. It can be inferred that the author of the passage believes each of the following concerning rituals EXCEPT:
- (A) Some are unrelated to religious belief.
  - (B) Some are intended to have practical consequences.
  - (C) Some have no purpose other than play.
  - (D) They sometimes involve reference to mystical beings.
  - (E) They are predominantly focused on agricultural ends.
27. Which of the following best describes the organization of the passage?

- (A) Factual data are presented and a hypothesis is proposed.
- (B) A distinction is introduced then shown not to be a true distinction.
- (C) A statement is quoted, and two assumptions on which it is based are clarified.
- (D) A definition is challenged, and two reasons for the challenge are given.
- (E) An opinion is offered and then placed within a historical framework.

## SECTION B

Benjamin Franklin established that lightning is the transfer of positive or negative electrical charge between regions of a cloud or from cloud to earth. Such transfers require that electrically neutral clouds, with uniform charge distributions, become electrified by separation of charges into distinct regions. The greater this separation is, the greater the voltage, or electrical potential of the cloud. Scientists still do not know the precise distribution of charges in thunderclouds nor how separation adequate to support the huge voltages typical of lightning bolts arises. According to one theory, the precipitation hypothesis, charge separation occurs as a result of precipitation. Larger droplets in a thundercloud precipitate downward past smaller suspended droplets. Collisions among droplets transfer negative charge to precipitating droplets, leaving the suspended droplets with a positive charge, thus producing a positive dipole in which the lower region of the thundercloud is filled with negatively charged raindrops and the upper with positively charged suspended droplets.

17. The passage is primarily concerned with discussing which of the following?
- (A) A central issue in the explanation of how lightning occurs
  - (B) Benjamin Franklin's activities as a scientist
  - (C) Research into the strength and distribution of thunderstorms
  - (D) The direction of movement of electrical charges in thunderclouds
  - (E) The relation between a cloud's charge distribution and its voltage
18. The passage suggests that lightning bolts typically
- (A) produce a distribution of charges called a positive dipole in the clouds where they originate
  - (B) result in the movement of negative charges to the centers of the clouds where they originate
  - (C) result in the suspension of large, positively charged raindrops at the tops of the clouds where they originate
  - (D) originate in clouds that have large numbers of negatively charged droplets in their upper regions
  - (E) originate in clouds in which the positive and negative charges are not uniformly distributed
19. According to the passage, Benjamin Franklin contributed to the scientific study of lightning by
- (A) testing a theory proposed earlier, showing it to be false, and developing an

- alternative, far more successful theory of his own
- (B) making an important discovery that is still important for scientific investigations of lightning
  - (C) introducing a hypothesis that, though recently shown to be false, proved to be a useful source of insights for scientists studying lightning
  - (D) developing a technique that has enabled scientists to measure more precisely the phenomena that affect the strength and location of lightning bolts
  - (E) predicting correctly that two factors previously thought unrelated to lightning would eventually be shown to contribute jointly to the strength and location of lightning bolts
20. Which of the following, if true, would most seriously undermine the precipitation hypothesis, as it is set forth in the passage?
- (A) Larger clouds are more likely than smaller clouds to be characterized by complete separation of positive and negative charges.
  - (B) In smaller clouds lightning more often occurs within the cloud than between the cloud and the earth.
  - (C) Large raindrops move more rapidly in small clouds than they do in large clouds.
  - (D) Clouds that are smaller than average in size rarely, if ever, produce lightning bolts.
  - (E) In clouds of all sizes negative charges concentrate in the center of the clouds when the clouds become electrically charged.

Before Laura Gilpin (1891-1979), few women in the history of photography had so devoted themselves to chronicling the landscape. Other women had photographed the land, but none can be regarded as a landscape photographer with a sustained body of work documenting the physical terrain. Anne Brigman often photographed woodlands and coastal areas, but they were generally settings for her artfully placed subjects. Dorothea Lange's landscapes were always conceived of as counterparts to her portraits of rural women.

At the same time that Gilpin's interest in landscape work distinguished her from most other women photographers, her approach to landscape photography set her apart from men photographers who, like Gilpin, documented the western United States. Western American landscape photography grew out of a male tradition, pioneered by photographers attached to government and commercial survey teams that went west in the 1860's and 1870's. These explorer-photographers documented the West that their employers wanted to see: an exotic and majestic land shaped by awesome natural forces, unpopulated and ready for American settlement. The next generation of male photographers, represented by Ansel Adams and Eliot Porter, often worked with conservationist groups rather than government agencies or commercial companies, but they nonetheless preserved the "heroic" style and maintained the role of respectful outsider peering in with reverence at a fragile natural world.

For Gilpin, by contrast, the landscape was neither an empty vista awaiting human settlement nor a jewel-like scene resisting human intrusion, but a peopled landscape with a rich

history and tradition of its own, an environment that shaped and molded the lives of its inhabitants. Her photographs of the Rio Grande, for example, consistently depict the river in terms of its significance to human culture: as a source of irrigation water, a source of food for livestock, and a provider of town sites. Also instructive is Gilpin's general avoidance of extreme **close-ups** of her natural subjects: for her, emblematic details could never suggest the intricacies of the interrelationship between people and nature that made the landscape a compelling subject. While it is dangerous to draw conclusions about a "feminine" way of seeing from the work of one woman, it can nonetheless be argued that Gilpin's unique approach to landscape photography was analogous to the work of many women writers who, far more than their male counterparts, described the landscape in terms of its potential to sustain human life.

Gilpin never spoke of herself as a photographer with a feminine perspective: she eschewed any discussion of gender as it related to her work and maintained little interest in interpretations that relied on the concept of a "woman's eye." Thus it is ironic that her photographic evocation of a historical landscape should so clearly present a distinctively feminine approach to landscape photography.

21. Which of the following best expresses the main idea of the passage?
- (A) Gilpin's landscape photographs more accurately documented the Southwest than did the photographs of explorers and conservationists.
  - (B) Gilpin's style of landscape photography substantially influenced the heroic style practiced by her male counterparts.
  - (C) The labeling of Gilpin's style of landscape photography as feminine ignores important ties between it and the heroic style.
  - (D) Gilpin's work exemplifies an arguably feminine style of landscape photography that contrasts with the style used by her male predecessors.
  - (E) Gilpin's style was strongly influenced by the work of women writers who described the landscape in terms of its relationship to people.
22. It can be inferred from the passage that the teams mentioned in line 19 were most interested in which of the following aspects of the land in the western United States?
- (A) Its fragility in the face of increased human intrusion
  - (B) Its role in shaping the lives of indigenous peoples
  - (C) Its potential for sustaining future settlements
  - (D) Its importance as an environment for rare plants and animals
  - (E) Its unusual vulnerability to extreme natural forces
23. The author of the passage claims that which of the following is the primary reason why Gilpin generally avoided extreme close-ups of natural subjects?
- (A) Gilpin believed that pictures of natural details could not depict the interrelationship between the land and humans.
  - (B) Gilpin considered close-up photography to be too closely associated with her predecessors.



- (C) Gilpin believed that all of her photographs should include people in them.
- (D) Gilpin associated close-up techniques with photography used for commercial purposes.
- (E) Gilpin feared that pictures of small details would suggest an indifference to the fragility of the land as a whole.
24. The passage suggests that a photographer who practiced the heroic style would be most likely to emphasize which of the following in a photographic series focusing on the Rio Grande?
- (A) Indigenous people and their ancient customs relating to the river
- (B) The exploits of navigators and explorers
- (C) Unpopulated, pristine parts of the river and its surroundings
- (D) Existing commercial ventures that relied heavily on the river
- (E) The dams and other monumental engineering structures built on the river
25. It can be inferred from the passage that the first two generations of landscape photographers in the western United States had which of the following in common?
- (A) They photographed the land as an entity that had little interaction with human culture.
- (B) They advanced the philosophy that photographers should resist alliances with political or commercial groups.
- (C) They were convinced that the pristine condition of the land needed to be preserved by government action.
- (D) They photographed the land as a place ready for increased settlement.
- (E) They photographed only those locations where humans had settled.
26. Based on the description of her works in the passage, which of the following would most likely be a subject for a photograph taken by Gilpin?
- (A) A vista of a canyon still untouched by human culture
- (B) A portrait of a visitor to the West against a desert backdrop
- (C) A view of historic Native American dwellings carved into the side of a natural cliff
- (D) A picture of artifacts from the West being transported to the eastern United States for retail sale
- (E) An abstract pattern created by the shadows of clouds on the desert
27. The author of the passage mentions women writers in line 50 most likely in order to
- (A) counter a widely held criticism of her argument
- (B) bolster her argument that Gilpin's style can be characterized as a feminine style

- (C) suggest that Gilpin took some of her ideas for photographs from landscape descriptions by women writers
- (D) clarify the interrelationship between human culture and the land that Gilpin was attempting to capture
- (E) offer an analogy between photographic close-ups and literary descriptions of small details



**LSAT 01 SECTION III****Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Immigrants' adoption of English as their primary language is one measure of assimilation into the larger United States society. Generally languages define social groups and provide justification for social structures. Hence, a **distinctive** language sets a cultural group off from the dominant language group. Throughout United States history this pattern has resulted in one consistent, unhappy consequence, discrimination against members of the cultural minority. Language differences provide both a way to rationalize subordination and a ready means for achieving it.

Traditionally, English has replaced the native language of immigrant groups by the second or third generation. Some characteristics of today's Spanish-speaking population, however, suggest the possibility of a departure from this historical pattern. Many families retain ties in Latin America and move back and forth between their present and former communities. This "**revolving door**" phenomenon, along with the high probability of additional immigrants from the south, means that large Spanish-speaking communities are likely to exist in the United States for the indefinite future.

This expectation underlies the call for national support for bilingual education in Spanish-speaking communities' public schools. Bilingual education can serve different purposes, however. In the 1960s, such programs were established to facilitate the learning of English so as to avoid disadvantaging children in their other subjects because of their limited English. More recently, many advocates have viewed bilingual education as a means to maintain children's native languages and cultures. The issue is important for people with different political **agendas**, from absorption at one pole to separatism at the other.

To date, the evaluations of bilingual education's impact on learning have been **inconclusive**. The issue of bilingual education has, nevertheless, served to unite the leadership of the nation's Hispanic communities. Grounded in concerns about status that are directly traceable to the United States history of discrimination against Hispanics, the demand for maintenance of the Spanish language in the schools is an **assertion** of the worth of a people and their culture. If the United States is truly a multicultural nation—that is, if it is one culture reflecting the contributions of many—this demand should be seen as a demand not for separation but for inclusion.

More direct efforts to force inclusion can be misguided. For example, movements to declare English the official language do not truly advance the cohesion of a multicultural nation. They alienate the twenty million people who do not speak English as their **mother tongue**. They are unnecessary since the public's business is already conducted largely in English. Further, given the present state of understanding about the effects of bilingual education on learning, it would be unwise to require the universal use of English. Finally, it is for parents and local

communities to choose the path they will follow, including how much of their culture they want to maintain for their children.

1. It can be inferred from the passage that one of the characteristics of immigrant groups to the United States has traditionally been that, after immigration, relatively few members of the group
  - (A) became politically active in their new communities
  - (B) moved back and forth repeatedly between the United States and their former communities
  - (C) used their native languages in their new communities
  - (D) suffered discrimination in their new communities at the hands of the cultural majority
  - (E) sought assimilation into the dominant culture of the new communities they were entering
2. The passage suggests that one of the effects of the debate over bilingual education is that it has
  - (A) given the Hispanic community a new-found pride in its culture
  - (B) hampered the education of Spanish-speaking students
  - (C) demonstrated the negative impact on imposing English as the official United States language
  - (D) provided a common banner under which the Spanish-speaking communities could rally
  - (E) polarized the opinions of local Spanish-speaking community leaders
3. In lines 38-39, the phrase “different political agendas” refers specifically to conflicting opinions regarding the
  - (A) means of legislating the assimilation of minorities into United States society
  - (B) methods of inducing Hispanics to adopt English as their primary language
  - (C) means of achieving nondiscriminatory education for Hispanics
  - (D) official given responsibility for decisions regarding bilingual education
  - (E) extent to which Hispanics should blend into the larger United States society
4. In lines 64-65 the author says that “It would be unwise to require the universal use of English.” One reason for this, according to the author, is that
  - (A) it is not clear yet whether requiring the universal use of English would promote or hinder the education of children whose English is limited
  - (B) the nation’s Hispanic leaders have shown that bilingual education is most effective when it includes the maintenance of the Spanish language in the schools
  - (C) requiring the universal use of English would reduce the cohesion of the nation’s Hispanic communities and leadership
  - (D) the question of language in the schools should be answered by those who

evaluate bilingual education, not by people with specific political agendas  
(E) it has been shown that bilingual education is necessary to avoid  
disadvantaging in their general learning children whose English is limited

5. In the last paragraph, the author of the passage is primarily concerned with discussing
- (A) reasons against enacting a measure that would mandate the forced inclusion of immigrant groups within the dominant United culture
  - (B) the virtues and limitations of declaring English the official language of the United States
  - (C) the history of attitudes within the Hispanic community toward bilingual education in the United States
  - (D) the importance for immigrant groups of maintaining large segments of their culture to pass on to their children
  - (E) the difference in cultures between Hispanics and other immigrant groups in the United States

The refusal of some countries to extradite persons accused or convicted of terrorist act has focused attention on the problems caused by the political offense exception to extradition. Extradition is the process by which one country returns an accused or convicted person found within its borders to another country for trial or punishment. Under the political offense exception, the requested state may, if it considers the crime to be a "political offense," deny extradition to the requesting state.

Protection of political offenses is a recent addition to the ancient practice of extradition. It is the result of two fundamental changes that occurred as European monarchies were replaced by representative governments. First, these governments began to reject what had been a primary intent of extradition, to expedite the return of political offenders, and instead sought to protect dissidents fleeing despotic regimes. Second, countries began to contend that they had no legal or moral duty to extradite offenders without specific agreements creating such obligations. As extradition laws subsequently developed through international treaties, the political offense exception gradually became an accepted principle among Western nations.

There is no international consensus, however, as to what constitutes a political offense. For analytical purposes illegal political conduct has traditionally been divided into two categories. "Pure" political offenses are acts perpetrated directly against the government, such as treason and espionage. These crimes are generally recognized as nonextraditable, even if not expressly excluded from extradition by the applicable treaty. In contrast, common crimes, such as murder, assault, and robbery, are generally extraditable. However, there are some common crimes that are so inseparable from a political act that the entire offense is regarded as political. These crimes, which are called "relative" political offenses, are generally nonextraditable. Despite the widespread acceptance of these analytic constructs, the distinctions are more academic than meaningful. When it comes to real cases, there is no agreement about what transforms a common crime into a political offense and about whether terrorist acts fall within the protection of the exception. Most terrorists claim that their acts do **fall under** this protection.

Nations of the world must now balance the competing needs of political freedom and

international public order. It is time to reexamine the political offense exception, as international terrorism eradicates the critical distinctions between political offenses and nonpolitical crimes. The only rational and attainable objective of the exception is to protect the requested person against unfair treatment by the requesting country. The international community needs to find an alternative to the political offense exception that would protect the rights of requested persons and yet not offer terrorists immunity from criminal liability.

6. In the passage, the author primarily seeks to
  - (A) define a set of terms
  - (B) outline a new approach
  - (C) describe a current problem
  - (D) expose an illegal practice
  - (E) present historical information
7. According to the passage, when did countries begin to except political offenders from extradition?
  - (A) when the principle of extraditing accused or convicted persons originated
  - (B) when some nations began refusing to extradite persons accused or convicted of terrorist acts
  - (C) when representative governments began to replace European monarchies
  - (D) when countries began to refuse to extradite persons accused or convicted of common crimes
  - (E) when governments began to use extradition to expedite the return of political offenders
8. Given the discussion in the passage, which one of the following distinctions does the author consider particularly problematic?
  - (A) between common crimes and “relative” political offense
  - (B) between “pure” political offenses and common crimes
  - (C) between “pure” political offenses and “relative” political offenses
  - (D) between terrorist acts and acts of espionage
  - (E) between the political offense exception and other exceptions to extradition
9. According to the author, the primary purpose of the political offense exception should be to
  - (A) ensure that terrorists are tried for their acts
  - (B) ensure that individuals accused of political crimes are not treated unfairly
  - (C) distinguish between political and nonpolitical offenses
  - (D) limit extradition to those accused of “pure” political offenses
  - (E) limit extradition to those accused of “relative” political offenses
10. It can be inferred from the passage that the author would agree with which one of the following statements about the political offense exception?



- (A) The exception is very unpopular.
  - (B) The exception is probably illegal.
  - (C) The exception is used too little.
  - (D) The exception needs rethinking.
  - (E) The exception is too limited.
11. When referring to a balance between “the competing needs of political freedom and international public order” (lines 54-55) the author means that nations must strike a balance between
- (A) allowing persons to protest political injustice and preventing them from committing political offenses
  - (B) protecting the rights of persons requested for extradition and holding terrorists criminally liable
  - (C) maintaining the political offense exception to extradition and clearing up the confusion over what is a political offense
  - (D) allowing nations to establish their own extradition policies and establishing an agreed-upon international approach to extradition
  - (E) protecting from extradition persons accused of “pure” political offenses and ensuring the trial of persons accused of “relative” political offenses
12. The author would most likely agree that the political offense exception
- (A) has, in some cases, been stretched beyond intended use
  - (B) has been used too infrequently to be evaluated
  - (C) has been a modestly useful weapon against terrorism
  - (D) has never met the objective for which it was originally established
  - (E) has been of more academic than practical value to political dissidents
13. Which one of the following, if true, would give the author most cause to reconsider her recommendation regarding the political offense exception (lines 62-66)?
- (A) More nations started refusing to extradite persons accused or convicted of terrorist acts.
  - (B) More nations started extraditing persons accused or convicted of treason, espionage, and other similar crimes.
  - (C) The nations of the world sharply decreased their use of the political offense exception to protect persons accused of each of the various types of “pure” political offenses.
  - (D) The nations of the world sharply decreased their use of the political offense exception to protect persons accused of each of the various types of “relative” political offenses.
  - (E) The nations of the world started to disagree over the analytical distinction between “pure” political offenses and “relative” political offenses.

As is well known and has often been described, the machine industry of recent times took its rise by a gradual emergence out of handicraft in England in the eighteenth century. Since then the mechanical industry has progressively been getting **the upper hand** in all the civilized nations, in much the same degree in which these nations have come to be counted as civilized. This mechanical industry now stands dominant at the apex of the industrial system.

The state of the **industrial arts**, as it runs on the lines of the mechanical industry, is a technology of physics and chemistry. That is to say, it is governed by the same logic as the scientific laboratories. The procedure, the principles, habits of thought, preconceptions, units of measurement and of valuation, are the same in both cases.

The technology of physics and chemistry is not derived from established law and custom, and it goes on its way with as nearly complete a disregard of the spiritual truths of law and custom as the circumstances will permit. The realities with which this technology is occupied are of another order of actuality, lying altogether within the three dimensions that contain the material universe, and running altogether on the logic of material fact. In effect it is the logic of inanimate facts.

The mechanical industry makes use of the same range of facts handled in the same impersonal way and directed to the same manner of objective results. In both cases alike it is of the first importance to eliminate the "personal **equation**," to let the work go forward and let the forces at work **take effect** quite objectively, without hindrance or deflection for any personal end, interest, or gain. It is the technician's place in industry, as it is the scientist's place in the laboratory, to serve as an intellectual embodiment of the forces at work, isolate the forces engaged from all extraneous disturbances, and let them take full effect along the lines of designed work. The technician is an active or creative factor in the case only in the sense that he is the keeper of the logic which governs the forces at work.

These forces that so are brought to **bear** in mechanical industry are of an objective, impersonal, unconventional nature, of course. They are of the nature of opaque fact. Pecuniary gain is not one of these impersonal facts. Any consideration of pecuniary gain that may be injected into the technician's working plans will come into the case as an intrusive and alien factor, whose sole effect is to deflect, retard, derange and curtail the work in hand. At the same time considerations of pecuniary gain are the only **agency** brought into the case by the businessmen, and the only ground on which they exercise a control of production.

14. The author of the passage is primarily concerned with discussing
- (A) industrial organization in the eighteenth century
  - (B) the motives for pecuniary gain
  - (C) the technician's place in mechanical industry
  - (D) the impersonal organization of industry
  - (E) the material contribution of physics in industrial society
15. The author of the passage suggests that businessmen in the mechanical industry are responsible mainly for
- (A) keeping the logic governing the forces at work
  - (B) managing the profits

- (C) directing the activities of the technicians
  - (D) employing the technological procedures of physics and chemistry
  - (E) treating material gain as a spiritual truth
16. Which one of the following, if true, would contradict the author's belief that the role of technician is to be "the keeper of the logic" (lines 45-46)?
- (A) All technicians are human beings with feelings and emotions.
  - (B) An interest in pecuniary gain is the technician's sole motive for participation in industry.
  - (C) The technician's working plans do not coincide with the technician's pecuniary interests.
  - (D) Technicians are employed by businessmen to oversee the forces at work.
  - (E) Technicians refuse to carry out the instructions of the businessmen.
17. The author would probably most strongly agree with which one of the following statements about the evolution of the industrial system?
- (A) The handicraft system of industry emerged in eighteenth-century England and was subsequently replaced by the machine industry.
  - (B) The handicraft system of industrial production has gradually given rise to a mechanistic technology that dominates contemporary industry.
  - (C) The handicraft system emerged as the dominant factor of production in eighteenth-century England but was soon replaced by mechanical techniques of production.
  - (D) The mechanical system of production that preceded the handicraft system was the precursor of contemporary means of production.
  - (E) The industrial arts developed as a result of the growth of the mechanical industry that followed the decline of the handicraft system of production.
18. Which one of the following best describes the author's attitude toward scientific techniques?
- (A) critical
  - (B) hostile
  - (C) idealistic
  - (D) ironic
  - (E) neutral

(This passage was originally published in 1905)

The word democracy may **stand for** a natural social equality in the **body politic** or for a constitutional form of government in which power lies more or less directly in the people's hand. The former may be called **social democracy** and the latter democratic government. The two differ widely, both in origin and in moral principle. Genetically considered, social democracy is something primitive, unintended, proper to communities where there is general competence and no marked personal eminence. There be no will aristocracy, no prestige, but instead an

intelligent readiness to **lend a hand** and to do **in unison** whatever is done. **In other words**, there will be that most democratic of governments—no government at all. But when pressure of circumstances, danger, or inward strife makes recognized and prolonged guidance necessary to a social democracy, the form its government takes is that of a rudimentary monarchy established by election or general consent. A natural leader emerges and is instinctively obeyed. That leader may indeed be freely criticized and will not be screened by any pomp or traditional mystery; he or she will be easy to replace and every citizen will feel essentially his or her equal. Yet such a state is at the beginnings of monarchy and aristocracy.

Political democracy, on the other hand, is a late and artificial product. It arises by a gradual extension of aristocratic privileges, through rebellion against abuses, and in answer to restlessness on the people's part. Its principle is not the absence of eminence, but the discovery that existing eminence is no longer genuine and representative. It may retain many vestiges of older and less democratic institutions. For under democratic governments the people have not created the state; they merely control it. Their suspicions and jealousies are quieted by assigning to them a voice, perhaps only a veto, in the administration. The people's liberty **consists not in** their original responsibility for what exists, but merely **in** the faculty they have acquired of abolishing any detail that may distress or wound them, and of imposing any new measure, which, seen against the background of existing laws, may **commend** itself from time to time **to** their instinct and mind.

If we turn from origins to ideals, the contrast between social and political democracy is no less marked. Social democracy is a general ethical ideal, **looking to** human equality and brotherhood, and inconsistent, in its radical form, with such institutions as the family and **hereditary property**. Democratic government, on the contrary, is merely a means to an end, an **expedient** for the better and smoother government of certain states at certain junctures. It **involves** no special ideals of life; it is a question of policy, namely, whether the general interest will be better served by granting all people an equal voice in elections. For political democracy must necessarily be a government by deputy, and the questions actually submitted to the people can be only very large rough matters of general policy or of confidence in party leaders.

19. The author suggests that the lack of “marked personal eminence” (line 11) is an important feature of a social democracy because
- (A) such a society is also likely to contain the seeds of monarchy and aristocracy
  - (B) the absence of visible social leaders in such a society will probably impede the development of a political democracy
  - (C) social democracy represents a more sophisticated form of government than political democracy
  - (D) a society that lacks recognized leadership will be unable to accomplish its cultural objectives
  - (E) the absence of visible social leaders in such a community is likely to be accompanied by a spirit of cooperation
20. Which one of the following forms of government does the author say is most likely to evolve from a social democracy?
- (A) monarchy

- (B) government by deputy
  - (C) political democracy
  - (D) representative democracy
  - (E) constitutional democracy
21. The author of the passage suggests that a political democracy is likely to have been immediately preceded by which one of the following forms of social organization?
- (A) a social democracy in which the spirit of participation has been diminished by the need to maintain internal security
  - (B) an aristocratic society in which government leaders have grown insensitive to people's interests
  - (C) a primitive society that stresses the radical equality of all its members
  - (D) a state of utopian brotherhood in which no government exists
  - (E) a government based on general ethical ideals
22. According to the passage, "the people's liberty" (line 42) in a political democracy is best defined as
- (A) a willingness to accept responsibility for existing governmental forms
  - (B) a myth perpetrated by aristocratic leaders who refuse to grant political power to their subjects
  - (C) the ability to impose radically new measures when existing governmental forms are found to be inadequate
  - (D) the ability to secure concessions from a government that may retain many aristocratic characteristics
  - (E) the ability to elect leaders whom the people consider socially equal to themselves
23. According to the author of this passage, a social democracy would most likely adopt a formal system of government when
- (A) recognized leadership becomes necessary to deal with social problems
  - (B) people lose the instinctive ability to cooperate in solving social problems
  - (C) a ruling monarch decides that it is necessary to grant political concessions to the people
  - (D) citizens no longer consider their social leaders essentially equal to themselves
  - (E) the human instinct to obey social leaders has been weakened by suspicion and jealousy
24. According to the passage, which one of the following is likely to occur as a result of the discovery that "existing eminence is no longer genuine and representative" (lines 35-36)?
- (A) Aristocratic privileges will be strengthened, which will result in a further loss of the people's liberty.

- (B) The government will be forced to admit its responsibility for the inadequacy of existing political institutions.
  - (C) The remaining vestiges of less democratic institutions will be banished from government.
  - (D) People will gain political concessions from the government and a voice in the affairs of state.
  - (E) People will demand that political democracy conform to the ethical ideals of social democracy.
25. It can be inferred from the passage that the practice of “government by deputy” (line 64) in a political democracy probably has its origins in
- (A) aristocratic ideals
  - (B) human instincts
  - (C) a commitment to human equality
  - (D) a general ethical ideal
  - (E) a policy decision
26. Which one of the following statements, if true, would contradict the author’s notion of the characteristics of social democracy?
- (A) Organized governmental systems tend to arise spontaneously, rather than in response to specific problem situations.
  - (B) The presence of an organized system of government stifles the expression of human equality and brotherhood.
  - (C) Social democracy represents a more primitive form of communal organization than political democracy.
  - (D) Prolonged and formal leadership may become necessary in a social democracy when problems arise that cannot be resolved by recourse to the general competence of the people.
  - (E) Although political democracy and social democracy are radically different forms of communal organization, it is possible for both to contain elements of monarchy.

### **LSAT 02 SECTION I**

**Time 35 minutes 28 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

There is substantial evidence that by 1926, with the publication of *The Weary Blues*, Langston Hughes had broken with two well-established traditions in African American literature. In *The Weary Blues*, Hughes chose to modify the traditions that decreed that African American



literature must promote racial acceptance and integration, and that, in order to do so, it must reflect an understanding and mastery of Western European literary techniques and styles. Necessarily excluded by this decree, linguistically and thematically, was the vast amount of secular folk material in the oral tradition that had been created by Black people in the years of slavery and after. It might be pointed out that even the spirituals or “sorrow songs” of the slaves—as distinct from their secular songs and stories—had been Europeanized to make them acceptable within these African American traditions after the Civil War. In 1862 northern White writers had commented favorably on the unique and provocative melodies of these “sorrow songs” when they first heard them sung by slaves in the Carolina sea islands. But by 1916, ten years before the publication of *The Weary Blues*, Hurry T. Burleigh, the Black baritone soloist at New York’s **ultrafashionable** Saint George’s Episcopal Church, had published *Jubilee Songs of the United States*, with every spiritual arranged so that a concert singer could sing it “in the manner of an art song.” Clearly, the artistic work of Black people could be used to promote racial acceptance and integration only on the condition that it became Europeanized.

Even more than his rebellion against this restrictive tradition in African American art, Hughes’s expression of the vibrant folk culture of Black people established his writing as a landmark in the history of African American literature. Most of his folk poems have the distinctive marks of this folk culture’s oral tradition: they contain many instances of naming and enumeration, considerable hyperbole and **understatement**, and a strong infusion of street-talk rhyming. There is a deceptive veil of artlessness in these poems. Hughes prided himself on being an impromptu and impressionistic writer of poetry. His, he insisted, was not an artfully constructed poetry. Yet an analysis of his dramatic monologues and other poems reveals that his poetry was carefully and artfully crafted. In his folk poetry we find features common to all folk literature, such as dramatic ellipsis, narrative compression, rhythmic repetition, and monosyllabic emphasis. The peculiar mixture of irony and humor we find in his writing is a distinguishing feature of his folk poetry. Together, these aspects of Hughes’s writing helped to modify the previous restrictions on the techniques and subject matter of Black writers and consequently to broaden the linguistic and thematic range of African American literature.

1. The author mentions which one of the following as an example of the influence of Black folk culture on Hughes’s poetry?
  - (A) his exploitation of ambiguous and deceptive meanings
  - (B) his care and craft in composing poems
  - (C) his use of naming and enumeration
  - (D) his use of first-person narrative
  - (E) his strong religious beliefs
2. The author suggests that the “deceptive veil” (line 42) in Hughes’s poetry obscures
  - (A) evidence of his use of oral techniques in his poetry
  - (B) evidence of his thoughtful deliberation in composing his poems
  - (C) his scrupulous concern for representative details in his poetry
  - (D) his incorporation of Western European literary techniques in his poetry

- (E) his engagement with social and political issues rather than aesthetic ones
3. With which one of the following statements regarding *Jubilee Songs of the United States* would the author be most likely to agree?
- (A) Its publication marked an advance in the intrinsic quality of African American art.
- (B) It paved the way for publication of Hughes's *The Weary Blues* by making African American art fashionable.
- (C) It was an authentic replication of African American spirituals and "sorrow songs".
- (D) It demonstrated the extent to which spirituals were adapted in order to make them more broadly accepted.
- (E) It was to the spiritual what Hughes's *The Weary Blues* was to secular songs and stories.
4. The author most probably mentions the reactions of northern White writers to non-Europeanized "sorrow songs" in order to
- (A) indicate that modes of expression acceptable in the context of slavery in the South were acceptable only to a small number of White writers in the North after the Civil War
- (B) contrast White writers' earlier appreciation of these songs with the growing tendency after the Civil War to regard Europeanized versions of the songs as more acceptable
- (C) show that the requirement that such songs be Europeanized was internal to the African American tradition and was unrelated to the literary standards or attitudes of White writers
- (D) demonstrate that such songs in their non-Europeanized form were more imaginative
- (E) suggest that White writers benefited more from exposure to African American art forms than Black writers did from exposure to European art forms
5. The passage suggests that the author would be most likely to agree with which one of the following statements about the requirement that Black writers employ Western European literary techniques?
- (A) The requirement was imposed more for social than for aesthetic reasons.
- (B) The requirement was a relatively unimportant aspect of the African American tradition.
- (C) The requirement was the chief reason for Hughes's success as a writer.
- (D) The requirement was appropriate for some forms of expression but not for others.
- (E) The requirement was never as strong as it may have appeared to be.
6. Which one of the following aspects of Hughes's poetry does the author appear to

value most highly?

- (A) its novelty compared to other works of African American literature
- (B) its subtle understatement compared to that of other kinds of folk literature
- (C) its virtuosity in adapting musical forms to language
- (D) its expression of the folk culture of Black people
- (E) its universality of appeal achieved through the adoption of colloquial expressions

Historians generally agree that, of the great modern innovations, the railroad had the most far-reaching impact on major events in the United States in the nineteenth and early twentieth centuries, particularly on the Industrial Revolution. There is, however, considerable disagreement among cultural historians regarding public attitudes toward the railroad, both at its inception in the 1830s and during the half century between 1880 and 1930, when the national rail system was completed and reached the zenith of its popularity in the United States. In a recent book, John Stilgoe has addressed this issue by arguing that the "romantic-era distrust" of the railroad that he claims was present during the 1830s vanished in the decades after 1880. But the argument he provides in support of this position is unconvincing.

What Stilgoe calls "romantic-era distrust" was in fact the reaction of a minority of writers, artistes, and intellectuals who distrusted the railroad not so much for what it was as for what it *signified*. Thoreau and Hawthorne appreciated, even admired, an improved means of moving things and people from one place to another. What these writers and others were concerned about was not the new machinery *as such*, but the new kind of economy, social order, and culture that it prefigured. In addition, Stilgoe is wrong to imply that the critical attitude of these writers was typical of the period: their distrust was largely a reaction against the prevailing attitude in the 1830s that the railroad was an unqualified improvement.

Stilgoe's assertion that the ambivalence toward the railroad exhibited by writers like Hawthorne and Thoreau disappeared after the 1880s is also misleading. *In support* of this thesis, Stilgoe has unearthed an impressive volume of material, the work of hitherto unknown illustrators, *journalists*, and novelists, all *devotees* of the railroad; but it is not clear what this new material proves except perhaps that the works of popular culture greatly expanded at the time. The volume of the material proves nothing if Stilgoe's point is that the earlier distrust of a minority of intellectuals did not endure beyond the 1880s, and, oddly, much of Stilgoe's other evidence indicates that it did. When he glances at the treatment of railroads by writers like Henry James, Sinclair Lewis, or F. Scott Fitzgerald, what *comes through* in spite of Stilgoe's analysis is remarkably like Thoreau's feeling of contrariety and ambivalence. (Had he looked at the work of Frank Norris, Eugene O'Neill, or Henry Adams, Stilgoe's case would have been much stronger.) The point is that the sharp contrast between the enthusiastic supporters of the railroad in the 1830s and the minority of intellectual dissenters during that period extended into the 1880s and beyond.

7. The passage provides information to answer all of the following questions EXCEPT:

- (A) During what period did the railroad reach the zenith of its popularity in the United States?

- (B) How extensive was the impact of the railroad on the Industrial Revolution in the United States, relative to that of other modern innovations?
- (C) Who are some of the writers of the 1830s who expressed ambivalence toward the railroad?
- (D) In what way could Stilgoe have strengthened his argument regarding intellectuals' attitudes toward the railroad in the years after the 1880s?
- (E) What arguments did the writers after the 1880s, as cited by Stilgoe, offer to justify their support for the railroad?
8. According to the author of the passage, Stilgoe uses the phrase "romantic-era distrust" (line 13) to imply that the view he is referring to was
- (A) the attitude of a minority of intellectuals toward technological innovation that began after 1830
- (B) a commonly held attitude toward the railroad during the 1830s
- (C) an ambivalent view of the railroad expressed by many poets and novelists between 1880 and 1930
- (D) a critique of social and economic developments during the 1830s by a minority of intellectuals
- (E) an attitude toward the railroad that was disseminated by works of popular culture after 1880
9. According to the author, the attitude toward the railroad that was reflected in writings of Henry James, Sinclair Lewis, and F. Scott Fitzgerald was
- (A) influenced by the writings of Frank Norris, Eugene O'Neill, and Henry Adams
- (B) similar to that of the minority of writers who had expressed ambivalence toward the railroad prior to the 1880s
- (C) consistent with the public attitudes toward the railroad that were reflected in works of popular culture after the 1880s
- (D) largely a reaction to the works of writers who had been severely critical of the railroad in the 1830s
- (E) consistent with the prevailing attitude toward the railroad during the 1830s
10. It can be inferred from the passage that the author uses the phrase "works of popular culture" (line 41) primarily to refer to the
- (A) work of a large group of writers that was published between 1880 and 1930 and that in Stilgoe's view was highly critical of the railroad
- (B) work of writers who were heavily influenced by Hawthorne and Thoreau
- (C) large volume of writing produced by Henry Adams, Sinclair Lewis, and Eugene O'Neill
- (D) work of journalists, novelists, and illustrators who were responsible for creating enthusiasm for the railroad during the 1830s

- (E) work of journalists, novelists, and illustrators that was published after 1880 and that has received little attention from scholars other than Stilgoe
11. Which one of the following can be inferred from the passage regarding the work of Frank Norris, Eugene O'Neill, and Henry Adams?
- (A) Their work never achieved broad popular appeal.
- (B) Their ideas were disseminated to a large audience by the popular culture of the early 1800s.
- (C) Their work expressed a more positive attitude toward the railroad than did that of Henry James, Sinclair Lewis, and F. Scott Fitzgerald.
- (D) Although they were primarily novelists, some of their work could be classified as journalism.
- (E) Although they were influenced by Thoreau, their attitude toward the railroad was significantly different from his.
12. It can be inferred from the passage that Stilgoe would be most likely to agree with which one of the following statements regarding the study of cultural history?
- (A) It is impossible to know exactly what period historians are referring to when they use the term "romantic era."
- (B) The writing of intellectuals often anticipates ideas and movements that are later embraced by popular culture.
- (C) Writers who were not popular in their own time tell us little about the age in which they lived.
- (D) The works of popular culture can serve as a reliable indicator of public attitudes toward modern innovations like the railroad.
- (E) The best source of information concerning the impact of an event as large as the Industrial Revolution is the private letters and journals of individuals.
13. The primary purpose of the passage is to
- (A) evaluate one scholar's view of public attitudes toward the railroad in the United States from the early nineteenth to the early twentieth century
- (B) review the treatment of the railroad in American literature of the nineteenth and twentieth centuries
- (C) survey the views of cultural historians regarding the railroad's impact on major events in United States history
- (D) explore the origins of the public support for the railroad that existed after the completion of a national rail system in the United States
- (E) define what historians mean when they refer to the "romantic-era distrust" of the railroad

Three basic adaptive responses—regulatory, acclimatory, and developmental—may occur in organisms as they react to changing environmental conditions. In all three, adjustment of biological features (morphological adjustment) or of their use (functional adjustment) may occur. Regulatory responses involve rapid changes in the organism's use of its physiological



apparatus—increasing or decreasing the rates of various processes, for example. Acclimation involves morphological change—thickening of fur or red blood cell proliferation—which alters physiology itself. Such structural changes require more time than regulatory response changes. Regulatory and acclimatory responses are both reversible.

Developmental responses, however, are usually permanent and irreversible: they become fixed in the course of the individual's development in response to environmental conditions at the time the response occurs. One such response occurs in many kinds of water bugs. Most water-bug species inhabiting small lakes and ponds have two generations per year. The first hatches during the spring, reproduces during the summer, then dies. The eggs laid in the summer hatch and develop into adults in late summer. They live over the winter before breeding in early spring. Individuals in the second (overwintering) generation have fully developed wings and leave the water in autumn to overwinter in forests, returning in spring to small bodies of water to lay eggs. Their wings are absolutely necessary for this seasonal **dispersal**. The summer (early) generation, in contrast, is usually **dimorphic**—some individuals have normal functional (macropterous) wings; others have much-reduced (micropterous) wings of no use for flight. The summer generation's dimorphism is a compromise strategy, for these individuals usually do not leave the ponds and thus generally have no use for fully developed wings. But small ponds occasionally dry up during the summer, forcing the water bugs to search for new habitats, an **eventuality** that macropterous individuals are well adapted to meet.

The dimorphism of micropterous and macropterous individuals in the summer generation expresses developmental flexibility; it is not genetically determined. The individual's wing form is environmentally determined by the temperature to which developing eggs are exposed prior to their being laid. Eggs maintained in a warm environment always produce bugs with normal wing, but exposure to cold produces micropterous individuals. Eggs producing the overwintering brood are all formed during the late summer's warm temperatures. Hence, all individuals in the overwintering brood have normal wings. Eggs laid by the overwintering adults in the spring, which develop into the summer generation of adults, are formed in early autumn and early spring. Those eggs formed in autumn are exposed to cold winter temperatures, and thus produce micropterous adults in the summer generation. Those formed during the spring are never exposed to cold temperatures, and thus yield individuals with normal wing. Adult water bugs of the overwintering generation brought into the laboratory during the cold months and kept warm, produce only macropterous offspring.

14. The primary purpose of the passage is to
- (A) illustrate an organism's functional adaptive response to changing environmental conditions
  - (B) prove that organisms can exhibit three basic adaptive responses to changing environmental conditions
  - (C) explain the differences in form and function between micropterous and macropterous water bugs and analyze the effect of environmental changes on each
  - (D) discuss three different types of adaptive responses and provide an example that explains how one of those types of responses works



- (E) contrast acclimatory responses with developmental responses and suggest an explanation for the evolutionary purposes of these two responses to changing environmental conditions
15. The passage supplies information to suggest that which one of the following would happen if a pond inhabited by water bugs were to dry up in June?
- (A) The number of developmental responses among the water-bug population would decrease.
- (B) Both micropterous and macropterous water bugs would show an acclimatory response.
- (C) The generation of water bugs to be hatched during the subsequent spring would contain an unusually large number of macropterous individuals.
- (D) The dimorphism of the summer generation would enable some individuals to survive.
- (E) The dimorphism of the summer generation would be genetically transferred to the next spring generation.
16. It can be inferred from the passage that if the winter months of a particular year were unusually warm, the
- (A) eggs formed by water bugs in the autumn would probably produce a higher than usual proportion of macropterous individuals
- (B) eggs formed by water bugs in the autumn would probably produce an entire summer generation of water bugs with smaller than normal wings
- (C) eggs of the overwintering generation formed in the autumn would not be affected by this temperature change
- (D) overwintering generation would not leave the ponds for the forest during the winter
- (E) overwintering generation of water bugs would most likely form fewer eggs in the autumn and more in the spring
17. According to the passage, the dimorphic wing structure of the summer generation of water bugs occurs because
- (A) the overwintering generation forms two sets of eggs, one exposed to the colder temperatures of winter and one exposed only to the warmer temperatures of spring
- (B) the eggs that produce micropterous and macropterous adults are morphologically different
- (C) water bugs respond to seasonal changes by making an acclimatory functional adjustment in the wings
- (D) water bugs hatching in the spring live out their life spans in ponds and never need to fly
- (E) the overwintering generation, which produces eggs developing into the dimorphic generation, spends the winter in the forest and the spring in small

ponds

18. It can be inferred from the passage that which one of the following is an example of a regulatory response?
- (A) thickening of the plumage of some birds in the autumn
  - (B) increase in pulse rate during vigorous exercise
  - (C) gradual darkening of the skin after exposure to sunlight
  - (D) gradual enlargement of muscles as a result of weight lifting
  - (E) development of a heavy fat layer in bears before hibernation
19. According to the passage, the generation of water bugs hatching during the summer is likely to
- (A) be made up of equal numbers of macropterous and micropterous individuals
  - (B) lay its eggs during the winter in order to expose them to cold
  - (C) show a marked inability to fly from one pond to another
  - (D) exhibit genetically determined differences in wing form from the early spring-hatched generation
  - (E) contain a much greater proportion of macropterous water bugs than the early spring-hatched generation
20. The author mentions laboratory experiments with adult water bugs (lines 63-66) in order to illustrate which one of the following?
- (A) the function of the summer generation's dimorphism
  - (B) the irreversibility of most developmental adaptive responses in water bugs
  - (C) the effect of temperature on developing water-bug eggs
  - (D) the morphological difference between the summer generation and the overwintering generation of water bugs
  - (E) the functional adjustment of water bugs in response to seasonal temperature variation
21. Which one of the following best describes the organization of the passage?
- (A) Biological phenomena are presented, examples of their occurrence are compared and contrasted, and one particular example is illustrated in detail.
  - (B) A description of related biological phenomena is stated, and two of those phenomena are explained in detail with illustrated examples.
  - (C) Three related biological phenomena are described, a hypothesis explaining their relationship is presented, and supporting evidence is produced.
  - (D) Three complementary biological phenomena are explained, their causes are examined, and one of them is described by contrasting its causes with the other two.
  - (E) A new way of describing biological phenomena is suggested, its applications are presented, and one specific example is examined in detail.

The Constitution of the United States does not explicitly define the extent of the President's authority to involve United States troops in conflicts with other nations in the absence of a declaration of war. Instead, the question of the President's authority in this matter falls in the hazy area of concurrent power, where authority is not expressly allocated to either the President or the Congress. The Constitution gives Congress the basic power to declare war, as well as the authority to raise and support armies and a navy, enact regulations for the control of the military, and provide for the common defense. The President, on the other hand, in addition to being obligated to execute the laws of the land, including commitments negotiated by defense treaties, is named commander in chief of the armed forces and is empowered to appoint envoys and make treaties with the consent of the Senate. Although this allocation of powers does not expressly address the use of armed forces short of a declared war, the spirit of the Constitution at least requires that Congress should be involved in the decision to deploy troops, and in passing the War Powers Resolution of 1973, Congress has at last reclaimed a role in such decisions.

Historically, United States Presidents have not waited for the approval of Congress before involving United States troops in conflicts in which a state of war was not declared. One scholar has identified 199 military engagements that occurred without the consent of Congress, ranging from Jefferson's conflict with the Barbary pirates to Nixon's invasion of Cambodia during the Vietnam conflict, which President Nixon argued was justified because his role as commander in chief allowed him almost unlimited discretion over the deployment of troops. However, the Vietnam conflict, never a declared war, represented a turning point in Congress's tolerance of presidential discretion in the deployment of troops in undeclared wars. Galvanized by the human and monetary cost of those hostilities and showing a new determination to fulfill its proper role, Congress enacted the War Powers Resolution of 1973, a statute designed to ensure that the collective judgment of both Congress and the President would be applied to the involvement of United States troops in foreign conflicts.

The resolution required the President, in the absence of a declaration of war, to consult with Congress "in every possible instance" before introducing forces and to report to Congress within 48 hours after the forces have actually been deployed. Most important, the resolution allows Congress to veto the involvement once it begins, and requires the President, in most cases, to end the involvement within 60 days unless Congress specifically authorizes the military operation to continue. In its final section, by declaring the resolution is not intended to alter the constitutional authority of either Congress or the President, the resolution asserts that congressional involvement in decisions to use armed force is in accord with the intent and spirit of the Constitution.

22. In the passage, the author is primarily concerned with
- (A) showing how the Vietnam conflict led to a new interpretation of the Constitution's provisions for use of the military
  - (B) arguing that the War Powers Resolution of 1973 is an attempt to reclaim a share of constitutionally concurrent power that had been usurped by the President
  - (C) outlining the history of the struggle between the President and Congress for control of the military

- (D) providing examples of conflicts inherent in the Constitution's approach to a balance of powers
  - (E) explaining how the War Powers Resolution of 1973 alters the Constitution to eliminate an overlap of authority
23. With regard to the use of United States troops in a foreign conflict without a formal declaration of war by the United States, the author believes that the United States Constitution does which one of the following?
- (A) assumes that the President and Congress will agree on whether troops should be used
  - (B) provides a clear-cut division of authority between the President and Congress in the decision to use troops
  - (C) assigns a greater role to the Congress than to the President in deciding whether troops should be used
  - (D) grants final authority to the President to decide whether to use troops
  - (E) intends (SIGNIFY, MEAN) that both the President and Congress should be involved in the decision to use troops
24. The passage suggests that each of the following contributed to Congress's enacting the War Powers Resolution of 1973 EXCEPT
- (A) a change in the attitude in Congress toward exercising its role in the use of armed forces
  - (B) the failure of Presidents to uphold commitments specified in defense treaties
  - (C) Congress's desire to be consulted concerning United States military actions instigated by the President
  - (D) the amount of money spent on recent conflicts waged without a declaration of war
  - (E) the number of lives lost in Vietnam
25. It can be inferred from the passage that the War Powers Resolution of 1973 is applicable only in "the absence of a declaration of war" (lines 48-49) because
- (A) Congress has enacted other laws that already set out presidential requirements for situations in which war has been declared
  - (B) by virtue of declaring war, Congress already implicitly participates in the decision to deploy troops
  - (C) the President generally receives broad public support during wars that have been formally declared by Congress
  - (D) Congress felt that the President should be allowed unlimited discretion in cases in which war has been declared
  - (E) the United States Constitution already explicitly defines the reporting and consulting requirements of the President in cases in which war has been declared

26. It can be inferred from the passage that the author believes that the War Powers Resolution of 1973
- (A) is not in accord with the explicit roles of the President and Congress as defined in the Constitution
  - (B) interferes with the role of the President as commander in chief of the armed forces
  - (C) signals Congress's commitment to fulfill a role intended for it by the Constitution
  - (D) fails explicitly to address the use of armed forces in the absence of a declaration of war
  - (E) confirms the role historically assumed by Presidents
27. It can be inferred from the passage that the author would be most likely to agree with which one of the following statements regarding the invasion of Cambodia?
- (A) Because it was undertaken without the consent of Congress, it violated the intent and spirit of the Constitution.
  - (B) Because it galvanized support for the War Powers Resolution, it contributed indirectly to the expansion of presidential authority.
  - (C) Because it was necessitated by a defense treaty, it required the consent of Congress.
  - (D) It served as a precedent for a new interpretation of the constitutional limits on the President's authority to deploy troops.
  - (E) It differed from the actions of past Presidents in deploying United States troops in conflicts without a declaration of war by Congress.
28. According to the provisions of the War Powers Resolution of 1973 as described in the passage, if the President perceives that an international conflict warrants the immediate involvement of United States armed forces, the President is compelled in every instance to
- (A) request that Congress consider a formal declaration of war
  - (B) consult with the leaders of both house of Congress before deploying armed forces
  - (C) desist from deploying any troops unless expressly approved by Congress
  - (D) report to Congress within 48 hours of the deployment of armed forces
  - (E) withdraw any armed forces deployed in such a conflict within 60 days unless war is declared

**LSAT 03 SECTION II****Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best*

*answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The extent of a nation's power over its coastal ecosystems and the **natural resources** in its coastal waters has been defined by two international law doctrines: freedom of the seas and adjacent state sovereignty. Until the mid-twentieth century, most nations favored application of broad open-seas freedoms and limited sovereign rights over coastal waters. A nation had the right to include within its territorial dominion only a very narrow band of coastal waters (generally extending three miles from the shoreline), within which it had the authority but not the responsibility, to regulate all activities. But, because this area of territorial dominion was so limited, most nations did not establish rules for management or protection of their territorial waters.

Regardless of whether or not nations enforced regulations in their territorial waters, large ocean areas remained free of controls or restrictions. The citizens of all nations had the right to use these unrestricted ocean areas for any innocent purpose, including navigation and fishing. **Except for** controls over its own citizens, no nation had the responsibility, let alone the unilateral authority, to control such activities in international waters. And, since there were few standards of conduct that applied on the "open seas", there were few **jurisdictional** conflicts between nations.

The lack of standards is traceable to popular perceptions held before the middle of this century. By and large, marine pollution was not perceived as a significant problem, **in part** because the adverse effect of coastal activities on ocean ecosystems was not widely recognized, and pollution caused by human activities was generally believed to be limited to that caused by navigation. Moreover, the freedom to fish, or overfish, was an essential element of the traditional legal doctrine of freedom of the seas that no **maritime** country wished to see limited. And finally, the technology that later allowed exploitation of other ocean resources, such as oil, did not yet exist.

To date, controlling pollution and regulating ocean resources have still not been comprehensively addressed by law, but international law—established through the customs and practices of nations—does not preclude such efforts. And two recent developments may actually lead to future international rules providing for ecosystem management. First, the establishment of extensive fishery zones extending territorial authority as far as 200 miles out from a country's coast, has provided the opportunity for nations individually to manage larger ecosystems. This opportunity, combined with national self-interest in maintaining fish populations, could lead nations to reevaluate policies for management of their fisheries and to address the problem of pollution in **territorial waters**. Second, the international community is beginning to understand the importance of preserving the resources and ecology of international waters and to show signs of accepting responsibility for doing so. As an international consensus regarding the need for comprehensive management of ocean resources develops, it will become more likely that international standards and policies for broader regulation of human activities that affect ocean ecosystems will be adopted and implemented.

1. According to the passage, until the mid-twentieth century there were few jurisdictional disputes over international waters because.



- (A) the nearest coastal nation regulated activities
  - (B) few controls or restrictions applied to ocean areas
  - (C) the ocean areas were used for only innocent purposes
  - (D) the freedom of the seas doctrine settled all claims concerning navigation and fishing
  - (E) broad authority over international waters was shared equally among all nations
2. According to the international law doctrines applicable before the mid-twentieth century, if commercial activity within a particular nation's territorial waters threatened all marine life in those waters, the nation would have been
- (A) formally censured by an international organization for not properly regulating marine activities
  - (B) called upon by other nations to establish rules to protect its territorial waters
  - (C) able but not required to place legal limits on such commercial activities
  - (D) allowed to resolve the problem at its own discretion providing it could contain the threat to its own territorial waters
  - (E) permitted to hold the commercial offenders liable only if they were citizens of that particular nation
3. The author suggests that, before the mid-twentieth century, most nations' actions with respect to territorial and international waters indicated that
- (A) managing ecosystems in either territorial or international waters was given low priority
  - (B) unlimited resources in international waters resulted in little interest in territorial waters
  - (C) nations considered it their responsibility to protect territorial but not international waters
  - (D) a nation's authority over its citizenry ended at territorial lines
  - (E) although nations could extend their territorial dominion beyond three miles from their shoreline, most chose not to do so
4. The author cites which one of the following as an effect of the extension of territorial waters beyond the three-mile limit?
- (A) increased political pressure on individual nations to establish comprehensive laws regulating ocean resources
  - (B) a greater number of jurisdictional disputes among nations over the regulation of fishing on the open seas
  - (C) the opportunity for some nations to manage large ocean ecosystems
  - (D) a new awareness of the need to minimize pollution caused by navigation
  - (E) a political incentive for smaller nations to solve the problems of pollution in their coastal waters

5. According to the passage, before the middle of the twentieth century, nations failed to establish rules protecting their territorial waters because
- (A) the waters appeared to be unpolluted and to contain unlimited resources
  - (B) the fishing industry would be adversely affected by such rules
  - (C) the size of the area that would be subject to such rules was insignificant
  - (D) the technology needed for pollution control and resource management did not exist
  - (E) there were few jurisdictional conflicts over nations' territorial waters
6. The passage as a whole can best be described as
- (A) a chronology of the events that have led up to present-day crisis
  - (B) a legal inquiry into the abuse of existing laws and the likelihood of reform
  - (C) a political analysis of the problems inherent in directing national attention to an international issue
  - (D) a historical analysis of a problem that requires international attention
  - (E) a proposal for adopting and implementing international standards to solve an ecological problem

The human species came into being at the time of the greatest biological diversity in the history of the Earth. Today, as human populations expand and alter the natural environment, they are reducing biological diversity to its lowest level since the end of the Mesozoic era, 65 million years ago. The ultimate consequences of this biological collision are beyond calculation, but they are certain to be harmful. That, in essence, is the biodiversity crisis.

The history of global diversity can be summarized as follows: after the initial flowering of multicellular animals, there was a swift rise in the number of species in early Paleozoic times (between 600 and 430 million years ago), then plateaulike stagnation for the remaining 200 million years of the Paleozoic era, and finally a slow but steady climb through the Mesozoic and Cenozoic eras to diversity's all-time high. This history suggests that biological diversity was hard won and a long time in coming. Furthermore, this pattern of increase was set back by five massive extinction episodes. The most recent of these, during the Cretaceous period, is by far the most famous, because it ended the age of the dinosaurs, conferred hegemony on the mammals, and ultimately made possible the ascendancy of the human species. But the Cretaceous crisis was minor compared with the Permian extinctions 240 million years ago, during which between 77 and 96 percent of marine animal species perished. It took 5 million years, well into Mesozoic times, for species diversity to begin a significant recovery.

Within the past 10,000 years biological diversity has entered a wholly new era. Human activity has had a devastating effect on species diversity, and the rate of human-induced extinctions is accelerating. Half of the bird species of Polynesia have been eliminated through hunting and the destruction of native forests. Hundreds of fish species endemic to Lake Victoria are now threatened with extinction following the careless introduction of one species of fish, the Nile perch. The list of such biogeographic disasters is extensive.

Because every species is unique and irreplaceable, the loss of biodiversity is the most profound process of environmental change. Its consequences are also the least predictable

because the value of Earth's biota (the fauna and flora collectively) remains largely unstudied and unappreciated; unlike material and cultural wealth, which we understand because they are the **substance** of our everyday lives, biological wealth is usually taken for granted. This is a serious strategic error, one that will be increasingly regretted as time passes. The biota is not only part of a country's heritage, the product of millions of years of evolution centered on that place; it is also a potential source for immense untapped material wealth in the form of food, medicine, and other commercially important substance.

7. Which one of the following best expresses the main idea of the passage?
- (A) The reduction in biodiversity is an irreversible process that represents a setback both for science and for society as a whole.
  - (B) The material and cultural wealth of a nation are insignificant when compared with the country's biological wealth.
  - (C) The enormous diversity of life on Earth could not have come about without periodic extinctions that have conferred preeminence on one species at the expense of another.
  - (D) The human species is in the process of initiating a massive extinction episode that may make past episodes look minor **by comparison**.
  - (E) The current decline in species diversity is human-induced tragedy of incalculable proportions that has potentially grave consequences for the human species.
8. Which one of the following situations is most analogous to the history of global diversity summarized in lines 10-18 of the passage?
- (A) The number of fish in a lake declines abruptly as a result of water pollution, then makes a slow **comeback** after cleanup efforts and the passage of ordinances against dumping.
  - (B) The concentration of chlorine in the water supply of large city fluctuates widely before stabilizing at a constant and safe level.
  - (C) An old-fashioned article of clothing goes in and out of style periodically as a result of features in fashion magazines and the popularity of certain period films.
  - (D) After valuable mineral deposits are discovered, the population of a geographic region booms then **levels off** and begins to decrease at a slow and steady pace.
  - (E) The variety of styles stocked by a shoe store increases rapidly after the store opens, holds constant for many months, and then gradually creeps upward.
9. The author suggests which one of the following about the Cretaceous crisis?
- (A) It was the second most devastating extinction episode in history.
  - (B) It was the most devastating extinction episode up until that time.
  - (C) It was less devastating to species diversity than is the current biodiversity crisis.

- (D) The rate of extinction among marine animal species as a result of the crisis did not approach 77 percent.
- (E) The dinosaurs comprised the great majority of species that perished during the crisis.
10. The author mentions the Nile perch in order to provide an example of
- (A) a species that has become extinct through human activity
  - (B) the typical lack of foresight that has led to biogeographic disaster
  - (C) a marine animal species that survived the Permian extinctions
  - (D) a species that is a potential source of material wealth
  - (E) the kind of action that is necessary to reverse the decline in species diversity
11. All of the following are explicitly mentioned in the passage as contributing to the extinction of species EXCEPT
- (A) hunting
  - (B) pollution
  - (C) deforestation
  - (D) the growth of human populations
  - (E) human-engineered changes in the environment
12. The passage suggests which one of the following about material and cultural wealth?
- (A) Because we can readily assess the value of material and cultural wealth, we tend not to take them for granted.
  - (B) Just as the biota is a source of potential material wealth, it is an untapped source of cultural wealth as well.
  - (C) Some degree of material and cultural wealth may have to be sacrificed if we are to protect our biological heritage.
  - (D) Material and cultural wealth are of less value than biological wealth because they have evolved over a shorter period of time.
  - (E) Material wealth and biological wealth are interdependent in a way that material wealth and cultural wealth are not.
13. The author would be most likely to agree with which one of the following statements about the consequences of the biodiversity crisis?
- (A) The loss of species diversity will have as immediate an impact on the material of nations as on their biological wealth.
  - (B) The crisis will likely end the hegemony of the human race and bring about the ascendancy of another species.
  - (C) The effects of the loss of species diversity will be dire, but we cannot yet tell how dire.
  - (D) It is more fruitful to discuss the consequences of the crisis in terms of the

potential loss to humanity than in strictly biological loss to humanity than in strictly biological terms.

- (E) The consequences of the crisis can be minimized, but the pace of extinctions can not be reversed.

Women's participation in the revolutionary events in France between 1789 and 1795 has only recently been given **nuanced** treatment. Early twentieth century historians of the French Revolution are typified by Jaures, who, though sympathetic to the women's movement of his own time, never even mentions its antecedents in revolutionary France. Even today most general histories treat only cursorily a few individual women, like Marie Antoinette. The recent studies by Landes, Badinter, Godineau, and Roudinesco, however, should signal a much-needed reassessment of women's participation.

Godineau and Roudinesco point to three significant phases in that participation. The first, up to mid-1792, involved those women who wrote political tracts. Typical of their orientation to theoretical issues—in Godineau's view, without practical effect—is Marie Gouze's *Declaration of the Right of Women*. The emergence of vocal middle-class women's political clubs marks the second phase. Formed in 1791 as adjuncts of middle-class male political clubs, and originally philanthropic in function, by late 1792 independent clubs of women began to advocate military participation for women. In the final phase, the famine of 1795 occasioned a mass women's movement: women seized food supplies, hold officials hostage, and argued for the implementation of democratic politics. This phase ended in May of 1795 with the military suppression of this multiclass movement. In all three phases women's participation in politics contrasted markedly with their participation before 1789. Before that date some noblewomen participated indirectly in elections, but such participation by more than a narrow range of the population—women or men—came only with the Revolution.

What makes the recent studies particularly compelling, however, is not so much their organization of chronology as their **unflinching** willingness to confront the reasons for the collapse of the women's movement. For Landes and Badinter, the necessity of women's having to speak in the established vocabularies of certain intellectual and political tradition diminished the ability of the women's movement to resist suppression. Many women, and many men, they argue, located their vision within the confining tradition of Jean-Jacques Rousseau, who linked male and female roles with public and private spheres respectively. But, when women went on to make political alliances with radical **Jacobin** men, Badinter asserts, they adopted a vocabulary and a violently **extremist** viewpoint that unfortunately was even more damaging to their political interests.

Each of these scholars has different political agenda and takes a different approach—Godineau, for example, works with police archives while Roudinesco uses explanatory schema from modern psychology. Yet, admirably, each gives center stage to a group that previously has been marginalized, or at best undifferentiated, by historians. And in the case of Landes and Badinter, the reader is left with a **sobering** awareness of the cost to the women of the Revolution of speaking in borrowed voices.

14. Which one of the following best states the main point of the passage?

- (A) According to recent historical studies, the participation of women in the

- revolutionary events of 1789-1795 can most profitably be viewed in three successive stages.
- (B) The findings of certain recent historical studies have resulted from an earlier general reassessment, by historians, of women's participation in the revolutionary events of 1789-1795.
- (C) Adopting the vocabulary and viewpoint of certain intellectual and political traditions resulted in no political advantage for women in France in the years 1789-1795.
- (D) Certain recent historical studies have provided a much-needed description and evaluation of the evolving roles of women in the revolutionary events of 1789-1795.
- (E) Historical studies that seek to explain the limitations of the women's movement is more convincing than are those that seek only to describe the general features of that movement.
15. The passage suggests that Godineau would be likely to agree with which one of the following statements about Marie Gouze's Declaration of the Rights of Women?
- (A) This work was not understood by many of Gouze's contemporaries.
- (B) This work indirectly inspired the formation of independent women's political clubs.
- (C) This work had little impact on the world of political action.
- (D) This work was the most compelling produced by a French woman between 1789 and 1792.
- (E) This work is typical of the kind of writing French women produced between 1793 and 1795.
16. According to the passage, which one of the following is a true statement about the purpose of the women's political clubs mentioned in line 20?
- (A) These clubs fostered a mass women's movement.
- (B) These clubs eventually developed a purpose different from their original purpose.
- (C) These clubs were founded to advocate military participation for women.
- (D) These clubs counteracted the original purpose of male political clubs.
- (E) These clubs lost their direction by the time of the famine of 1795.
17. The primary function of the first paragraph of the passage is to:
- (A) outline the author's argument about women's roles in France between 1789 and 1795
- (B) anticipate possible challenges to the findings of the recent studies of women in France between 1789 and 1795
- (C) summarize some long-standing explanations of the role of individual women



- in France between 1789 and 1795
- (D) present a context for the discussion of recent studies of women in France between 1789 and 1795
- (E) characterize various eighteenth-century studies of women in France
18. The passage suggests that Landes and Badinter would be likely to agree with which one of the following statements about the women's movement in France in the 1790s?
- (A) The movement might have been more successful if women had developed their own political vocabularies.
- (B) The downfall of the movement was probably unrelated to its alliance with Jacobin men.
- (C) The movement had a great deal of choice about whether to adopt a Rousseauist political vocabulary.
- (D) The movement would have triumphed if it had not been suppressed by military means.
- (E) The movement viewed a Rousseauist political tradition, rather than a Jacobin political ideology, as detrimental to its interests.
19. In the context of the passage, the word "cost" in line 63 refers to the
- (A) dichotomy of private roles for women and public roles for men
- (B) almost nonexistent political participation of women before 1789
- (C) historians' lack of differentiation among various groups of women
- (D) political alliances women made with radical Jacobin men
- (E) collapse of the women's movement in the 1790s
20. The author of the passage is primarily concerned with
- (A) criticizing certain political and intellectual traditions
- (B) summarizing the main points of several recent historical studies and assessing their value
- (C) establishing a chronological sequence and arguing for its importance
- (D) comparing and contrasting women's political activities before and after the French Revolution
- (E) reexamining a long-held point of view and isolating its strengths and weaknesses

Art historians' approach to French Impressionism has changed significantly in recent years. While a decade ago Rewald's *History of Impressionism*, which emphasizes Impressionist painters' stylistic innovations, was unchallenged, the literature on impressionism has now become a kind of ideological battlefield, in which more attention is paid to the subject matter of the paintings, and to the social and moral issues raised by it, than to their style. Recently, politically charged discussions that address the impressionists' unequal treatment of men and women and the exclusion of modern industry and labor from their pictures have tended to

crowd out the stylistic analysis favored by Rewald and his followers. In a new work illustrating this trend, Robert L. Herbert dissociates himself from formalists whose preoccupation with the stylistic features of impressionist painting has, in Herbert's view, left the history out of art history; his aim is to restore impressionist paintings "to their sociocultural context." However, his arguments are not finally persuasive.

In attempting to place impressionist painting in its proper historical context, Herbert has redrawn the traditional boundaries of impressionism. Limiting himself to the two decades between 1860 and 1880, he assembles under the impressionist banner what can only be described as a somewhat eccentric grouping of painters. Cezanne, Pissarro, and Sisley are almost entirely ignored, largely because their paintings do not suit Herbert's emphasis on themes of urban life and suburban leisure, while Manet, Degas, and Caillebotte—who paint scenes of urban life but whom many would hardly characterize as impressionists—dominate the first half of the book. Although this new description of Impressionist painting provides a more unified conception of nineteenth-century French painting by grouping quite disparate modernist painters together and emphasizing their common concerns rather than their stylistic difference, it also forces Herbert to overlook some of the most important genres of impressionist painting—portraiture, pure landscape, and still-life painting.

Moreover, the rationale for Herbert's emphasis on the social and political realities that Impressionist paintings can be said to communicate rather than on their style is finally undermined by what even Herbert concedes was the failure of Impressionist painters to serve as particularly conscientious illustrators of their social milieu. They left much ordinary experience—work and poverty, for example—out of their paintings and what they did put in was transformed by a style that had only an indirect relationship to the social realities of the world they depicted. Not only were their pictures inventions rather than photographs, they were inventions in which style to some degree disrupted description. Their painting in effect have two levels of subject: what is represented and how it is represented, and no art historian can afford to emphasize one at the expense of the other.

21. Which one of the following best expresses the main point of the passage?
- (A) The style of impressionist paintings has only an indirect relation to their subject matter.
  - (B) The approach to impressionism that is illustrated by Herbert's recent book is inadequate.
  - (C) The historical context of impressionist paintings is not relevant to their interpretation.
  - (D) impressionism emerged from a historical context of ideological conflict and change.
  - (E) Any adequate future interpretation of impressionism will have to come to terms with Herbert's view of this art movement.
22. According to the passage, Rewald's book on impressionism was characterized by which one of the following?
- (A) evenhanded objectivity about the achievements of impressionism

- (B) bias in favor of certain impressionist painters
  - (C) an emphasis on the stylistic features of impressionist painting
  - (D) an idiosyncratic view of which painters were to be classified as impressionists
  - (E) a refusal to enter into the ideological debates that had characterized earlier discussions of impressionism
23. The author implies that Herbert's redefinition of the boundaries of impressionism resulted from which one of the following?
- (A) an exclusive emphasis on form and style
  - (B) a bias in favor of the representation of modern industry
  - (C) an attempt to place impressionism within a specific sociocultural context
  - (D) a broadening of the term impressionism to include all nineteenth-century French painting
  - (E) an insufficient familiarity with earlier interpretations of impressionism
24. The author states which one of the following about modern industry and labor as subjects for painting?
- (A) The impressionists neglected these subjects in their paintings.
  - (B) Herbert's book on impressionism fails to give adequate treatment of these subjects.
  - (C) The impressionists' treatment of these subjects was idealized.
  - (D) Rewald's treatment of impressionist painters focused inordinately on their representations of these subjects.
  - (E) Modernist painters presented a distorted picture of these subjects.
25. Which one of the following most accurately describes the structure of the author's argument in the passage?
- (A) The first two paragraphs each present independent arguments for a conclusion that is drawn in the third paragraph.
  - (B) A thesis is stated in the first paragraph and revised in the second paragraph and revised in the second paragraph, and the revised thesis is supported with argument in the third paragraph.
  - (C) The first two paragraphs discuss and criticize a thesis, and the third paragraph presents an alternative thesis.
  - (D) a claim is made in the first paragraph, and the next two paragraph, and the next two paragraphs each present reasons for accepting that claim.
  - (E) An argument is presented in the first paragraph, a counterargument is presented in the second paragraph, and the third paragraph suggests a way to resolve the dispute.
26. The author's statement that impressionist paintings "were inventions in which style to some degree disrupted description" (lines 57-59) serves to
- (A) strengthen the claim that impressionist sought to emphasize the differences

- between painting and photography
- (B) weaken the argument that style is the only important feature of impressionist paintings
- (C) indicate that impressionists recognized that they had been strongly influenced by photography
- (D) support the argument that an exclusive emphasis on the impressionists' subject matter is mistaken
- (E) undermine the claim that impressionists neglected certain kinds of subject matter
27. The author would most likely regard a book on the impressionists that focused entirely on their style as
- (A) a product of the recent confusion caused by Herbert's book on impressionism
- (B) emphasizing what impressionists themselves took to be their primary artistic concern
- (C) an overreaction against the traditional interpretation of impressionism
- (D) neglecting the most innovative aspects of impressionism
- (E) addressing only part of what an adequate treatment should cover

#### **LSAT 04 SECTION IV**

**Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Governments of developing countries occasionally enter into economic development agreements with foreign investors who provide capital and technological expertise that may not be readily available in such countries. Besides the normal economic risk that accompanies such enterprises, investors face the additional risk that the host government may attempt unilaterally to change in its favor the terms of the agreement or even to terminate the agreement altogether and appropriate the project for itself. In order to make economic development agreements more attractive to investors, some developing countries have attempted to strengthen the security of such agreements with clauses specifying that the agreements will be governed by "general principles of law recognized by civilized nations"—a set of legal principles or rules shared by the world's major legal systems. However, advocates of governments' freedom to modify or terminate such agreements argue that these agreements fall within a special class of contracts known as administrative contracts, a concept that originated in French law. They assert that under the theory of administrative contracts, a government retains inherent power to modify or terminate its own contract, and that this power indeed constitutes a general principle of law. However, their argument is flawed on at least two counts.

First, in French law not all government contracts are treated as administrative contracts.

Some contracts are designated as administrative by specific statute, in which case the contractor is made aware of the applicable legal rules upon entering into agreement with the government. Alternatively, the contracting government agency can itself designate a contract as administrative by including certain terms not found in private civil contracts. Moreover, even in the case of administrative contracts, French law requires that in the event that the government unilaterally modifies the terms of the contract, it must compensate the contractor for any increased burden resulting from the government's action. In effect, the government is thus prevented from modifying those contractual terms that define the financial balance of the contract.

Second, the French law of administrative contracts, although adopted by several countries, is not so universally accepted that it can be embraced as a general principle of law. In both the United States and the United Kingdom, government contracts are governed by the ordinary law of contracts, with the result that the government can reserve the power to modify or terminate a contract unilaterally only by writing such power into the contract as a specific provision. Indeed, the very fact that termination and modification clauses are commonly found in government contracts suggests that a government's capacity to modify or terminate agreements unilaterally derives from specific contract provisions, not from inherent state power.

1. In the passage, the author is primarily concerned with doing which one of the following?
  - (A) pointing out flaws in an argument provided in support of a position
  - (B) analyzing the weaknesses inherent in the proposed solution to a problem
  - (C) marshaling evidence in support of a new explanation of a phenomenon
  - (D) analyzing the risks inherent in adopting a certain course of action
  - (E) advocating a new approach to a problem that has not been solved by traditional means
2. It can be inferred from the passage that the author would be most likely to agree with which one of the following assertions regarding the "general principles of law" mentioned in lines 16-17 of the passage?
  - (A) They fail to take into account the special needs and interests of developing countries that enter into agreements with foreign investors.
  - (B) They have only recently been invoked as criteria for adjudicating disputes between governments and foreign investors.
  - (C) They are more compatible with the laws of France and the United States than with those of the United Kingdom.
  - (D) They do not assert that governments have an inherent right to modify unilaterally the terms of agreements that they have entered into with foreign investors.
  - (E) They are not useful in adjudicating disputes between developing countries and foreign investors.
3. The author implies that which one of the following is true of economic

development agreements?

- (A) They provide greater economic benefits to the governments that are parties to such agreements than to foreign investors.
  - (B) They are interpreted differently by courts in the United Kingdom than they are by courts in the United States.
  - (C) They have proliferated in recent years as a result of governments' attempts to make them more legally secure.
  - (D) They entail greater risk to investors when the governments that enter into such agreements reserve the right to modify unilaterally the terms of the agreements.
  - (E) They have become less attractive to foreign investors as an increasing number of governments that enter into such agreements consider them governed by the law of ordinary contracts.
4. According to the author, which one of the following is true of a contract that is designated by a French government agency as an administrative contract?
- (A) It requires the government agency to pay for unanticipated increases in the cost of delivering the goods and services specified in the contract.
  - (B) It provides the contractor with certain guarantees that are not normally provided in private civil contracts.
  - (C) It must be ratified by the passage of a statute.
  - (D) It discourages foreign companies from bidding on the contract.
  - (E) It contains terms that distinguish it from a private civil contract.
5. It can be inferred from the passage that under the "ordinary law of contracts" (lines 53-54), a government would have the right to modify unilaterally the terms of a contract that it had entered into with a foreign investor if which one of the following were true?
- (A) The government undertook a greater economic risk by entering into the contract than did the foreign investor.
  - (B) The cost to the foreign investor of abiding by the terms of the contract exceeded the original estimates of such costs.
  - (C) The modification of the contract did not result in any increased financial burden for the investor.
  - (D) Both the government and the investor had agreed to abide by the general principles of law recognized by civilized nations.
  - (E) The contract contains a specific provision allowing the government to modify the contract.
6. In the last paragraph, the author refers to government contracts in the United States and the United Kingdom primarily in order to
- (A) Cite two governments that often reserve the right to modify unilaterally contracts that they enter into with foreign investors.



- (B) Support the assertion that there is no general principle of law governing contracts between private individuals and governments.
  - (C) Cast doubt on the alleged universality of the concept of administrative contracts.
  - (D) Provide examples of legal systems that might benefit from the concept of administrative contracts.
  - (E) Provide examples of characteristics that typically distinguish government contracts from private civil contracts.
7. Which one of the following best states the author's main conclusion in the passage?
- (A) Providing that an international agreement be governed by general principles of law is not a viable method of guaranteeing the legal security of such an agreement.
  - (B) French law regarding contracts is significantly different from those in the United States and the United Kingdom.
  - (C) Contracts between governments and private investors in most nations are governed by ordinary contract law.
  - (D) An inherent power of a government to modify or terminate a contract cannot be considered a general principle of law.
  - (E) Contracts between governments and private investors can be secured only by reliance on general principles of law.
8. The author's argument in lines 57-62 would be most weakened if which one of the following were true?
- (A) The specific provisions of government contracts often contain explicit statements of what all parties to the contracts already agree are inherent state powers.
  - (B) Governments are more frequently put in the position of having to modify or terminate contracts than are private individuals.
  - (C) Modification clauses in economic development agreements have frequently been challenged in international tribunals by foreign investors who were a party to such agreements.
  - (D) The general principles of law provide that modification clauses cannot allow the terms of a contract to be modified in such a way that the financial balance of the contract is affected.
  - (E) Termination and modification agreements are often interpreted differently by national courts than they are by international tribunals.

Nico Frijda writes that emotions are governed by a psychological principle called the "law of apparent reality": emotions are elicited only by events appraised as real, and the intensity of these emotions corresponds to the degree to which these events are appraised as real. This observation seems psychologically plausible, but emotional responses elicited by works of art raise counterexamples.

Frijda's law accounts for my panic if I am afraid of snakes and see an object I correctly appraise as a rattlesnake, and also for my identical response if I see a coiled garden hose I mistakenly perceive to be a snake. However, suppose I am watching a movie and see a snake gliding toward its victim. Surely I might experience the same emotions of panic and distress, though I know the snake is not real. These responses extend even to phenomena not conventionally accepted as real. A movie about ghosts, for example, may be terrifying to all viewers, even those who firmly reject the possibility of ghosts, but this is not because viewers are confusing cinematic depiction with reality. Moreover, I can feel strong emotions in response to objects of art that are interpretations, rather than representations, of reality: I am moved by Mozart's *Requiem*, but I know that I am not at a real funeral. However, if Frijda's law is to explain all emotional reactions, there should be no emotional response at all to aesthetic objects or events, because we know they are not real in the way a living rattlesnake is real.

Most psychologists, perplexed by the feelings they acknowledge are aroused by aesthetic experience, have claimed that these emotions are genuine, but different in kind from nonaesthetic emotions. This, however, is a descriptive distinction rather than an empirical observation and consequently lacks explanatory value. On the other hand, Gombrich argues that emotional responses to art are ersatz; art triggers remembrances of previously experienced emotions. These debates have prompted the psychologist Radford to argue that people do experience real melancholy or joy in responding to art, but that these are irrational responses precisely because people know they are reacting to illusory stimuli. Frijda's law does not help us to untangle these positions, since it simply implies that events we recognize as being represented rather than real cannot elicit emotion in the first place.

Frijda does suggest that a vivid imagination has "properties of reality"—implying, without explanation, that we make aesthetic objects or events "real" in the act of experiencing them. However, as Scruton argues, a necessary characteristic of the imaginative construction that can occur in an emotional response to art is that the person knows he or she is pretending. This is what distinguishes imagination from psychotic fantasy.

9. Which one of the following best states the central idea of the passage?
- (A) The law of apparent reality fails to account satisfactorily for the emotional nature of belief.
  - (B) Theories of aesthetic response fail to account for how we distinguish unreasonable from reasonable responses to art.
  - (C) The law of apparent reality fails to account satisfactorily for emotional responses to art.
  - (D) Psychologists have been unable to determine what accounts for the changeable nature of emotional responses to art.
  - (E) Psychologists have been unable to determine what differentiates aesthetic from nonaesthetic emotional responses.
10. According to the passage, Frijda's law asserts that emotional responses to events are
- (A) unpredictable because emotional responses depend on how aware the person is of the reality of an event

- (B) weaker if the person cannot distinguish illusion from reality
  - (C) more or less intense depending on the degree to which the person perceives the event to be real
  - (D) more intense if the person perceives an event to be frightening
  - (E) weaker if the person judges an event to be real but unthreatening
11. The author suggests that Frijda's notion of the role of imagination in aesthetic response is problematic because it
- (A) ignore the unselfconsciousness that is characteristic of emotional responses to art
  - (B) ignores the distinction between genuine emotion and ersatz emotion
  - (C) ignores the fact that a person who is imagining knows that he or she is imagining
  - (D) makes irrelevant distinctions between vivid and weak imaginative capacities
  - (E) suggests, in reference to the observation of art, that there is no distinction between real and illusory stimuli
12. The passage supports all of the following statements about the differences between Gombrich and Radford EXCEPT:
- (A) Radford's argument relies on a notion of irrationality in a way that Gombrich's argument does not.
  - (B) Gombrich's position is closer to the position of the majority of psychologists than is Radford's.
  - (C) Gombrich, unlike Radford, argues that we do not have true emotions in response to art.
  - (D) Gombrich's argument rests on a notion of memory in a way that Radford's argument does not.
  - (E) Radford's argument, unlike Gombrich's, is not focused on the artificial quality of emotional responses to art.
13. Which one of the following best captures the progression of the author's argument in lines 9-31?
- (A) The emotional responses to events ranging from the real to the depicted illustrate the irrationality of emotional response.
  - (B) A series of events that range from the real to the depicted conveys the contrast between real events and cinematic depiction.
  - (C) An intensification in emotional response to a series of events that range from the real to the depicted illustrates Frijda's law.
  - (D) A progression of events that range from the real to the depicted examines the precise nature of panic in relation to feared object.
  - (E) The consistency of emotional responses to events that range from the real to the depicted challenges Frijda's law.

14. Author's assertions concerning movies about ghosts imply that all of the following statements are false EXCEPT:
- (A) Movies about ghosts are terrifying in proportion to viewers' beliefs in the phenomenon of ghosts.
  - (B) Movies about imaginary phenomena like ghosts may be just as terrifying as movies about phenomena like snake.
  - (C) Movies about ghosts and snakes are not terrifying because people know that what they viewing is not real.
  - (D) Movies about ghosts are terrifying to viewers who previously rejected the possibility of ghosts because movies permanently alter the viewers sense of reality.
  - (E) Movies about ghosts elicit a very different emotional response from viewers who do not believe in ghosts than movies about snakes elicit from viewers who are frightened by snakes.
15. Which one of the following statements best exemplifies the position of Radford concerning the nature of emotional response to art?
- (A) A person watching a movie about guerrilla warfare irrationally believes that he or she is present at the battle.
  - (B) A person watching a play about a kidnapping feels nothing because he or she rationally realizes it is not a real event.
  - (C) A person gets particular enjoyment out of writing fictional narratives in which he or she figures as a main character.
  - (D) A person irrationally bursts into tears while reading a novel about a destructive fire, even while realizing that he or she is reading about a fictional event.
  - (E) A person who is afraid of snakes trips over a branch and irrationally panics.

Although bacteria are unicellular and among the simplest autonomous forms of life, they show a remarkable ability to sense their environment. They are attracted to materials they need and are repelled by harmful substances. Most types of bacteria swim very erratically: short smooth runs in relatively straight lines are followed by brief tumbles, after which the bacteria shoot off in random directions. This leaves researchers with the question of how such bacteria find their way to an attractant such as food or, in the case of photosynthetic bacteria, light, if their swimming pattern consists only of smooth runs and tumbles, the latter resulting in random changes in direction.

One clue comes from the observation that when a chemical attractant is added to a suspension of such bacteria, the bacteria swim along a gradient of the attractant, from an area where the concentration of the attractant is weaker to an area where it is stronger. As they do so, their swimming is characterized by a decrease in tumbling and an increase in straight runs over relatively longer distances. As the bacteria encounter increasing concentrations of the attractant, their tendency to tumble is suppressed, whereas tumbling increases whenever they move away from the attractant. The net effect is that runs in the direction of higher

concentrations of the attractant become longer and straighter as a result of the suppression of tumbling, whereas runs away from it are shortened by an increased tendency of the bacteria to tumble and change direction.

Biologists have proposed two mechanisms that bacteria might use in detecting changes in the concentration of a chemical attractant. First, a bacterium might compare the concentration of a chemical at the front and back of its cell body simultaneously. If the concentration is higher at the front of the cell, then it knows it is moving up the concentration gradient, from an area where the concentration is lower to an area where it is higher. Alternatively, it might measure the concentration at one instant and again after a brief interval, in which case the bacterium must retain a memory of the initial concentration. Researchers reasoned that if bacteria do compare concentrations at different times, then when suddenly exposed to a uniformly high concentration of an attractant, the cells would behave as if they were swimming up a concentration gradient, with long, smooth runs and relatively few tumbles. If, on the other hand, bacteria detect a chemical gradient by measuring it simultaneously at two distinct points, front and back, on the cell body, they would not respond to the jump in concentration because the concentration of the attractant in front and back of the cells, though high, would be uniform. Experimental evidence suggests that bacteria compare concentrations at different times.

16. It can be inferred from the passage that which one of the following experimental results would suggest that bacteria detect changes in the concentration of an attractant by measuring its concentration in front and back of the cell body simultaneously?
- (A) When suddenly transferred from a medium in which the concentration of an attractant was uniformly low to one in which the concentration was uniformly high, the tendency of the bacteria to tumble and undergo random changes in direction increased.
  - (B) When suddenly transferred from a medium in which the concentration of an attractant was uniformly low to one in which the concentration was uniformly high, the bacteria's exhibited no change in the pattern of their motion.
  - (C) When suddenly transferred from a medium in which the concentration of an attractant was uniformly low to one in which the concentration was uniformly high, the bacteria's movement was characterized by a complete absence of tumbling.
  - (D) When placed in a medium in which the concentration of an attractant was in some areas low and in others high, the bacteria exhibited an increased tendency to tumble in those areas where the concentration of the attractant was high.
  - (E) When suddenly transferred from a medium in which the concentration of an attractant was uniformly low to one that was completely free of attractants, the bacteria exhibited a tendency to suppress tumbling and move in longer, straighter lines.
17. It can be inferred from the passage that a bacterium would increase the likelihood

of its moving away from an area where the concentration of a harmful substance is high if it did which one of the following?

- (A) Increased the speed at which it swam immediately after undergoing the random changes in direction that result from tumbling.
  - (B) Detected the concentration gradient of an attractant toward which it could begin to swim.
  - (C) Relied on the simultaneous measurement of the concentration of the substance in front and back of its body, rather than on the comparison of the concentration at different points in time.
  - (D) Exhibited a complete cessation of tumbling when it detected increases in the concentration of substance.
  - (E) Exhibited an increased tendency to tumble as it encountered increasing concentrations of the substance, and suppressed tumbling as it detected decreases in the concentration of the substance.
18. It can be inferred from the passage that when describing bacteria as “swimming up a concentration gradient” (lines 49-50), the author means that they were behaving as if they were swimming
- (A) Against a resistant medium that makes their swimming less efficient.
  - (B) Away from a substance to which they are normally attracted.
  - (C) Away from a substance that is normally harmful to them.
  - (D) From an area where the concentration of a repellent is weaker to an area where it is completely absent.
  - (E) From an area where the concentration of a substance is weaker to an area where it is stronger.
19. The passage indicates that the pattern that characterizes a bacterium’s motion **changes** in response to
- (A) The kinds of chemical attractants present in different concentration gradients.
  - (B) The mechanism that the bacterium adopts in determining the presence of an attractant.
  - (C) The bacterium’s detection of changes in the concentration of an attractant.
  - (D) The extent to which neighboring bacteria are engaged in tumbling.
  - (E) Changes in the intervals of time that occur between the bacterium’s measurement of the concentration of an attractant.
20. Which one of the following best describes the organization of the third paragraph of the passage?
- (A) Two approaches to a problem are discussed, a test that would determine which is more efficient is described, and a conclusion is made, based on experimental evidence.
  - (B) Two hypotheses are described, a way of determining which of them is more



likely to be true is discussed, and one said to be more accurate on the basis of experimental evidence.

- (C) Two hypotheses are described, the flaws inherent in one of them are elaborated, and experimental evidence confirming the other is cited.
- (D) An assertion that a species has adopted two different mechanisms to solve a particular problem is made, and evidence is then provided in support of that assertion.
- (E) An assertion that one mechanism for solving a particular problem is more efficient than another is made, and evidence is then provided in support of that assertion.

21. The passage provides information in support of which one of the following assertions?

- (A) The seemingly erratic motion exhibited by a microorganism can in fact reflect a mechanism by which it is able to control its movement.
- (B) Biologists often overstate the complexity of simple organisms such as bacteria.
- (C) A bacterium cannot normally retain a memory of a measurement of the concentration of an attractant.
- (D) Bacteria now appear to have less control over their movement than biologists had previously hypothesized.
- (E) Photosynthetic bacteria appear to have more control over their movement than do bacteria that are not photosynthetic.

Anthropologist David Mandelbaum makes a distinction between life-passage studies and life-history studies which emerged primarily out of research concerning Native Americans. Life-passage studies, he says, "emphasize the requirements of society, showing how groups socialize and enculturate their young in order to make them into viable members of society." Life histories, however, "emphasize the experiences and requirements of the individual, how the person copes with society rather than how society copes with the stream of individuals." Life-passage studies bring out the general cultural characteristics and commonalities that broadly define a culture, but are unconcerned with an individual's choices or how the individual perceives and responds to the demands and expectations imposed by the constraints of his or her culture. This distinction can clearly be seen in the autobiographies of Native American women.

For example, some early recorded autobiographies, such as *The Autobiography of a Fox Indian Woman*, a life passage recorded by anthropologist Truman Michelson, emphasizes prescribed roles. The narrator presents her story in a way that conforms with tribal expectations. Michelson's work is valuable as ethnography, as a reflection of the day-to-day responsibilities of Mesquakie women, yet as is often the case with life-passage studies, it presents little of the central character's psychological motivation. The Fox woman's life story focuses on her tribal education and integration into the ways of her people, and relates only what Michelson ultimately decided was worth preserving. The difference between the two types of studies is often the result of the amount of control the narrator maintains over the material;

autobiographies in which there are no recorder-editors are far more reflective of the life-history category, for there are no outsiders shaping the story to reflect their preconceived notions of what the general cultural patterns are.

For example, in Maria Campbell's account of growing up as a Canadian Metis who was influenced strongly, and often negatively, by the non-Native American world around her, one learns a great deal about the life of Native American women, but Campbell's individual story, which is told to us directly, is always the center of her narrative. Clearly it is important to her to communicate to the audience what her experiences as a Native American have been. Through Campbell's story of her family the reader learns of the effect of poverty and prejudice on a people. The reader becomes an intimate of Campbell the writer, sharing her pain and celebrating her small victories. Although Campbell's book is written as a life history (the dramatic moments, the frustrations, and the fears are clearly hers), it reveals much about ethnic relations in Canada while reflecting the period in which it was written.

22. Which one of the following is the most accurate expression of the main point of the passage?
- (A) The contributions of life-history studies to anthropology have made life-passage studies obsolete.
  - (B) Despite their dissimilar approaches to the study of culture, life-history and life-passage studies have similar goals.
  - (C) The autobiographies of Native American women illustrate the differences between life-history and life-passage studies.
  - (D) The roots of Maria Campbell's autobiography can be traced to earlier narratives such as *The Autobiography of a Fox Indian Woman*.
  - (E) Despite its shortcomings, the life-passage study is a more effective tool than the life-history study for identifying important cultural patterns.
23. The term "prescribed roles" in line 24 of the passage refers to the
- (A) Function of life-passage studies in helping ethnologists to understand cultural tradition.
  - (B) Function of life-history studies in helping ethnologists to gather information.
  - (C) Way in which a subject of a life passage views himself or herself.
  - (D) Roles clearly distinguishing the narrator of an autobiography from the recorder of an autobiography.
  - (E) Roles generally adopted by individuals in order to comply with cultural demands.
24. The reference to the "psychological motivation" (line 30) of the subject of *The Autobiography of a Fox Indian Woman* serves primarily to
- (A) Dismiss as irrelevant the personal perspective in the life-history study.
  - (B) Identify an aspect of experience that is not commonly a major focus of life-passage studies.
  - (C) Clarify the narrator's self-acknowledged purpose in relating a life passage.

- (D) Suggest a common conflict between the goals of the narrator and those of the recorder in most life-passage studies.
- (E) Assert that developing an understanding of an individual's psychological motivation usually undermines objective ethnography.
25. Which one of the following statements about Maria Campbell can be inferred from material in the passage?
- (A) She was familiar with the very early history of her tribe but lacked insight into the motivations of non-Native Americans.
- (B) She was unfamiliar with Michelson's work but had probably read a number of life-passage studies about Native Americans.
- (C) She had training as a historian but was not qualified as an anthropologist.
- (D) Her family influenced her beliefs and opinions more than the events of her time did.
- (E) Her life history provides more than a record of her personal experience.
26. According to the passage, one way in which life history studies differ from life-passage studies is that life-history studies are
- (A) Usually told in the subject's native language.
- (B) Less reliable because they rely solely on the subject's recall.
- (C) More likely to be told without the influence of an intermediary.
- (D) More creative in the way they interpret the subject's cultural legacy.
- (E) More representative of the historian's point of view than of the ethnographer's.
27. Which one of the following pairings best illustrates the contrast between life passages and life histories?
- (A) A study of the attitudes of a society toward a mainstream religion and an analysis of techniques used to instruct members of that religious group.
- (B) A study of how a preindustrial society maintains peace with neighboring societies and a study of how a postindustrial society does the same.
- (C) A study of the way a military organization establishes and maintains discipline and a newly enlisted soldier's narrative describing his initial responses to the military environment.
- (D) An analysis of a society's means of subsistence and a study of how its members celebrate religious holidays.
- (E) A political history of a society focusing on leaders and parties and a study of how the electorate shaped the political landscape of the society.

**LSAT 05 SECTION III****Time 35 minutes 28 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one*

*of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Until recently many astronomers believed that asteroids travel about the solar system unaccompanied by satellites. These astronomers assumed this because they considered asteroid-satellite systems inherently unstable. Theoreticians could have told them otherwise: even minuscule bodies in the solar system can theoretically have satellites, as long as everything is in proper scale. If a bowling ball were orbiting about the Sun in the asteroid belt, it could have a pebble orbiting it as far away as a few hundred radii (or about 50 meters) without losing the pebble to the Sun's gravitational pull.

Observations now suggest that asteroid satellites may exist not only in theory but also in reality. Several astronomers have noticed, while watching asteroids pass briefly in front of stars, that something besides the known asteroid sometimes **blocks out** the star as well. Is that something a satellite?

The most convincing such report concerns the asteroid Herculina, which was due to pass in front of a star in 1978. Astronomers waiting for the predicted event found not just one occultation, or eclipse, of the star, but two distinct drops in brightness. One was the predicted occultation, exactly on time. The other, lasting about five seconds, preceded the predicted event by about two minutes. The presence of a secondary body near Herculina thus seemed strongly indicated. To cause the secondary occultation, an unseen satellite would have to be about 45 kilometers in diameter, a quarter of the size of Herculina, and at a distance of 990 kilometers from the asteroid at the time. These values are within theoretical bounds, and such an asteroid-satellite pair could be stable.

With the Herculina event, apparent secondary occultations became "respectable"—and more commonly reported. In fact, so common did reports of secondary events become that they are now simply too numerous for all of them to be accurate. Even if every asteroid has as many satellites as can be fitted around it without an undue number of collisions, only one in every hundred primary occultations would be accompanied by a secondary event (one in every thousand if asteroid satellites system resembled those of the planets).

Yet even astronomers who find the case for asteroid satellites unconvincing at present say they would change their minds if a photoelectric record were made of a well-behaved secondary event. By "well-behaved" they mean that during occultation the observed brightness must drop sharply as the star **winks out** and must rise sharply as it reappears from behind the obstructing object, but the brightness during the secondary occultation must drop to that of the asteroid, no higher and no lower. This would make it extremely unlikely that an airplane or a glitch in the instruments was masquerading as an occulting body.

1. Which one of the following best expresses the main idea of the passage?
  - (A) The observation of Herculina represented the crucial event that astronomical observers and theoreticians had been waiting for to establish a convincing case for the stability of asteroid-satellite systems.
  - (B) Although astronomers long believed that observation supports the existence of stable asteroid-satellite systems, numerous recent reports have increased

- skepticism on this issue in astronomy.
- (C) Theoreticians' views on the stability of asteroid-satellite systems may be revised in the light of reports like those about Herculina.
- (D) Astronomers continue to consider it respectable to doubt the stability of asteroid-satellite systems, but new theoretical developments may change their views.
- (E) The Herculina event suggests that theoreticians' views about asteroid-satellite systems may be correct, and astronomers agree about the kind of evidence needed to clearly resolve the issue.
2. Which one of the following is mentioned in the passage as providing evidence that Herculina has a satellite?
- (A) the diameter of a body directly observed near Herculina
- (B) the distance between Herculina and planet nearest to it
- (C) the shortest possible time in which satellites of Herculina, if any, could complete a single orbit
- (D) the occultation that occurred shortly before the predicted occultation by Herculina
- (E) the precise extent to which observed brightness dropped during the occultation by Herculina
3. According to the passage, the attitude of astronomers toward asteroid satellites since the Herculina event can best be described as
- (A) open-mindedness combined with a concern for rigorous standards of proof
- (B) contempt for and impatience with the position held by theoreticians
- (C) bemusement at a chaotic mix of theory, inadequate or spurious data, and calls for scientific rigor
- (D) hardheaded skepticism, implying rejection of all data not recorded automatically by state-of-the-art instruments
- (E) admiration for the methodical process by which science progresses from initial hypothesis to incontrovertible proof
4. The author implies that which one of the following was true prior to reports of the Herculina event?
- (A) Since no good theoretical model existed, all claims that reports of secondary occultations were common were disputed.
- (B) Some of the reported observations of secondary occultations were actually observations of collisions of satellites with one another.
- (C) If there were observations of phenomena exactly like the phenomena now labeled secondary occultations, astronomers were less likely than to have reported such observations.
- (D) The prevailing standards concerning what to classify as a well-behaved

secondary event were less stringent than they are now.

- (E) Astronomers were eager to publish their observations of occultations of stars by satellites of asteroids.
5. The information presented in the passage implies which one of the following about the frequency of reports of secondary occultations after the Herculina event?
- (A) The percentage of reports of primary occultations that also included reports of secondary occultations increased tenfold compared to the time before the Herculina event.
- (B) Primary occultations by asteroids were reported to have been accompanied by secondary occultations in about one out of every thousand cases.
- (C) The absolute number of reports of secondary occultations increased tenfold compared to the time before the Herculina event.
- (D) Primary occultations by asteroids were reported to have been accompanied by secondary occultations in more than one out of every hundred cases.
- (E) In more than one out of every hundred cases, primary occultations were reported to have been accompanied by more than one secondary occultation.
6. The primary purpose of the passage is to
- (A) cast doubts on existing reports of secondary occultations of stars
- (B) describe experimental efforts by astronomers to separate theoretically believable observations of satellites of asteroids from spurious ones
- (C) review the development of ideas among astronomers about whether or not satellites of asteroids exist
- (D) bring a theoretician's perspective to bear on an incomplete discussion of satellites of asteroids
- (E) illustrate the limits of reasonable speculation concerning the occultation of stars
7. The passage suggests that which one of the following would most help to resolve the question of whether asteroids have satellites?
- (A) a review of pre-1978 reports of secondary occultations
- (B) an improved theoretical model of stable satellite systems
- (C) a photoelectric record of a well-behaved secondary occultation
- (D) a more stringent definition of what constitutes a well-behaved secondary occultation
- (E) a powerful telescope that would permit a comparison of ground-based observation with those made from airplanes

Historians attempting to explain how scientific work was done in the laboratory of the seventeenth-century chemist and natural philosopher Robert Boyle must address a fundamental discrepancy between how such experimentation was actually performed and the



seventeenth-century rhetoric describing it. Leaders of the new Royal Society of London in the 1660s insisted that authentic science depended upon actual experiments performed, observed, and recorded by the scientists themselves. Rejecting the traditional contempt for manual operations, these scientists, all members of the English upper class, were not to think themselves demeaned by the mucking about with chemicals, furnaces, and pumps; rather, the willingness of each of them to become, as Boyle himself said, a mere “drudge” and “under-builder” in the search for God’s truth in nature was taken as a sign of their nobility and Christian piety.

This rhetoric has been so effective that one modern historian assures us that Boyle himself actually performed all of the thousand or more experiments he reported. In fact, due to poor eyesight, fragile health, and frequent absences from his laboratory, Boyle turned over much of the labor of obtaining and recording experimental results to paid technicians, although published accounts of the experiments rarely, if ever, acknowledged the technicians’ contributions. Nor was Boyle unique in relying on technicians without publicly crediting their work.

Why were the contributions of these technicians not recognized by their employers? One reason is the historical tendency, which has persisted into the twentieth century, to view scientific discovery as resulting from momentary flashes of individual insight rather than from extended periods of cooperative work by individuals with varying levels of knowledge and skill. Moreover, despite the clamor of seventeenth-century scientific rhetoric commending a hands-on approach, science was still overwhelmingly an activity of the English upper class, and the traditional contempt that genteel society maintained for manual labor was pervasive and deeply rooted. Finally, all of Boyle’s technicians were “servants,” which in seventeenth-century usage meant anyone who worked for pay. To seventeenth-century sensibilities, the wage relationship was charged with political significance. Servants, meaning wage earners, were excluded from the franchise because they were perceived as ultimately dependent on their wages and thus controlled by the will of their employers. Technicians remained invisible in the political economy of science for the same reasons that underlay servants’ general political exclusion. The technicians’ contribution, their observations and judgment, if acknowledged, would not have been perceived in the larger scientific community as objective because the technicians were dependent on the wages paid to them by their employers. Servants might have made the apparatus work, but their contributions to the making of scientific knowledge were largely—and conveniently—ignored by their employers.

8. Which one of the following best summarizes the main idea of the passage?
- (A) Seventeenth-century scientific experimentation would have been impossible without the work of paid laboratory technicians.
  - (B) Seventeenth-century social conventions prohibited upper-class laboratory workers from taking public credit for their work.
  - (C) Seventeenth-century views of scientific discovery combined with social class distinctions to ensure that laboratory technicians’ scientific work was never publicly acknowledged.
  - (D) Seventeenth-century scientists were far more dependent on their laboratory technicians than are scientists today, yet far less willing to acknowledge

- technicians' scientific contributions.
- (E) Seventeenth-century scientists liberated themselves from the stigma attached to manual labor by relying heavily on the work of laboratory technicians.
9. It can be inferred from the passage that the "seventeenth-century rhetoric" mentioned in line 6 would have more accurately described the experimentation performed in Boyle's laboratory if which one of the following were true?
- (A) Unlike many seventeenth-century scientists, Boyle recognized that most scientific discoveries resulted from the cooperative efforts of many individuals.
- (B) Unlike many seventeenth-century scientists, Boyle maintained a deeply rooted and pervasive contempt for manual labor.
- (C) Unlike many seventeenth-century scientists, Boyle was a member of the Royal Society of London.
- (D) Boyle generously acknowledged the contribution of the technicians who worked in his laboratory.
- (E) Boyle himself performed the actual labor of obtaining and recording experimental results.
10. According to the author, servants of seventeenth-century England were excluded from the franchise because of the belief that
- (A) their interests were adequately represented by their employers
- (B) their education was inadequate to make informed political decisions
- (C) the independence of their political judgment would be compromised by their economic dependence on their employers
- (D) their participation in the elections would be a polarizing influence on the political process
- (E) the manual labor that they performed did not constitute a contribution to the society that was sufficient to justify their participation in elections
11. According to the author, the Royal Society of London insisted that scientists abandon the
- (A) belief that the primary purpose of scientific discovery was to reveal the divine truth that could be found in nature
- (B) view that scientific knowledge results largely from the insights of a few brilliant individuals rather than from the cooperative efforts of many workers
- (C) seventeenth-century belief that servants should be denied the right to vote because they were dependent on wages paid to them by their employers
- (D) traditional disdain for manual labor that was maintained by most members of the English upper class during the seventeenth-century
- (E) idea that the search for scientific truth was a sign of piety
12. The author implies that which one of the following beliefs was held in both the

- seventeenth and the twentieth centuries?
- (A) Individual insights rather than cooperative endeavors produce most scientific discoveries.
  - (B) How science is practiced is significantly influenced by the political beliefs and assumption of scientists.
  - (C) Scientific research undertaken for pay cannot be considered objective.
  - (D) Scientific discovery can reveal divine truth in nature.
  - (E) Scientific discovery often relies on the unacknowledged contributions of laboratory technicians.
13. Which one of the following best describes the organization of the last paragraph?
- (A) Several alternative answers are presented to a question posed in the previous paragraph, and the last is adopted as the most plausible.
  - (B) A question regarding the cause of the phenomenon described in the previous paragraph is posed, two possible explanations are rejected, and evidence is provided in support of a third.
  - (C) A question regarding the phenomenon described in the previous paragraph is posed, and several incompatible views are presented.
  - (D) A question regarding the cause of the phenomenon described in the previous paragraph is posed, and several contributing factors are then discussed.
  - (E) Several answers to a question are evaluated in light of recent discoveries cited earlier in the passage.
14. The author's discussion of the political significance of the "wage relationship" (line 48) serves to
- (A) place the failure of seventeenth-century scientists to acknowledge the contributions of their technicians in the large context of relations between workers and their employers in seventeenth-century England
  - (B) provide evidence in support of the author's more general thesis regarding the relationship of scientific discovery to the economic conditions of societies in which it takes place
  - (C) provide evidence in support of the author's explanation of why scientists in seventeenth-century England were reluctant to rely on their technicians for the performance of anything but the most menial tasks
  - (D) illustrate political and economic changes in the society of seventeenth-century England that had a profound impact on how scientific research was conducted
  - (E) undermine the view that scientific discovery results from individual enterprise rather than from the collective endeavor of many workers
15. It can be inferred from the passage that "the clamor of seventeenth-century scientific rhetoric" (lines 39-40) refers to
- (A) the claim that scientific discovery results largely from the insights of brilliant

individuals working alone

- (B) ridicule of scientists who were members of the English upper class and who were thought to demean themselves by engaging in the manual labor required by their experiments
- (C) criticism of scientists who publicly acknowledged the contributions of their technicians
- (D) assertions by members of the Royal Society of London that scientists themselves should be responsible for obtaining and recording experimental results
- (E) the claim by Boyle and his colleagues that the primary reason for scientific research is to discover evidence of divine truth in the natural world

One type of violation of the antitrust laws is the abuse of monopoly power. Monopoly power is the ability of a firm to raise its prices above the competitive level—that is, above the level that would exist naturally if several firms had to compete—without driving away so many customers as to make the price increase unprofitable. In order to show that a firm has abused monopoly power, and thereby violated the antitrust laws, two essential facts must be established. First, a firm must be shown to possess monopoly power, and second, that power must have been used to exclude competition in the monopolized market or related markets.

The price a firm may charge for its product is constrained by the availability of close substitutes for the product. If a firm attempts to charge a higher price—a supracompetitive price—consumers will turn to other firms able to supply substitute products at competitive prices. If a firm provides a large percentage of the products actually or potentially available, however, customers may find it difficult to buy from alternative suppliers. Consequently, a firm with a large share of the relevant market of substitutable products may be able to raise its price without losing many customers. For this reason courts often use market share as a rough indicator of monopoly power.

Supracompetitive prices are associated with a loss of consumers' welfare because such prices force some consumers to buy a less attractive mix of products than they would ordinarily buy. Supracompetitive prices, however, do not themselves constitute an abuse of monopoly power. Antitrust laws do not attempt to counter the mere existence of monopoly power, or even the use of monopoly power to extract extraordinarily high profits. For example, a firm enjoying economies of scale—that is, low unit production costs due to high volume—does not violate the antitrust laws when it obtains a large market share by charging prices that are profitable but so low that its smaller rivals cannot survive. If the antitrust laws posed disincentives to the existence and growth of such firms, the laws could impair consumers' welfare. Even if the firm, upon acquiring monopoly power, chose to raise prices in order to increase profits, it would not be in violation of the antitrust laws.

The antitrust prohibitions focus instead on abuses of monopoly power that exclude competition in the monopolized market or involve leverage—the use of power in one market to reduce competition in another. One such forbidden practice is a tying arrangement, in which a monopolist conditions the sale of a product in one market on the buyer's purchase of another product in a different market. For example, a firm enjoying a monopoly in the communications systems market might not sell its products to a consumer unless that customer also buys its

computer systems, which are competing with other firms' computer systems.

The focus on the abuse of monopoly power, rather than on monopoly itself, follows from the primary purpose of the antitrust laws: to promote consumers' welfare through assurance of the quality and quantity of products available to consumers.

16. Which one of the following distinctions between monopoly power and the abuse of monopoly power would the author say underlies the antitrust laws discussed in the passage?
- (A) Monopoly power is assessed in term of market share, whereas abuse of monopoly power is assessed in term of market control.
  - (B) Monopoly power is easy to demonstrate, whereas abuse of monopoly power is difficult to demonstrate.
  - (C) Monopoly power involves only one market, whereas abuse of monopoly power involves at least two or more related markets.
  - (D) Monopoly power is the ability to charge supracompetitive prices, whereas abuse of monopoly power is the use of that ability.
  - (E) Monopoly power does not necessarily hurt consumer welfare, whereas abuse of monopoly power does.
17. Would the use of leverage meet the criteria for abuse of monopoly power outlined in the first paragraph?
- (A) No, because leverage involves a nonmonopolized market.
  - (B) No, unless the leverage involves a tying arrangement.
  - (C) Yes, because leverage is a characteristic of monopoly power.
  - (D) Yes, unless the firm using leverage is charging competitive prices.
  - (E) Yes, because leverage is used to eliminate competition in a related market.
18. What is the main purpose of the third paragraph (lines 28—47)?
- (A) to distinguish between supracompetitive prices and supracompetitive profits
  - (B) to describe the positive use of monopoly power
  - (C) to introduce the concept of economies of scale
  - (D) to distinguish what is not covered by the antitrust law under discussion from what is covered
  - (E) to remind the reader of the issue of consumers welfare
19. Given only the information in the passage, with which one of the following statements about competition would those responsible for the antitrust laws most likely agree?
- (A) Competition is essential to consumers' welfare.
  - (B) There are acceptable and unacceptable ways for firms to reduce their competition.
  - (C) The preservation of competition is the principal aim of the antitrust laws.



- (D) Supracompetitive prices lead to reductions in competition.
- (E) Competition is necessary to ensure high-quality products at low prices.
20. Which one of the following sentences would best complete the last paragraph of the passage?
- (A) By limiting consumers' choices, abuse of monopoly power reduces consumers' welfare, but monopoly alone can sometimes actually operate in the consumers' best interest.
- (B) What is needed now is a set of related laws to deal with the negative impacts that monopoly itself has on consumers' ability to purchase products at reasonable cost.
- (C) Over time, the antitrust laws have been very effective in ensuring competition and, consequently, consumers' welfare in the volatile communications and computer systems industries.
- (D) By controlling supracompetitive prices and corresponding supracompetitive profits, the antitrust laws have, indeed, gone a long way toward meeting that objective.
- (E) As noted above, the necessary restraints on monopoly itself have been left to the market, where competitive prices and economies of scale are rewarded through increased market share.

Amsden has divided Navajo weaving into four distinct styles. He argues that three of them can be identified by the type of design used to form horizontal bands: colored strips, zigzags, or diamonds. The fourth, or bordered, style he identifies by a distinct border surrounding centrally placed, dominating figures.

Amsden believes that the diamond style appeared after 1869 when, under Anglo influence and encouragement, the blanket became a rug with larger designs and bolder lines. The bordered style appeared about 1890, and, Amsden argues, it reflects the greatest number of Anglo influences on the newly emerging rug business. The Anglo desire that anything with a graphic designs have a top, bottom, and border is a cultural preference that the Navajo abhorred, as evidenced, he suggests, by the fact that in early bordered specimens strips of color unexpectedly break through the enclosing pattern.

Amsden argues that the bordered rug represents a radical break with previous styles. He asserts that the border changed the artistic problem facing weavers: a blank area suggests the use of isolated figures, while traditional, banded Navajo designs were continuous and did not use isolated figures. The old patterns alternated horizontal decorative zones in a regular order.

Amsden's view raises several questions. First, what is involved in altering artistic styles? Some studies suggest that artisans' motor habits and thought processes must be revised when a style changes precipitously. In the evolution of Navajo weaving, however, no radical revisions in the way articles are produced need be assumed. After all, all weaving subordinates design to the physical limitations created by the process of weaving, which includes creating an edge or border. The habits required to make decorative borders are, therefore, latent and easily brought to the surface.



Second, is the relationship between the banded and bordered styles as simple as Amsden suggests? He assumes that a break in style is a break in psychology. But if style results from constant quests for invention, such stylistic breaks are inevitable. When a style has exhausted the possibilities inherent in its principles, artists **cast about** for new, but not necessarily alien, principles. Navajo weaving may have reached this turning point prior to 1890.

Third, is there really a significant stylistic gap? Two other styles lie between the banded styles and the bordered styles. They suggest that disintegration of the bands may have altered visual and motor habits and prepared the way for a border filled with separate units. In the Chief White Antelope blanket, dated prior to 1865, ten years before the first Anglo trading post on the Navajo reservation, whole and partial diamonds interrupt the flowing design and become separate forms. Parts of diamonds arranged vertically at each side may be seen to anticipate the border.

21. The author's central thesis is that
- (A) the Navajo rejected the stylistic influences of Anglo culture
  - (B) Navajo weaving cannot be classified by Amsden's categories
  - (C) the Navajo changed their style of weaving because they sought the challenge of new artistic problems
  - (D) original motor habits and thought processes limit the extent to which a style can be revised
  - (E) the casual factors leading to the emergence of the bordered style are not as clear-cut as Amsden suggests
22. It can be inferred from the passage that Amsden views the use of "strips of color" (line 18) in the early bordered style as
- (A) a sign of resistance to a change in style
  - (B) an echo of the diamond style
  - (C) a feature derived from Anglo culture
  - (D) an attempt to disintegrate the rigid form of the banded style
  - (E) a means of differentiating the top of the weaving from the bottom
23. The author's view of Navajo weaving suggests which one of the following?
- (A) The appearance of the first trading post on the Navajo reservation coincided with the appearance of the diamond style.
  - (B) Traces of thought processes and motor habits of one culture can generally be found in the art of another culture occupying the same period and region.
  - (C) The bordered style may have developed gradually from the banded style as a result of Navajo experiencing with design.
  - (D) The influence of Anglo culture was not the only non-Native American influence on Navajo weaving.
  - (E) Horizontal and vertical rows of diamond forms were transformed by the Navajos into solid lines to create the bordered style.

24. According to the passage, Navajo weavings made prior to 1890 typically were characterized by all of the following EXCEPT
- (A) repetition of forms
  - (B) overall patterns
  - (C) horizontal bands
  - (D) isolated figures
  - (E) use of color
25. The author would most probably agree with which one of the following conclusions about the stylistic development of Navajo weaving?
- (A) The styles of Navajo weaving changed in response to changes in Navajo motor habits and thought processes.
  - (B) The zigzag style was the result of stylistic influences from Anglo culture.
  - (C) Navajo weaving used isolated figures in the beginning, but combined naturalistic and abstract designs in later styles.
  - (D) Navajo weaving changed gradually from a style in which the entire surface was covered by horizontal bands to one in which central figures dominated the surface.
  - (E) The styles of Navajo weaving always contained some type of isolated figure.
26. The author suggests that Amsden's claim that borders in Navajo weaving were inspired by Anglo culture could be
- (A) conceived as a response to imagined correspondences between Anglo and Navajo art
  - (B) biased by Amsden's feelings about Anglo culture
  - (C) a result of Amsden's failing to take into account certain aspects of Navajo weaving
  - (D) based on a limited number of specimens of the styles of Navajo weaving
  - (E) based on a confusion between the stylistic features of the zigzag and diamond styles
27. The author most probably mentions the Chief White Antelope blanket in order to
- (A) establish the credit influence of Anglo culture on the bordered style
  - (B) cast doubts on the claim that the bordered style arose primarily from Anglo influence
  - (C) cite an example of a blanket with a central design and no border
  - (D) suggest that the Anglo influence produced significant changes in the two earliest styles of Navajo weaving
  - (E) illustrate how the Navajo had exhausted the stylistic possibilities of the diamond style
28. The passage is primarily concerned with

- (A) comparing and contrasting different styles
- (B) questioning a view of how a style came into being
- (C) proposing alternative methods of investigating the evolution of styles
- (D) discussing the influence of one culture on another
- (E) analyzing the effect of the interaction between two different cultures

### **LSAT 06 SECTION I**

**Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The Taft-Hartley Act, passed by the United States Congress in 1947, gave states the power to enact “right-to-work” legislation that prohibits **union shop** agreements. According to such an agreement, a labor union negotiates wages and working conditions for all workers in a business, and all workers are required to belong to the union. Since 1947, 20 states have adopted right-to-work laws. Much of the literature concerning right-to-work laws implies that such legislation has not actually had a significant impact. This point of view, however, has not gone uncriticized. Thomas V Carroll has proposed that the conclusions drawn by previous researchers are attributable to their myopic focus on the premise that, unless right-to-work laws significantly reduce union membership within a state, they have no effect. Carroll argues that the right-to-work laws “do matter” in that such laws generate differences in real wages across states. Specifically, Carroll indicates that while right-to-work laws may not “destroy” unions by reducing the absolute number of unionized workers, they do impede the spread of unions and thereby reduce wages within right-to-work states. Because the countervailing power of unions is weakened in right-to-work states, manufacturers and their suppliers can act cohesively in competitive labor markets, thus lowering wages in the affected industries.

Such a finding has important implications regarding the demographics of employment and wages in right-to-work states. Specifically, if right-to-work laws lower wages by weakening union power, minority workers can be expected to suffer a relatively greater economic disadvantage in right-to-work states than in union shop states. This is so because, contrary to what was once thought, unions tend to have a significant positive impact on the economic position of minority workers, especially Black workers, relative to White workers. Most studies concerned with the impact of unionism on the Black worker’s economic position relative to the White worker’s have concentrated on the changes in Black wages due to union membership. That is, they have concentrated on union *versus* nonunion groups. In a pioneering study, however, Ashenfelter finds that these studies overlook an important fact: although craft unionism increases the differential between the wages of White workers and Black workers due to the traditional exclusion of minority workers from unions in the craft sectors of the labor market, strong positive wage gains are made by Black workers within industrial unions. In fact, Ashenfelter estimates that industrial unionism decreases the differential between the wages of Black workers and White workers by about 3 percent. If state right-to-work laws weaken the

economic power of unions to raise wages, Black workers will experience a disproportionate decline in their relative wage positions. Black workers in right-to-work states would therefore experience a decline in their relative economic positions unless there is strong economic growth in right-to-work states, creating labor shortages and thereby driving up wages.

1. The reasoning behind the “literature” (line 9), as that reasoning is presented in the passage, is most analogous to the reasoning behind which one of the following situations?
  - (A) A law is proposed that benefits many but disadvantages a few: those advocating passage of the law argue that the disadvantages to few are not so serious that the benefits should be denied to many.
  - (B) A new tax on certain categories of consumer items is proposed: those in favor of the tax argue that those affected by the tax are well able to pay it, since the items taxed are luxury items.
  - (C) A college sets strict course requirements that every student must complete before graduating; students already enrolled argue that it is unfair for the new requirements to apply to those enrolled before the change.
  - (D) The personnel office of a company designs a promotions become effective on January 1: the managers protest that such a policy means that they cannot respond fast enough to changes in staffing needs.
  - (E) A fare increase in a public transportation system does not significantly reduce the number of fares sold: the management of the public transportation system asserts, therefore, that the fare hike has had no negative effects.
2. According to the passage, which one of the following is true of Carroll’s study?
  - (A) It implies that right-to-work laws have had a negligible effect on workers in right-to-work states.
  - (B) It demonstrates that right-to-work laws have significantly decreased union membership from what it once was in right-to-work states.
  - (C) It argues that right-to-work laws have affected wages in right-to-work states.
  - (D) It supports the findings of most earlier researchers.
  - (E) It explains the mechanisms by which collusion between manufacturers and suppliers is accomplished.
3. It can be inferred from the passage that the author believes which one of following about craft unions?
  - (A) Craft unions have been successful in ensuring that the wages of their members remain higher than the wages of nonunion workers in the same occupational groups.
  - (B) The number of minority workers joining craft unions has increased sharply in states that have not adopted right-to-work legislation.
  - (C) Wages for workers belonging to craft unions have generally risen faster and more steadily than wages for workers belonging to industrial unions.

- (D) The wages of workers belonging to craft unions have not been significantly affected by right-to-work legislation, although the wages of workers belonging to industrial unions have been negatively affected.
- (E) The wages of workers belonging to craft unions are more likely to be driven up in the event of labor shortages than are the wages of workers belonging to industrial unions.
4. Which one of the following best describes the effect industrial unionism has had on the wages of Black workers relative to those of White workers, as that effect is presented in the passage?
- (A) Prior to 1947, industrial unionism had little effect on the wages of Black workers relative to those of White workers: since 1947, it has had a slight positive effect.
- (B) Prior to 1947, industrial unionism had a strong positive effect on the wages of Black workers relative to those of White workers: since 1947, it has had little effect.
- (C) Prior to 1947, industrial unionism had a negative effect on the wages of Black workers relative to those of White workers: since 1947, it has had a significant positive effect.
- (D) Industrial unionism has contributed moderately to an increase in the wage differential between Black workers and White workers.
- (E) Industrial unionism has contributed strongly to a 3 percent decrease in the wage differential between Black workers and White workers.
5. According to the passage, which one of the following could counteract the effects of a decrease in unions' economic power to raise wages in right-to-work states?
- (A) a decrease in the number of union shop agreements
- (B) strong economic growth that creates labor shortages
- (C) a decrease in membership in craft unions
- (D) the merging of large industrial unions
- (E) a decline in the craft sectors of the labor market
6. Which one of the following best describes the passage as a whole?
- (A) an overview of a problem in research methodology and a recommended solution to that problem
- (B) a comparison of two competing theories and a suggestion for reconciling them
- (C) a critique of certain legislation and a proposal for modification of that legislation
- (D) a review of research that challenges the conclusions of earlier researchers
- (E) a presentation of a specific case that confirms the findings of an earlier study
- In the late nineteenth century, the need for women physicians in missionary hospitals in



Canton, China, led to expanded opportunities for both Western women and Chinese women. The presence of Western women as medical missionaries in China was made possible by certain changes within the Western missionary movement. Beginning in the 1870s, increasingly large numbers of women were forming women's foreign mission societies dedicated to the support of women's foreign mission work. Beyond giving the women who organized the societies a formal activity outside their home circles, these organizations enabled an increasing number of single women missionaries (as opposed to women who were part of the more typical husband-wife missionary teams) to work abroad. Before the formation of these women's organizations, mission funds had been collected by ministers and other church leaders, most of whom emphasized local parish work. What money was spent on foreign missions was under the control of exclusively male foreign mission boards whose members were uniformly uneasy about the new idea of sending single women out into the mission field. But as women's groups began raising impressive amounts of money donated specifically in support of single women missionaries, the home churches bowed both to women's changing roles at home and to increasing numbers of single professional missionary women abroad.

Although the idea of employing a woman physician was a daring one for most Western missionaries in China, the advantages of a well-trained Western woman physician could not be ignored by Canton mission hospital administrators. A woman physician could attend women patients without offending any of the accepted conventions of female modesty. Eventually, some of these women were able to found and head separate women's medical institutions, thereby gaining access to professional responsibilities far beyond those available to them at home.

These developments also led to the attainment of valuable training and status by a significant number of Chinese women. The presence of women physicians in Canton mission hospitals led many Chinese women to avail themselves of Western medicine who might otherwise have failed to do so because of their culture's emphasis on physical modesty. In order to provide enough women physicians for these patients, growing numbers of young Chinese women were given instruction in medicine. This enabled them to earn an independent income, something that was then largely unavailable to women within traditional Chinese society. Many women graduates were eventually able to go out on their own into private practice, freeing themselves of dependence upon the mission community.

The most important result of these opportunities was the establishment of clear evidence of women's abilities and strengths, clear reasons for affording women expanded opportunities, and clear role models for how these abilities and responsibilities might be exercised.

7. Which one of the following statements about Western women missionaries working abroad can be inferred from the passage?
- (A) There were very few women involved in foreign missionary work before the 1870s.
  - (B) Most women working abroad as missionaries before the 1870s were financed by women's foreign mission societies.
  - (C) Most women employed in mission hospitals abroad before the 1870s were trained as nurses rather than as physicians.



- (D) The majority of professional women missionaries working abroad before the 1870s were located in Canton, China.
- (E) Most women missionaries working abroad before the 1870s were married to men who were also missionaries.
8. The author mentions that most foreign mission boards were exclusively male most probably in order to
- (A) Contrast foreign mission boards with the boards of secular organizations sending aid to China.
- (B) Explain the policy of foreign mission boards toward training Chinese women in medicine.
- (C) Justify the preference of foreign mission boards for professionally qualified missionaries.
- (D) Help account for the attitude of foreign mission boards towards sending single women missionaries abroad.
- (E) Differentiate foreign mission boards from boards directing parish work at home.
9. Which one of the following best describes the organization of the passage?
- (A) A situation is described, conditions that brought about the situation are explained, and results of the situation are enumerated.
- (B) An assertion is made, statements supporting and refuting the assertion are examined, and a conclusion is drawn.
- (C) An obstacle is identified, a variety of possible ways to overcome the obstacle are presented, and an opinion is ventured.
- (D) A predicament is outlined, factors leading up to the predicament are scrutinized, and a tentative resolution of the predicament is recommended.
- (E) A development is analyzed, the drawbacks and advantages accompanying the development are contrasted, and an eventual outcome is predicted.
10. Which one of the following, if true, would most undermine the author's analysis of the reason for the increasing number of single women missionaries sent abroad beginning in the 1870s?
- (A) The Western church boards that sent the greatest number of single women missionaries abroad had not received any financial support from women's auxiliary groups.
- (B) The women who were sent abroad as missionary physicians had been raised in families with a strong history of missionary commitment.
- (C) Most of the single missionary women sent abroad were trained as teachers and translators rather than as medical practitioners.
- (D) The western church boards tended to send abroad single missionary women who had previously been active in local parish work.
- (E) None of the single missionary women who were sent abroad were active

members of foreign mission boards.

11. According to the passage, which one of the following was a factor in the acceptance of Western women as physicians in mission hospitals in Canton, China?
- (A) The number of male physicians practicing in that region.
  - (B) The specific women's foreign mission society that supplied the funding.
  - (C) The specific home parishes from which the missionary women came.
  - (D) The cultural conventions of the host society.
  - (E) The relations between the foreign mission boards and the hospital administrators.
12. The passage suggests which one of the following about medical practices in late-nineteenth-century Canton, China?
- (A) There was great suspicion of non-Chinese medical practices.
  - (B) Medical care was more often administered in the home than in hospitals.
  - (C) It was customary for women physicians to donate a portion of their income for the maintenance of their extended family.
  - (D) It was not customary for female patients to be treated by male physicians.
  - (E) Young women tended to be afforded as many educational opportunities in medicine as young men were.

In recent years the early music movement, which advocates performing a work as it was performed at the time of its composition, has taken on the character of a crusade, particularly as it has moved beyond the sphere of medieval and baroque music and into music from the late eighteenth and early nineteenth centuries by composers such as Mozart and Beethoven. Granted, knowledge about the experience of playing old music on now-obsolete instruments has been of inestimable value to scholars. Nevertheless, the early music approach to performance raises profound and troubling questions.

Early music advocates assume that composers write only for the instruments available to them, but evidence suggests that composers of Beethoven's stature imagined extraordinarily high and low notes as part of their compositions, even when they recognized that such notes could not be played on instruments available at the time. In the score of Beethoven's first piano concerto, there is a "wrong" note, a high F-natural where the melody obviously calls for a high F-sharp, but pianos did not have this high an F-sharp when Beethoven composed the concerto. Because Beethoven once expressed a desire to revise his early works to exploit the extended range of pianos that became available to him some years later, it seems likely that he would have played the F-sharp if given the opportunity. To use a piano exactly contemporary with the work's composition would require playing a note that was probably frustrating for Beethoven himself to have had to play.

In addition, early music advocates often inadvertently divorce music and its performance from the life of which they were, and are, a part. The discovery that Haydn's and Mozart's symphonies were conducted during their lifetimes by a pianist who played the chords to keep the orchestra together has given rise to early music recordings in which a piano can be heard

obtrusively in the foreground, despite evidence indicating that the orchestral piano was virtually inaudible to audiences at eighteenth-century concerts and was dropped as musically unnecessary when a better way to beat time was found. And although in the early nineteenth century the first three movements (sections) of Mozart's and Beethoven's symphonies were often played faster, and the last movement slower than today, this difference can readily be explained by the fact that at that time audiences applauded at the end of each movement, rather than withholding applause until the end of the entire work. As a result, musicians were not forced into extra brilliance in the finale in order to generate applause, as they are now. To restore the original tempo of these symphonies represents an irrational denial of the fact that our concepts of musical intensity and excitement have quite simply, changed.

13. It can be inferred from the passage that by "a piano exactly contemporary" (line 30) with the composition of Beethoven's first piano concerto, the author means the kind of piano that was
- (A) Designed to be inaudible to the audience when used by conductors of orchestras.
  - (B) Incapable of playing the high F-natural that is in the score of Beethoven's original version of the concerto.
  - (C) Unavailable to Mozart and Haydn.
  - (D) Incapable of playing the high F-sharp that the melody of the concerto calls for.
  - (E) Influential in Beethoven's decision to revise his early compositions.
14. Which one of the following best expresses the main idea of the passage?
- (A) The early music movement has yet to resolve a number of troubling questions regarding its approach to the performance of music.
  - (B) The early music movement, while largely successful in its approach to the performance of medieval and baroque music, has yet to justify its use of obsolete instruments in the performance of music by Beethoven and Mozart.
  - (C) The early music approach to performance often assumes that composers write music that is perfectly tailored to the limitations of the instruments on which it will be performed during their lifetimes.
  - (D) Although advocates of early music know much about the instruments used to perform music at the time it was composed, they lack information regarding how the style of such performances has changed since such music was written.
  - (E) The early music movement has not yet fully exploited the knowledge that it has gained from playing music on instruments available at the time such music was composed.
15. In the second paragraph, the author discusses Beethoven's first piano concerto primarily in order to
- (A) Illustrate how piano music began to change in response to the extended range of pianos that became available during Beethoven's lifetime.

- (B) Illustrate how Beethoven's work failed to anticipate the changes in the design of instruments that were about to be made during his lifetime.
  - (C) Suggest that early music advocates commonly perform music using scores that do not reflect revisions made to the music years after it was originally composed.
  - (D) Illustrate how composers like Beethoven sometimes composed music that called for notes that could not be played on instruments that were currently available.
  - (E) Provide an example of a piano composition that is especially amenable to being played on piano available at the time the music was composed.
16. The author suggests that the final movements of symphonies by Mozart and Beethoven might be played more slowly by today's orchestras if which one of the following were to occur?
- (A) Orchestras were to use instruments no more advanced in design than those used by orchestras at the time Mozart and Beethoven composed their symphonies.
  - (B) Audiences were to return to the custom of applauding at the end of each movement of a symphony.
  - (C) Audiences were to reserve their most enthusiastic applause for the most brilliantly played finales.
  - (D) Conductors were to return to the practice of playing the chords on an orchestral piano to keep the orchestra together.
  - (E) Conductors were to conduct the symphonies in the manner in which Beethoven and Mozart had conducted them.
17. Which one of the following best describes the organization of the last paragraph?
- (A) A generalization is made evidence undermining it is presented, and a conclusion rejecting it is then drawn.
  - (B) A criticism is stated and then elaborated with two supporting examples.
  - (C) An assumption is identified and then evidence undermining its validity is presented.
  - (D) An assumption is identified and then evidence frequently provided in support of it is then critically evaluated.
  - (E) Two specific cases are presented and then a conclusion regarding their significance is drawn.
18. It can be inferred from the passage that the author's explanation in lines 50-54 would be most weakened if which one of the following were true?
- (A) Musicians who perform in modern orchestras generally receive more extensive training than did their nineteenth-century counterparts.
  - (B) Breaks between the movements of symphonies performed during the early nineteenth century often lasted longer than they do today because

- nineteenth-century musicians needed to retune their instruments between each movement.
- (C) Early nineteenth-century orchestral musicians were generally as concerned with the audience's response to their music as are the musicians who perform today in modern orchestras.
- (D) Early nineteenth-century audience applauded only perfunctorily after the first three movements of symphonies and conventionally withheld their most enthusiastic applause until the final movement was completed.
- (E) Early nineteenth-century audiences were generally more knowledgeable about music than are their modern counterparts.
19. It can be inferred from the passage that the author would be most likely to agree with which one of the following assertions regarding the early music recordings mentioned in the third paragraph?
- (A) These recordings fail to recognize that the last movements of Haydn's and Mozart's symphonies were often played slower in the eighteenth century than they are played today.
- (B) These recordings betray the influence of baroque musical style on those early music advocates who have recently turned their attention to the music of Haydn and Mozart.
- (C) By making audible the sound of an orchestral piano that was inaudible in eighteenth century performances, these recordings attempt to achieve aesthetic integrity at the expense of historical authenticity.
- (D) By making audible the sound of an orchestral piano that was inaudible in eighteenth century performances, these recordings unwittingly create music that is unlike what eighteenth century audiences heard.
- (E) These recordings suggest that at least some advocates of early music recognize that concepts of musical intensity and excitement have changed since Haydn and Mozart composed their symphonies.
20. The author suggests that the modern audience's tendency to withhold applause until the end of a symphony's performance is primarily related to which one of the following?
- (A) The replacement of the orchestral piano as a method of keeping the orchestra together.
- (B) A gradual increase since the time of Mozart and Beethoven in audiences' expectations regarding the ability of orchestral musicians.
- (C) A change since the early nineteenth century in audiences' concepts of musical excitement and intensity.
- (D) A more sophisticated appreciation of the structural integrity of the symphony as a piece of music.
- (E) The tendency of orchestral musicians to employ their most brilliant effects in the early.

Although the United States steel industry faces widely publicized economic problems that have eroded its steel production capacity, not all branches of the industry have been equally affected. The steel industry is not monolithic: it includes integrated producers, minimills, and specialty-steel mills. The integrated producers start with iron ore and coal and produce a wide assortment of shaped steels. The minimills reprocess scrap steel into a limited range of low-quality products, such as reinforcing rods for concrete. The specialty-steel mills are similar to minimills in that they tend to be smaller than the integrated producers and are based on scrap, but they manufacture much more expensive products than minimills do and commonly have an active in-house research-and-development effort.

Both minimills and specialty-steel mills have succeeded in avoiding the worst of the economic difficulties that are afflicting integrated steel producers, and some of the mills are quite profitable. Both take advantage of new technology for refining and casting steel, such as continuous casting, as soon as it becomes available. The minimills concentrate on producing a narrow range of products for sale in their immediate geographic area, whereas specialty-steel mills preserve flexibility in their operations in order to fulfill a customer's particular specifications.

Among the factors that constrain the competitiveness of integrated producers are excessive labor, energy, and capital costs, as well as manufacturing inflexibility. Their equipment is old and less automated, and does not incorporate many of the latest refinement in steelmaking technology. (For example, only about half of the United States integrated producers have continuous casters, which combine pouring and rolling into one operation and thus save the cost of separate rolling equipment.) One might conclude that the older labor-intensive machinery still operating in United States integrated plants is at fault for the poor performance of the United States industry, but this cannot explain why Japanese integrated producers, who produce a higher-quality product using less energy and labor, are also experiencing economic trouble. The fact is that the common technological denominator of integrated producers is an inherently inefficient process that is still rooted in the nineteenth century.

Integrated producers have been unable to compete successfully with minimills because the minimills, like specialty-steel mills, have dispensed almost entirely with the archaic energy and capital-intensive front end of integrated steelmaking: the iron-smelting process, including the mining and preparation of the raw materials and the blast-furnace operation. In addition, minimills have found a profitable way to market steel products: as indicated above, they sell their finished products locally, thereby reducing transportation costs, and concentrate on a limited range of shapes and sizes within a narrow group of products that can be manufactured economically. For these reasons, minimills have been able to avoid the economic decline affecting integrated steel producers.

21. Which one of the following best expresses the main idea of the passage?
- (A) United States steel producers face economic problems that are shared by producers in other nations.
  - (B) Minimills are the most successful steel producers because they best meet market demands for cheap steel.



- (C) Minimills and specialty-steel mills are more economically competitive than integrated producers because they use new technology and avoid the costs of the iron-smelting process.
- (D) United States steel producers are experiencing an economic decline that can be traced back to the nineteenth century.
- (E) New steelmaking technologies such as continuous casting will replace blast-furnace operations to reverse the decline in United States steel production.
22. The author mentions all of the following as features of minimills EXCEPT
- (A) flexibility in their operations
- (B) local sale of their products
- (C) avoidance of mining operations
- (D) use of new steel-refining technology
- (E) a limited range of low-quality products
23. The author of the passage refers to “Japanese integrated producers” (line 43) primarily in order to support the view that
- (A) different economic difficulties face the steel industries of different nations
- (B) not all integrated producers share a common technological denominator
- (C) labor-intensive machinery cannot be blamed for the economic condition of United States integrated steel producers
- (D) modern steelmaking technology is generally labor-and energy-efficient
- (E) labor-intensive machinery is an economic burden on United States integrated steel producers
24. Which one of the following best describes the organization of the third paragraph?
- (A) A hypothesis is proposed and supported; then an opposing view is presented and criticized.
- (B) A debate is described and illustrated; then a contrast is made and the debate is resolved.
- (C) A dilemma is described and cited as evidence for a broader criticism.
- (D) A proposition is stated and argued, then rejected in favor of a more general statement, which is supported with additional evidence.
- (E) General statements are made and details given; then an explanation is proposed and rejected, and an alternative is offered.
25. It can be inferred from the passage that United States specialty-steel mills generally differ from integrated steel producers in that the specialty-steel mills
- (A) sell products in a restricted geographical area
- (B) share the economic troubles of the minimills

- (C) resemble specialty-steel mills found in Japan
  - (D) concentrate on producing a narrow range of products
  - (E) do not operate blast furnaces
26. Each of the following describes an industry facing a problem also experienced by United States integrated steel producers EXCEPT
- (A) a paper-manufacturing company that experiences difficulty in obtaining enough timber and other raw materials to meet its orders
  - (B) a food-canning plant whose canning machines must constantly be tended by human operators
  - (C) a textile firm that spends heavily on capital equipment and energy to process raw cotton before it is turned into fabric
  - (D) a window-glass manufacturer that is unable to produce quickly different varieties of glass with special features required by certain customers
  - (E) a leather-goods company whose hand-operated cutting and stitching machines were manufactured in Italy in the 1920s
27. Which one of the following, if true, would best serve as supporting evidence for the author's explanation of the economic condition of integrated steel producers?
- (A) Those nations that derive a larger percentage of their annual steel production from minimills than the United States does also have a smaller per capita trade deficit.
  - (B) Many integrated steel producers are as adept as the specialty-steel mills at producing high-quality products to meet customer specifications.
  - (C) Integrated steel producers in the United States are rapidly adopting the production methods of Japanese integrated producers.
  - (D) Integrated steel producers in the United States are now attempting to develop a worldwide market by advertising heavily.
  - (E) Those nations in which iron-smelting operations are carried out independently of steel production must heavily subsidize those operations in order to make them profitable.

**LSAT 07 SECTION III****Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The labor force is often organized as if workers had no family responsibilities. Preschool-age children need full-time care; children in primary school need care after school and during school vacations. Although day-care services can resolve some scheduling conflicts between home and office, workers cannot always find or afford suitable care. Even when they

obtain such care, parents must still cope with emergencies, such as illnesses, that keep children at home. Moreover, children need more than tending; they also need meaningful time with their parents. Conventional full-time workdays, especially when combined with unavoidable household duties, are too inflexible for parents with primary child-care responsibility.

Although a small but increasing number of working men are single parents, those barriers against successful participation in the labor market that are related to primary child-care responsibilities mainly disadvantage women. Even in families where both parents work, cultural pressures are traditionally much greater on mothers than on fathers to bear the primary child-rearing responsibilities.

In reconciling child-rearing responsibilities with participation in the labor market, many working mothers are forced to make compromises. For example, approximately one-third of all working mothers are employed only part-time, even though part-time jobs are dramatically underpaid and often less desirable in comparison to full-time employment. Even though part-time work is usually available only in occupations offering minimal employee responsibility and little opportunity for advancement or self-enrichment, such employment does allow many women the time and flexibility to fulfill their family duties, but only at the expense of the advantages associated with full-time employment.

Moreover, even mothers with full-time employment must compromise opportunities in order to adjust to barriers against parents in the labor market. Many choose jobs entailing little challenge or responsibility or those offering flexible scheduling, often available only in poorly paid positions, while other working mothers, although willing and able to assume as much responsibility as people without children, find that their need to spend regular and predictable time with their children inevitably causes them to lose career opportunities to those without such demands. Thus, women in education are more likely to become teachers than school administrators, whose more conventional full-time work schedules do not correspond to the schedules of school-age children, while female lawyers are more likely to practice law in trusts and estates, where they can control their work schedules, than in litigation, where they cannot. Nonprofessional women are concentrated in secretarial work and department store sales, where their absences can be covered easily by substitutes and where they can enter and leave the work force with little loss, since the jobs offer so little personal gain. Indeed, as long as the labor market remains hostile to parents, and family roles continue to be allocated on the basis of gender, women will be seriously disadvantaged in that labor market.

1. Which one of the following best summarizes the main idea of the passage?
  - (A) Current trends in the labor force indicate that working parents, especially women, may not always need to choose between occupational and child-care responsibilities.
  - (B) In order for mothers to have an equal opportunity for advancement in the labor force, traditional family roles have to be reexamined and revised.
  - (C) Although single parents who work have to balance parental and career demands, single mothers suffer resulting employment disadvantages that single fathers can almost always avoid.
  - (D) Although child-care responsibilities disadvantage many women in the labor

force, professional women (such as teachers and lawyers) are better able to overcome this problem than are nonprofessional women.

- (E) Traditional work schedules are too inflexible to accommodate the child-care responsibilities of many parents, a fact that severely disadvantages women in the labor force.
2. Which one of the following statements about part-time work can be inferred from the information presented in the passage?
- (A) One-third of all part-time workers are working mothers.
- (B) Part-time work generally offers fewer opportunities for advancement to working mothers than to women generally.
- (C) Part-time work, in addition to having relatively poor wages, often requires that employees work during holidays, when their children are out of school.
- (D) Part-time employment, despite its disadvantages, provides working mothers with an opportunity to address some of the demands of caring for children.
- (E) Many mothers with primary child-care responsibility choose part-time jobs in order to better exploit full-time career opportunities after their children are grown.
3. It can be inferred from the passage that the author would be most likely to agree with which one of the following statements about working fathers in two-parent families?
- (A) They are equally burdened by the employment disadvantages placed upon all parents—male and female—in the labor market.
- (B) They are so absorbed in their jobs that they often do not see the injustice going on around them.
- (C) They are shielded by the traditional allocation of family roles from many of the pressures associated with child-rearing responsibilities.
- (D) They help compound the inequities in the labor market by keeping women from competing with men for career opportunities.
- (E) They are responsible for many of the problems of working mothers because of their insistence on traditional roles in the family.
4. Of the following, which one would the author most likely say is the most troublesome barrier facing working parents with primary child-care responsibility?
- (A) the lack of full-time jobs open to women
- (B) the inflexibility of work schedules
- (C) the low wages of part-time employment
- (D) the limited advancement opportunities for nonprofessional employees
- (E) the practice of allocating responsibilities in the workplace on the basis of gender

5. The passage suggests that day care is at best a limited solution to the pressures associated with child rearing for all of the following reasons EXCEPT:
- (A) Even the best day care available cannot guarantee that children will have meaningful time with their parents.
  - (B) Some parents cannot afford day-care services.
  - (C) Working parents sometimes have difficulty finding suitable day care for their children.
  - (D) Parents who send their children to day care still need to provide care for their children during vacations.
  - (E) Even children who are in day care may have to stay home when they are sick.
6. According to the passage, many working parents may be forced to make any of the following types of career decisions EXCEPT
- (A) declining professional positions for nonprofessional ones, which typically have less conventional work schedules
  - (B) accepting part-time employment rather than full-time employment
  - (C) taking jobs with limited responsibility, and thus more limited career opportunities, in order to have a more flexible schedule
  - (D) pursuing career specializations that allow them to control their work schedules instead of pursuing a more desirable specialization in the same field
  - (E) limiting the career potential of one parent, often the mother, who assumes greater child-care responsibility
7. Which one of the following statements would most appropriately continue the discussion at the end of the passage?
- (A) At the same time, most men will remain better able to enjoy the career and salary opportunities offered by the labor market.
  - (B) Of course, men who are married to working mothers know of these employment barriers but seem unwilling to do anything about them.
  - (C) On the other hand, salary levels may become more equitable between men and women even if the other career opportunities remain more accessible to men than to women.
  - (D) On the contrary, men with primary child-rearing responsibilities will continue to enjoy more advantages in the workplace than their female counterparts.
  - (E) Thus, institutions in society that favor men over women will continue to widen the gap between the career opportunities available for men and for women.

Critics have long been puzzled by the inner contradictions of major characters in John Webster's tragedies. In his *The Duchess of Malfi*, for instance, the Duchess is "good" in demonstrating the obvious tenderness and sincerity of her love for Antonio, but "bad" in ignoring the wishes and welfare of her family and in making religion a "cloak" hiding worldly

self-indulgence. Bosola is “bad” in serving Ferdinand, “good” in turning the Duchess’ thoughts toward heaven and in planning to avenge her murder. The ancient Greek philosopher Aristotle implied that such contradictions are virtually essential to the tragic personality, and yet critics keep coming back to this element of inconsistency as though it were an eccentric feature of Webster’s own tragic vision.

The problem is that, as an Elizabethan playwright, Webster has become a prisoner of our critical presuppositions. We have, in recent years, been dazzled by the way the earlier Renaissance and medieval theater, particularly the morality play, illuminates Elizabethan drama. We now understand how the habit of mind that saw the world as a battleground between good and evil produced the morality play. Morality plays allegorized that conflict by presenting characters whose actions were defined as the embodiment of good or evil. This model of reality **lived on**, overlaid by different conventions, in the most sophisticated Elizabethan works of the following age. Yet Webster seems not to have been as heavily influenced by the morality play’s model of reality as were his Elizabethan contemporaries; he was apparently more sensitive to the more morally complicated Italian drama than to these English sources. Consequently, his characters cannot be evaluated according to reductive formulas of good and evil, which is precisely what modern critics have tried to do. They choose what seem to be the most promising of the contradictor values that are dramatized in the play, and treat those values as if they were the only basis for analyzing the moral development of the play’s major characters, attributing the inconsistencies in a character’s behavior to artistic incompetence on Webster’s part. The lack of consistency in Webster’s characters can be better understood if we recognize that the ambiguity at the heart of his tragic vision lies not in the external world but in the duality of human nature. Webster establishes tension in his plays by setting up conflicting systems of value that appear immoral only when one value system is viewed exclusively from the perspective of the other. He presents us not only with characters that we condemn intellectually or ethically and at the same time impulsively approve of, but also with judgments we must accept as logically sound and yet find emotionally repulsive. The dilemma is not only dramatic: it is tragic, because the conflict is irreconcilable, and because it is ours as much as that of the characters.

8. The primary purpose of the passage is to
- (A) clarify an ambiguous assertion
  - (B) provide evidence in support of a commonly held view
  - (C) analyze an unresolved question and propose an answer
  - (D) offer an alternative to a flawed interpretation
  - (E) describe and categorize opposing viewpoints
9. The author suggests which one of the following about the dramatic works that most influenced Webster’s tragedies?
- (A) They were not concerned with dramatizing the conflict between good and evil that was presented in morality plays.
  - (B) They were not as sophisticated as the Italian sources from which other Elizabethan tragedies were derived.



- (C) They have never been adequately understood by critics.
- (D) They have only recently been used to illuminate the conventions of Elizabethan drama.
- (E) They have been considered by many critics to be the reason for Webster's apparent artistic incompetence.
10. The author's allusion to Aristotle's view of tragedy in lines 11-13 serves which one of the following functions in the passage?
- (A) It introduces a commonly held view of Webster's tragedies that the author plans to defend.
- (B) It supports the author's suggestion that Webster's conception of tragedy is not idiosyncratic.
- (C) It provides an example of an approach to Webster's tragedies that the author criticizes.
- (D) It establishes the similarity between classical and modern approaches to tragedy.
- (E) It supports the author's assertion that Elizabethan tragedy cannot be fully understood without the help of recent scholarship.
11. It can be inferred from the passage that modern critics' interpretations of Webster's tragedies would be more valid if
- (A) the ambiguity inherent in Webster's tragic vision resulted from the duality of human nature
- (B) Webster's conception of the tragic personality were similar to that of Aristotle
- (C) Webster had been heavily influenced by the morality play
- (D) Elizabethan dramatists had been more sensitive to Italian sources of influence
- (E) the inner conflicts exhibited by Webster's characters were similar to those of modern audiences
12. With which one of the following statements regarding Elizabethan drama would the author be most likely to agree?
- (A) The skill of Elizabethan dramatists has in recent years been overestimated.
- (B) The conventions that shaped Elizabethan drama are best exemplified by Webster's drama.
- (C) Elizabethan drama, for the most part, can be viewed as being heavily influenced by the morality play.
- (D) Only by carefully examining the work of his Elizabethan contemporaries can Webster's achievement as a dramatist be accurately measured.
- (E) Elizabethan drama can best be described as influenced by a composite of Italian and classical sources.
13. It can be inferred from the passage that most modern critics assume which one of the following in their interpretation of Webster's tragedies?

- (A) Webster's play tended to allegorize the conflict between good and evil more than did those of his contemporaries.
- (B) Webster's plays were derived more from Italian than from English sources.
- (C) The artistic flaws in Webster's tragedies were largely the result of his ignorance of the classical definition of tragedy.
- (D) Webster's tragedies provide no relevant basis for analyzing the moral development of their characters.
- (E) In writing his tragedies, Webster was influenced by the same sources as his contemporaries.

14. The author implies that Webster's conception of tragedy was

- (A) artistically flawed
- (B) highly conventional
- (C) largely derived from the morality play
- (D) somewhat different from the conventional Elizabethan conception of tragedy
- (E) uninfluenced by the classical conception of tragedy

Cultivation of a single crop on a given tract of land leads eventually to decreased yields. One reason for this is that harmful bacterial phytopathogens, organisms parasitic on plant hosts, increase in the soil surrounding plant roots. The problem can be cured by crop rotation, denying the pathogens a suitable host for a period of time. However, even if crops are not rotated, the severity of diseases brought on by such phytopathogens often decreases after a number of years as the microbial population of the soil changes and the soil becomes "suppressive" to those diseases. While there may be many reasons for this phenomenon, it is clear that levels of certain bacteria, such as *Pseudomonas fluorescens*, a bacterium antagonistic to a number of harmful phytopathogens, are greater in suppressive than in nonsuppressive soil. This suggests that the presence of such bacteria suppresses phytopathogens. There is now considerable experimental support for this view. Wheat yield increases of 27 percent have been obtained in field trials by treatment of wheat seeds with fluorescent pseudomonads. Similar treatment of sugar beets, cotton, and potatoes has had similar results.

These improvements in crop yields through the application of *Pseudomonas fluorescens* suggest that agriculture could benefit from the use of bacteria genetically altered for specific purposes. For example, a form of phytopathogen altered to remove its harmful properties could be released into the environment in quantities favorable to its competing with and eventually excluding the harmful normal strain. Some experiments suggest that deliberately releasing altered nonpathogenic *Pseudomonas syringae* could **crowd out** the nonaltered variety that causes frost damage. Opponents of such research have objected that the deliberate and large-scale release of genetically altered bacteria might have deleterious results. Proponents, on the other hand, argue that this particular strain is altered only by the removal of the gene responsible for the strain's propensity to cause frost damage, thereby rendering it safer than the phytopathogen from which it was derived.

Some proponents have gone further and suggest that genetic alteration techniques could create organisms with totally new combinations of desirable traits not found in nature. For

example, genes responsible for production of insecticidal compounds have been transposed from other bacteria into pseudomonads that colonize corn roots. Experiments of this kind are difficult and require great care: such bacteria are developed in highly artificial environments and may not compete well with natural soil bacteria. Nevertheless, proponents contend that the prospects for improved agriculture through such methods seem excellent. These prospects lead many to hope that current efforts to assess the risks of deliberate release of altered microorganisms will successfully answer the concerns of opponents and create a climate in which such research can go forward without undue impediment.

15. Which one of the following best summarizes the main idea of the passage?
- (A) Recent field experiments with genetically altered *Pseudomonas* bacteria have shown that releasing genetically altered bacteria into the environment would not involve any significant danger.
  - (B) Encouraged by current research, advocates of agricultural use of genetically altered bacteria are optimistic that such use will eventually result in improved agriculture, though opponents remain wary.
  - (C) Current research indicates that adding genetically altered *Pseudomonas syringae* bacteria to the soil surrounding crop plant roots will have many beneficial effects, such as the prevention of frost damage in certain crops.
  - (D) Genetic alteration of a number of harmful phytopathogens has been advocated by many researchers who contend that these techniques will eventually replace such outdated methods as crop rotation.
  - (E) Genetic alteration of bacteria has been successful in highly artificial laboratory conditions, but opponents of such research have argued that these techniques are unlikely to produce organisms that are able to survive in natural environments.
16. The author discusses naturally occurring *Pseudomonas fluorescens* bacteria in the first paragraph primarily in order to do which one of the following?
- (A) prove that increases in the level of such bacteria in the soil are the sole cause of soil suppressivity
  - (B) explain why yields increased after wheat fields were sprayed with altered *Pseudomonas fluorescens* bacteria
  - (C) detail the chemical processes that such bacteria use to suppress organisms parasitic to crop plants, such as wheat, sugar beets, and potatoes
  - (D) provide background information to support the argument that research into the agricultural use of genetically altered bacteria would be fruitful
  - (E) argue that crop rotation is unnecessary, since diseases brought on by phytopathogens diminish in severity and eventually disappear on their own
17. It can be inferred from the author's discussion of *Pseudomonas fluorescens* bacteria that which one of the following would be true of crops impervious to parasitical organisms?
- (A) *Pseudomonas fluorescens* bacteria would be absent from the soil surrounding

- their roots.
- (B) They would crowd out and eventually exclude other crop plants if their growth were not carefully regulated.
  - (C) Their yield would not be likely to be improved by adding *Pseudomonas fluorescens* bacteria to the soil.
  - (D) They would mature more quickly than crop plants that were susceptible to parasitical organisms.
  - (E) Levels of phytopathogenic bacteria in the soil surrounding their roots would be higher compared with other crop plants.
18. It can be inferred from the passage that crop rotation can increase yields in part because
- (A) moving crop plants around makes them hardier and more resistant to disease
  - (B) the number of *Pseudomonas fluorescens* bacteria in the soil usually increases when crops are rotated
  - (C) the roots of many crop plants produce compounds that are antagonistic to phytopathogens harmful to other crop plants
  - (D) the presence of phytopathogenic bacteria is responsible for the majority of plant diseases
  - (E) phytopathogens typically attack some plant species but find other species to be unsuitable hosts
19. According to the passage, proponents of the use of genetically altered bacteria in agriculture argue that which one of the following is true of the altered bacteria used in the frost-damage experiments?
- (A) The altered bacteria had a genetic constitution differing from that of the normal strain only in that the altered variety had one less gene.
  - (B) Although the altered bacteria competed effectively with the nonaltered strain in the laboratory, they were not as viable in natural environments.
  - (C) The altered bacteria were much safer and more effective than the naturally occurring *Pseudomonas fluorescens* bacteria used in earlier experiments.
  - (D) The altered bacteria were antagonistic to several types of naturally occurring phytopathogens in the soil surrounding the roots of frost-damaged crops.
  - (E) The altered bacteria were released into the environment in numbers sufficient to guarantee the validity of experimental results.
20. Which one of the following, if true, would most seriously weaken the proponents' argument regarding the safety of using altered *Pseudomonas syringae* bacteria to control frost damage?
- (A) *Pseudomonas syringae* bacteria are primitive and have a simple genetic constitution.
  - (B) The altered bacteria are derived from a strain that is parasitic to plants and can cause damage to crops.

- (C) Current genetic-engineering techniques permit the large-scale commercial production of such bacteria.
- (D) Often genes whose presence is responsible for one harmful characteristic must be present in order to prevent other harmful characteristics.
- (E) The frost-damage experiments with *Pseudomonas syringae* bacteria indicate that the altered variety would only replace the normal strain if released in sufficient numbers.

In 1887 the Dawes Act legislated wide-scale private ownership of reservation lands in the United States for Native Americans. The act allotted plots of 80 acres to each Native American adult. However, the Native Americans were not granted outright title to their lands. The act defined each grant as a “trust patent,” meaning that the Bureau of Indian Affairs (BIA), the governmental agency in charge of administering policy regarding Native Americans, would hold the allotted land **in trust** for 25 years, during which time the Native American owners could use, but not alienate (sell) the land. After the 25-year period, the Native American allottee would receive a “fee patent” awarding full legal ownership of the land.

Two main reasons were advanced for the restriction on the Native Americans’ ability to sell their lands. First, it was claimed that free alienability would lead to immediate transfer of large amounts of former reservation land to non-Native Americans, consequently threatening the traditional way of life on those reservations. A second objection to free alienation was that Native Americans were unaccustomed to, and did not desire, a system of private landownership. Their custom, it was said, favored communal use of land.

However, both of these arguments bear only on the transfer of Native American lands to non-Native Americans: neither offers a reason for prohibiting Native Americans from transferring land among themselves. Selling land to each other would not threaten the Native American culture. Additionally, if communal land use remained preferable to Native Americans after allotment, free alienability would have allowed allottees to sell their lands back to the tribe.

When stated rationales for government policies prove empty, using an interest-group model often provides an explanation. While neither Native Americans nor the potential non-Native American purchasers benefited from the restraint on alienation contained in the Dawes Act, one clearly defined group did benefit: the BIA bureaucrats. It has been convincingly demonstrated that bureaucrats seek to maximize the size of their staffs and their budgets in order to compensate for the lack of other sources of fulfillment, such as power and prestige. Additionally, politicians tend to favor the growth of governmental bureaucracy because such growth provides increased opportunity for the exercise of political patronage. The restraint on alienation vastly increased the amount of work, and hence the budgets, necessary to implement the statute. Until allotment was ended in 1934, granting fee patents and leasing Native American lands were among the principal activities of the United States government. One hypothesis, then, for the temporary restriction on alienation in the Dawes Act is that it reflected a compromise between non-Native Americans favoring immediate alienability so they could purchase land and the BIA bureaucrats who administered the privatization system.

21. Which one of the following best summarizes the main idea of the passage?



- (A) United States government policy toward Native Americans has tended to disregard their needs and consider instead the needs of non-Native American purchasers of land.
  - (B) In order to preserve the unique way of life on Native American reservations, use of Native American lands must be communal rather than individual.
  - (C) The Dawes Act's restriction on the right of Native Americans to sell their land may have been implemented primarily to serve the interests of politicians and bureaucrats.
  - (D) The clause restricting free alienability in the Dawes Act greatly expanded United States governmental activity in the area of land administration.
  - (E) Since passage of the Dawes Act in 1887, Native Americans have not been able to sell or transfer their former reservation land freely.
22. Which one of the following statements concerning the reason for the end of allotment, if true, would provide the most support for the author's view of politicians?
- (A) Politicians realized that allotment was damaging the Native American way of life.
  - (B) Politicians decided that allotment would be more congruent with the Native American custom of communal land use.
  - (C) Politicians believed that allotment's continuation would not enhance their opportunities to exercise patronage.
  - (D) Politicians felt that the staff and budgets of the BIA had grown too large.
  - (E) Politicians were concerned that too much Native American land was falling into the hands of non-Native Americans.
23. Which one of the following best describes the organization of the passage?
- (A) The passage of a law is analyzed in detail, the benefits and drawbacks of one of its clauses are studied, and a final assessment of the law is offered.
  - (B) The history of a law is narrated, the effects of one of its clauses on various populations are studied, and repeal of the law is advocated
  - (C) A law is examined, the political and social backgrounds of one of its clauses are characterized, and the permanent effects of the law are studied.
  - (D) A law is described, the rationale put forward for one of its clauses is outlined and dismissed, and a different rationale for the clause is presented.
  - (E) The legal status of an ethnic group is examined with respect to issues of landownership and commercial autonomy, and the benefits to rival groups due to that status are explained.
24. The author's attitude toward the reasons advanced for the restriction on alienability in the Dawes Act at the time of its passage can best be described as
- (A) completely credulous
  - (B) partially approving



- (C) basically indecisive  
(D) mildly questioning  
(E) highly skeptical
25. It can be inferred from the passage that which one of the following was true of Native American life immediately before passage of the Dawes Act?
- (A) Most Native Americans supported themselves through farming.  
(B) Not many Native Americans personally owned the land on which they lived.  
(C) The land on which most Native Americans lived had been bought from their tribes.  
(D) Few Native Americans had much contact with their non-Native American neighbors.  
(E) Few Native Americans were willing to sell their land to non-Native Americans.
26. According to the passage, the type of landownership initially obtainable by Native Americans under the Dawes Act differed from the type of ownership obtainable after a 25-year period in that only the latter allowed
- (A) owners of land to farm it  
(B) owners of land to sell it  
(C) government some control over how owners disposed of land  
(D) owners of land to build on it with relatively minor governmental restrictions  
(E) government to charge owners a fee for developing their land
27. Which of the following, if true, would most strengthen the author's argument regarding the true motivation for the passage of the Dawes Act?
- (A) The legislators who voted in favor of the Dawes Act owned land adjacent to Native American reservations.  
(B) The majority of Native Americans who were granted fee patents did not sell their land back to their tribes.  
(C) Native Americans managed to preserve their traditional culture even when they were geographically dispersed.  
(D) The legislators who voted in favor of the Dawes Act were heavily influenced by BIA bureaucrats.  
(E) Non-Native Americans who purchased the majority of Native American lands consolidated them into larger farm holdings.

**LSAT 08 SECTION III**

**Time 35 minutes 28 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best*

*answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The law-and-literature movement claims to have introduced a valuable pedagogical innovation into legal study: instructing students in techniques of literary analysis for the purpose of interpreting laws and in the reciprocal use of legal analysis for the purpose of interpreting literary texts. The results, according to advocates, are not only conceptual breakthroughs in both law and literature but also more sensitive and humane lawyers. Whatever the truth of this last claim, there can be no doubt that the movement is a success: law-and-literature is an accepted subject in law journals and in leading law schools. Indeed, one indication of the movement's strength is the fact that its most distinguished critic, Richard A. Posner, paradoxically ends up expressing qualified support for the movement in a recent study in which he systematically refutes the writings of its leading legal scholars and cooperating literary critics.

Critiquing the movement's assumption that lawyers can offer special insights into literature that deals with legal matters, Posner points out that writers of literature use the law loosely to convey a particular idea or as a metaphor for the workings of the society envisioned in their fiction. Legal questions per se, about which a lawyer might instruct readers, are seldom at issue in literature. This is why practitioners of law-and-literature end up discussing the law itself far less than one might suppose. Movement leader James White, for example, in his discussion of arguments in the *Iliad*, barely touches on law, and then so generally as to render himself vulnerable to Posner's devastating remark that "any argument can be analogized to a legal dispute."

Similarly, the notion that literary criticism can be helpful in interpreting law is problematic. Posner argues that literary criticism in general aims at exploring richness and variety of meaning in texts, whereas legal interpretation aims at discovering a single meaning. A literary approach can thus only confuse the task of interpreting the law, especially if one adopts current fashions like *deconstruction*, which holds that all texts are inherently uninterpretable.

Nevertheless, Posner writes that law-and-literature is a field with "promise". Why? Perhaps, recognizing the success of a movement that, in the past, has singled him out for abuse, he is attempting to appease his detractors, paying obeisance to the movement's institutional success by declaring that it "deserves a place in legal research" while leaving it to others to draw the conclusion from his cogent analysis that it is an entirely factitious undertaking, deserving of no intellectual respect whatsoever. As a result, his work stands both as a rebuttal of law-and-literature and as a tribute to the power it has come to exercise in academic circles.

1. The primary purpose of the passage is to
  - (A) assess the law-and-literature movement by examining the position of one of its most prominent critics
  - (B) assert that a mutually beneficial relationship exists between the study of law and the study of literature
  - (C) provide examples of the law-and-literature movement in practice by discussing the work of its proponents
  - (D) dismiss a prominent critic's recent study of the law-and-literature movement

- (E) describe the role played by literary scholars in providing a broader context for legal issues
2. Posner's stated position **with regard to** the law-and-literature movement is most analogous to which one of the following?
- (A) a musician who is trained in the classics but frequently plays modern music while performing on stage
  - (B) a partisan who transfers allegiance to a new political party that demonstrates more promise but has fewer documented accomplishments
  - (C) a sports fan who wholeheartedly supports the team most likely to win rather than his or her personal favorite
  - (D) an ideologue who remains committed to his or her own view of a subject in spite of compelling evidence to the contrary
  - (E) a salesperson who describes the faults in a fashionable product while conceding that it may have some value
3. The passage suggests that Posner regards legal practitioners as using an approach to interpreting law that
- (A) eschews discovery of multiple meanings
  - (B) employs techniques like *deconstruction*
  - (C) interprets laws in light of varying community standards
  - (D) is informed by the positions of literary critics
  - (E) de-emphasizes the social relevance of the legal tradition
4. The Passage suggests that Posner might find legal training useful in the interpretation of a literary text in which
- (A) a legal dispute symbolizes the relationship between two characters
  - (B) an oppressive law is used to symbolize an oppressive culture
  - (C) one of the key issues involves the answer to a legal question
  - (D) a legal controversy is used to represent a moral conflict
  - (E) the working of the legal system suggests something about the political character of a society
5. The author uses the word "success" in line 11 to refer to the law-and-literature movement's
- (A) positive effect on the sensitivity of lawyers
  - (B) widespread acceptance by law schools and law journals
  - (C) ability to offer fresh insights into literary texts
  - (D) ability to encourage innovative approaches in two disciplines
  - (E) response to recent criticism in law journals
6. According to the passage, Posner argues that legal analysis is not generally useful in interpreting literature because

- (A) use of the law in literature is generally of a quite different nature than use of the law in legal practice
  - (B) law is rarely used to convey important ideas in literature
  - (C) lawyers do not have enough literary training to analyze literature competently
  - (D) legal interpretations of literature tend to focus on legal issues to the exclusion of other important elements
  - (E) legal interpretations are only relevant to contemporary literature
7. According to Posner, the primary difficulty in using literary criticism to interpret law is that
- (A) the goals of the two disciplines are incompatible
  - (B) there are few advocates for the law-and-literature movement in the literary profession
  - (C) the task of interpreting law is too complex for the techniques of literary criticism
  - (D) the interpretation of law relies heavily on legal precedent
  - (E) legal scholars are reluctant to adopt the practice in the classroom

A recent generation of historians of science, far from portraying accepted scientific views as objectively accurate reflections of a natural world, explain the acceptance of such views in terms of the ideological biases of certain influential scientists or the institutional and rhetorical power such scientists wield. As an example of ideological bias, it has been argued that Pasteur rejected the theory of **spontaneous generation** not because of experimental evidence but because he rejected the materialist ideology implicit in that doctrine. These historians seem to find allies in certain philosophers of science who argue that scientific views are not imposed by reality but are free inventions of creative minds, and that scientific claims are never more than brave conjectures, always subject to inevitable future falsification. While these philosophers of science themselves would not be likely to have much truck with the recent historians, it is an easy step from their views to the extremism of the historians.

While this rejection of the traditional belief that scientific views are objective reflections of the world may be fashionable, it is deeply implausible. We now know, for example, that water is made of hydrogen and oxygen and that parents each contribute one-half of their children's complement of genes. I do not believe any serious-minded and informed person can claim that these statements are not factual descriptions of the world or that they will inevitably be falsified.

However, science's accumulation of lasting truths about the world is not **by any means** a straightforward matter. We certainly need to get beyond the naive view that the truth will automatically reveal itself to any scientist who looks in the right direction; most often, in fact, a whole series of prior discoveries is needed to tease reality's truths from experiment and observation. And the philosophers of science mentioned above are quite right to argue that new scientific ideas often correct old ones by indicating errors and imprecision (as, say, Newton's ideas did to Kepler's). Nor would I deny that there are interesting questions to be answered about the social processes in which scientific activity is embedded. The persuasive processes by

which particular scientific groups establish their experimental results as authoritative are themselves social activities and can be rewardingly studied as such. Indeed, much of the new work in the history of science has been extremely revealing about the institutional interactions and rhetorical devices that help determine whose results achieve prominence.

But one can accept all this without accepting the thesis that natural reality never plays any part at all in determining what scientists believe. What the new historians ought to be showing us is how those doctrines that do in fact fit reality work their way through the complex social processes of scientific activity to eventually receive general scientific acceptance.

8. It can be inferred from the passage that the author would be most likely to agree with which one of the following characterizations of scientific truth?
- (A) It is often implausible.
  - (B) It is subject to inevitable falsification.
  - (C) It is rarely obvious and transparent.
  - (D) It is rarely discovered by creative processes.
  - (E) It is less often established by experimentation than by the rhetorical power of scientists.
9. According to the passage, Kepler's ideas provide an example of scientific ideas that were
- (A) corrected by subsequent inquiries
  - (B) dependent on a series of prior observations
  - (C) originally thought to be imprecise and then later confirmed
  - (D) established primarily by the force of an individual's rhetorical power
  - (E) specifically taken up for the purpose of falsification by later scientists
10. In the third paragraph of the passage, the author is primarily concerned with
- (A) presenting conflicting explanations for a phenomenon
  - (B) suggesting a field for possible future research
  - (C) qualifying a previously expressed point of view
  - (D) providing an answer to a theoretical question
  - (E) attacking the assumptions that underlie a set of beliefs
11. The use of the words "any serious-minded and informed person" (lines 28-29) serves which one of the following functions in the context of the passage?
- (A) to satirize chronologically earlier notions about the composition of water
  - (B) to reinforce a previously stated opinion about certain philosophers of science
  - (C) to suggest the author's reservations about the "traditional belief" mentioned in line 22
  - (D) to anticipate objections from someone who would argue for an objectively accurate description of the world
  - (E) to discredit someone who would argue that certain scientific assertions do not

factually describe reality

12. It can be inferred from the passage that the author would most likely agree with which one of the following statements about the relationship between the views of “certain philosophers of science” (lines 12-13) and those of the recent historians?
- (A) These two views are difficult to differentiate.
  - (B) These two views share some similarities.
  - (C) The views of the philosophers ought to be seen as the source of the historians’ views.
  - (D) Both views emphasize the rhetorical power of scientists.
  - (E) The historians explicitly acknowledge that their views are indebted to those of the philosophers.
13. Which one of the following best characterizes the author’s assessment of the opinions of the new historians of science, as these opinions are presented in the passage?
- (A) They lack any credibility.
  - (B) They themselves can be rewardingly studied as social phenomena.
  - (C) They are least convincing when they concern the actions of scientific groups.
  - (D) Although they are gross overstatements, they lead to some valuable insights.
  - (E) Although they are now popular, they are likely to be refused soon.
14. In concluding the passage, the author does which one of the following?
- (A) offers a prescription
  - (B) presents a paradox
  - (C) makes a prediction
  - (D) concedes an argument
  - (E) anticipates objections
15. The authors attitude toward the “thesis” mentioned in line 56 is revealed in which one of the following pairs of words?
- (A) “biases” (line 5) and “rhetorical” (line 6)
  - (B) “wield” (line 7) and “falsification” (line 17)
  - (C) “conjectures” (line 16) and “truck with” (line 19)
  - (D) “extremism” (line 20) and “implausible” (line 24)
  - (E) “naive” (line 35) and “errors’ (line 42)

Until recently, it was thought that the Cherokee, a Native American tribe, were compelled to assimilate Euro-American culture during the 1820s. During that decade, it was supposed, White missionaries arrived and, together with their part-Cherokee intermediaries, imposed the benefits of “civilization” on Cherokee tribes while the United States government actively promoted acculturation by encouraging the Cherokee to switch from hunting to settled



agriculture. This view was based on the assumption that the end of a Native American group's economic and political autonomy would automatically mean the end of its cultural autonomy as well.

William G. McLaughlin has recently argued that not only did Cherokee culture flourish during and after the 1820s, but the Cherokee themselves actively and continually reshaped their culture. Missionaries did have a decisive impact during these years, he argues, but that impact was far from what it was intended to be. The missionaries' tendency to cater to the interests of an acculturating part-Cherokee elite (who comprised the bulk of their converts) at the expense of the more traditionalist full-Cherokee majority created great intratribal tensions. As the elite initiated reforms designed to legitimize their own and the Cherokee Nation's place in the new republic of the United States, antission Cherokee reacted by fostering revivals of traditional religious beliefs and practices. However, these revivals did not, according to McLaughlin, undermine the elitist reforms, but supplemented them with popular traditionalist counterparts.

Traditionalist Cherokee did not reject the elitist reforms outright, McLaughlin argues, simply because they recognized that there was more than one way to use the skills the missionaries could provide them. As he quotes one group as saying, "We want our children to learn English so that the White man cannot cheat us." Many traditionalists Cherokee welcomed the missionaries for another reason: they perceived that it would be useful to have White allies. In the end, McLaughlin asserts, most members of the Cherokee council, including traditionalists, supported a move which preserved many of the reforms of the part-Cherokee elite but limited the activities and influence of the missionaries and other White settlers. According to McLaughlin, the identity and culture that resulted were distinctively Cherokee, yet reflected the larger political and social setting in which they flourished.

Because his work concentrates on the nineteenth century, McLaughlin unfortunately overlooks earlier sources of influence, such as eighteen-century White resident traders and neighbors, thus obscuring the relative impact of the missionaries of the 1820s in contributing to both acculturation and resistance to it among the Cherokee. However, McLaughlin is undoubtedly correct in recognizing that culture is an ongoing process rather than a static entity, and he has made a significant contribution to our understanding of how Cherokee culture changed while retaining its essential identity after confronting the missionaries.

16. Which one of the following best states the main idea of the passage?
- (A) McLaughlin's studies of the impact of missionaries on Cherokee culture during the 1820s are fundamentally flawed, since McLaughlin ignores the greater impact of White resident traders in the eighteenth century.
  - (B) Though his work is limited in perspective, McLaughlin is substantially correct that changes in Cherokee culture in the 1820s were mediated by the Cherokee themselves rather than simply imposed by the missionaries.
  - (C) Although McLaughlin is correct in asserting that cultural changes among the Cherokee were autonomous and so not a result of the presence of missionaries, he overemphasizes the role of intertribal conflicts.
  - (D) McLaughlin has shown that Cherokee culture not only flourished during and

after the 1820s, but that changes in Cherokee culture during this time developed naturally from elements already present in Cherokee culture.

- (E) Although McLaughlin overlooks a number of relevant factors in Cherokee cultural change in the 1820s, he convincingly demonstrates that these changes were fostered primarily by missionaries.
17. Which one of the following statements regarding the Cherokee council in the 1820s can be inferred from the passage?
- (A) Members of the Cherokee council were elected democratically by the entire Cherokee Nation.
- (B) In order for a policy to come into effect for the Cherokee Nation, it had to have been approved by a unanimous vote of the Cherokee council.
- (C) Despite the fact that the Cherokee were dominated politically and economically by the United States in the 1820s, the Cherokee council was able to override policies set by the United States government.
- (D) Though it did not have complete autonomy in governing the Cherokee Nation, it was able to set some policies affecting the activities of White people living in tribal areas.
- (E) The proportions of traditionalist and acculturating Cherokee in the Cherokee council were determined by the proportions of traditionalist and acculturating Cherokee in the Cherokee population.
18. Which one of the following statements regarding the attitudes of traditionalist Cherokee toward the reforms that were instituted in the 1820s can be inferred from the passage?
- (A) They supported the reforms merely as a way of placating the increasingly vocal acculturating elite.
- (B) They thought that the reforms would lead to the destruction of traditional Cherokee culture but felt powerless to stop the reforms.
- (C) They supported the reforms only because they thought that they were inevitable and it was better that the reforms appear to have been initiated by the Cherokee themselves.
- (D) They believed that the reforms were a natural extension of already existing Cherokee traditions.
- (E) They viewed the reforms as a means of preserving the Cherokee Nation and protecting it against exploitation.
19. According to the passage, McLaughlin cites which one of the following as a contributing factor in the revival of traditional religious beliefs among the Cherokee in the 1820s?
- (A) Missionaries were gaining converts at an increasing rate as the 1820s progressed.
- (B) The traditionalist Cherokee majority thought that most of the reforms initiated

- by the missionaries' converts would corrupt Cherokee culture.
- (C) Missionaries unintentionally created conflict among the Cherokee by favoring the interests of the acculturating elite at the expense of the more traditionalist majority.
- (D) Traditionalist Cherokee recognized that only some of the reforms instituted by a small Cherokee elite would be beneficial to all Cherokee.
- (E) A small group of Cherokee converted by missionaries attempted to institute reforms designed to acquire political supremacy for themselves in the Cherokee council.
20. Which one of the following, if true, would most seriously undermine McLaughlin's account of the course of reform among the Cherokee during the 1820s?
- (A) Traditionalist Cherokee gained control over the majority of seats on the Cherokee council during the 1820s.
- (B) The United States government took an active interest in political and cultural developments within Native American tribes.
- (C) The missionaries living among the Cherokee in the 1820s were strongly in favor of the cultural reforms initiated by the acculturating elite.
- (D) Revivals of traditional Cherokee religious beliefs and practices began late in the eighteenth century, before the missionaries arrived.
- (E) The acculturating Cherokee elite of the 1820s did not view the reforms they initiated as beneficial to all Cherokee.
21. It can be inferred from the author's discussion of McLaughlin's views that the author thinks that Cherokee acculturation in the 1820s
- (A) was reversed in the decades following the 1820s
- (B) may have been part of an already-existing process of acculturation
- (C) could have been the result of earlier contacts with missionaries
- (D) would not have occurred without the encouragement of the United States government
- (E) was primarily a result of the influence of White traders living near the Cherokee

In the history of nineteenth-century landscape painting in the United States, the Luminists are distinguished by their focus on atmosphere and light. The accepted view of Luminist paintings is that they are basically spiritual and imply a tranquil mysticism that contrasts with earlier American artists' concept of nature as dynamic and energetic. According to this view, the Luminist atmosphere, characterized by "pure and constant light," guides the onlooker toward a lucid transcendentalism, an idealized vision of the world.

What this view fails to do is to identify the true significance of this transcendental atmosphere in Luminist paintings. The prosaic factors that are revealed by a closer examination of these works suggest that the glowing appearance of nature in Luminism is actually a sign of

nature's domestication, its adaptation to human use. The idealized Luminist atmosphere thus seems to convey, not an intensification of human responses to nature, but rather a muting of those emotions, like awe and fear, which untamed nature elicits.

One critic, in describing the spiritual quality of harbor scenes by Fitz Hugh Lane, an important Luminist, carefully notes that "at the peak of Luminist development in the 1850s and 1860s, spiritualism in America was extremely widespread." It is also true, however, that the 1850s and 1860s were a time of trade expansion. From 1848 until his death in 1865, Lane lived in a house with a view of the harbor of Gloucester, Massachusetts, and he made short trips to Maine, New York, Baltimore, and probably Puerto Rico. In all of these places he painted the harbors with their ships—the instruments of expanding trade.

Lane usually depicts places like New York Harbor, with ships **at anchor**, but even when he depicts more remote, less commercially active harbors, nature appears pastoral and domesticated rather than primitive or unexplored. The ships, rather than the surrounding landscapes—including the sea—are generally the active element in his pictures. For Lane the sea is, in effect, a canal or a trade route for commercial activity, not a free powerful element, as it is in the early pictures of his predecessor, Cole. For Lane nature is subdued, even when storms are approaching; thus, the sea is always a viable highway for the transport of goods. In sum, I consider Lane's sea simply an environment for human activity—nature no longer inviolate. The luminescence that Lane paints symbolizes nature's humbled state, for the light itself is as docile as the Luminist sea, and its tranquility in a sense signifies **no more than** good conditions on the highway to progress. Progress, probably even more than transcendence, is the secret message of Luminism. In a sense, Luminist pictures are an ideological justification of the atmosphere necessary for business, if also an exaggerated, idealistic rendering of that atmosphere.

22. The passage is primarily concerned with discussing
- (A) the importance of religion to the art of a particular period
  - (B) the way one artist's work illustrates a tradition of painting
  - (C) the significance of the sea in one artist's work
  - (D) differences in the treatment of nature as a more active or a less active force
  - (E) variations in the artistic treatment of light among nineteenth-century landscape painters
23. The author argues that nature is portrayed in Lane's pictures as
- (A) wild and unexplored
  - (B) idealized and distant
  - (C) continually changing
  - (D) difficult to understand
  - (E) subordinate to human concerns
24. The passage contains information to suggest that the author would most probably agree with which one of the following statements?
- (A) The prevailing religious principles of a given time can be reflected in the art

- of that time.
- (B) In order to interest viewers, works of art must depict familiar subjects in detail.
  - (C) Because commerce is unusual as a subject in art, the painter of commercial activity must travel and observe it widely.
  - (D) Knowing about the environment in which an artist lived can aid in an understanding of a work by that artist.
  - (E) The most popular works of art at a given time are devoted to furthering economic or social progress.
25. According to the author, a supporter of the view of Luminism described in the first paragraph would most likely
- (A) be unimpressed by the paintings glowing light
  - (B) consider Luminist scenes to be undomesticated and wild
  - (C) interpret the Luminist depiction of nature incorrectly
  - (D) see Luminist paintings as practical rather than mystical
  - (E) focus on the paintings' subject matter instead of an atmosphere and light
26. According to the author, the sea is significant in Lane's paintings because of its association with
- (A) exploration
  - (B) commerce
  - (C) canals
  - (D) idealism
  - (E) mysticism
27. The author's primary purpose is to
- (A) refute a new theory
  - (B) replace an inadequate analysis
  - (C) summarize current critics' attitudes
  - (D) support another critic's evaluation
  - (E) describe the history of a misinterpretation
28. The author quotes a critic writing about Lane (lines 25-27) most probably in order to
- (A) suggest that Luminism was the dominant mode of painting in the 1850s and 1860s
  - (B) support the idea that Lane was interested in spiritualism
  - (C) provide an example of the primary cultural factors that influenced the Luminists
  - (D) explain why the development of Luminism coincided with that of spiritualism
  - (E) illustrate a common misconception concerning an important characteristic of

Lane's paintings

### **LSAT 09 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

After thirty years of investigation into cell genetics, researchers made startling discoveries in the 1960s and early 1970s which culminated in the development of processes, collectively known as recombinant deoxyribonucleic acid (rDNA) technology, for the active manipulation of a cell's genetic code. The technology has created excitement and controversy because it involves altering DNA—which contains the building blocks of the genetic code.

Using rDNA technology, scientists can transfer a portion of the DNA from one organism to a single living cell of another. The scientist chemically “snips” the DNA chain of the host cell at a predetermined point and attaches another piece of DNA from a donor cell at that place, creating a completely new organism.

Proponents of rDNA research and development claim that it will allow scientists to find cures for disease and to better understand how genetic information controls an organism's development. They also see many other potentially practical benefits, especially in the pharmaceutical industry. Some corporations employing the new technology even claim that by the end of the century all major diseases will be treated with drugs derived from microorganisms created through rDNA technology. Pharmaceutical products already developed, but not yet marketed, indicate that these predictions may be realized.

Proponents also cite nonmedical applications for this technology. Energy production and waste disposal may benefit: genetically altered organisms could convert sewage and other organic material into methane fuel. Agriculture might also take advantage of rDNA technology to produce new varieties of crops that resist foul weather, pests, and the effects of poor soil.

A major concern of the critics of rDNA research is that genetically altered microorganisms might escape from the laboratory. Because these microorganisms are laboratory creations that, **in all probability**, do not occur in nature, their interaction with the natural world cannot be predicted with certainty. It is possible that they could cause previously unknown, perhaps incurable diseases. The effect of genetically altered microorganisms on the world's microbiological predator-prey relationships is another potentially serious problem pointed out by the opponents of rDNA research. Introducing a new species may disrupt or even destroy the existing ecosystem. The collapse of interdependent relationships among species, extrapolated to its extreme, could eventually result in the destruction of humanity.

Opponents of rDNA technology also cite ethical problems with it. For example, it gives scientists the power to instantly cross evolutionary and species boundaries that nature took millennia to establish. The implications of such power would become particularly profound if genetic engineers were to tinker with human genes, a practice that would bring us one step closer to Aldous Huxley's grim vision in *Brave New World* of a totalitarian society that **engineers**



human beings to fulfill specific roles.

1. In the passage, the author is primarily concerned with doing which one of the following?
  - (A) explaining the process and applications of rDNA technology
  - (B) advocating continued rDNA research and development
  - (C) providing evidence indicating the need for regulation of rDNA research and development
  - (D) summarizing the controversy surrounding rDNA research and development
  - (E) arguing that the environmental risks of rDNA technology may outweigh its medical benefits
2. According to the passage, which one of the following is an accurate statement about research into the genetic code of cells?
  - (A) It led to the development of processes for the manipulation of DNA.
  - (B) It was initiated by the discovery of rDNA technology.
  - (C) It led to the use of new treatments for major diseases.
  - (D) It was universally heralded as a great benefit to humanity.
  - (E) It was motivated by a desire to create new organisms.
3. The potential benefits of rDNA technology referred to in the passage include all of the following EXCEPT
  - (A) new methods of waste treatment
  - (B) new biological knowledge
  - (C) enhanced food production
  - (D) development of less expensive drugs
  - (E) increased energy production
4. Which one of the following, if true, would most weaken an argument of opponents of rDNA technology?
  - (A) New safety procedures developed by rDNA researchers make it impossible for genetically altered microorganisms to escape from laboratories.
  - (B) A genetically altered microorganism accidentally released from a laboratory is successfully contained.
  - (C) A particular rDNA-engineered microorganism introduced into an ecosystem attracts predators that keep its population down.
  - (D) Genetically altered organisms designed to process sewage into methane cannot survive outside the waste treatment plant.
  - (E) A specific hereditary disease that has plagued humankind for generations is successfully eradicated.
5. The author's reference in the last sentence of the passage to a society that engineers human beings to fulfill specific roles serves to

- (A) emphasize the potential medical dangers of rDNA technology
  - (B) advocate research on the use of rDNA technology in human genetics
  - (C) warn of the possible disasters that could result from upsetting the balance of nature
  - (D) present *Brave New World* as an example of a work of fiction that accurately predicted technological developments
  - (E) illustrate the sociopolitical ramifications of applying genetic engineering to humans
6. Which one of the following, if true, would most strengthen an argument of the opponents of rDNA technology?
- (A) Agricultural products developed through rDNA technology are no more attractive to consumers than are traditional crops.
  - (B) Genetically altered microorganisms have no natural predators but can prey on a wide variety of other microorganisms.
  - (C) Drugs produced using rDNA technology cost more to manufacture than drugs produced with traditional technologies.
  - (D) Ecosystems are impermanent systems that are often liable to collapse, and occasionally do so.
  - (E) Genetically altered microorganisms generally cannot survive for more than a few hours in the natural environment.

Gray marketing, the selling of trademarked products through channels of distribution not authorized by the trademark holder, can involve distribution of goods either within a market region or across market boundaries. Gray marketing within a market region ("channel flow diversion") occurs when manufacturer-authorized distributors sell trademarked goods to unauthorized distributors who then sell the goods to consumers within the same region. For example, quantity discounts from manufacturers may motivate authorized dealers to enter the gray market because they can purchase larger quantities of a product than they themselves intend to stock if they can sell the extra units through gray marketing channels.

When gray marketing occurs across market boundaries, it is typically in an international setting and may be called "parallel importing." Manufacturers often produce and sell products in more than one country and establish a network of authorized dealers in each country. Parallel importing occurs when trademarked goods intended for one country are diverted from proper channels (channel flow diversion) and then exported to unauthorized distributors in another country.

Trademark owners justifiably **argue against** gray marketing practices since such practices clearly jeopardize the goodwill established by trademark owners: consumers who purchase trademarked goods in the gray market do not get the same "extended product," which typically includes pre- and postsale service. Equally important, authorized distributors may cease to promote the product if it becomes available for much lower prices through unauthorized channels.

Current debate over regulation of gray marketing focuses on three disparate theories in

trademark law that have been variously and confusingly applied to parallel importation cases: universality, exhaustion, and territoriality. The theory of universality holds that a trademark is only an indication of the source or origin of the product. This theory does not recognize the goodwill functions of a trademark. When the courts apply this theory, gray marketing practices are allowed to continue because the origin of the product remains the same regardless of the specific route of the product through the channel of distribution. The exhaustion theory holds that a trademark owner relinquishes all rights once a product has been sold. When this theory is applied, gray marketing practices are allowed to continue because the trademark owners' rights cease as soon as their products are sold to a distributor. The theory of territoriality holds that a trademark is effective in the country in which it is registered. Under the theory of territoriality, trademark owners can stop gray marketing practices in the registering countries on products bearing their trademarks. Since only the territoriality theory affords trademark owners any real legal protection against gray marketing practices, I believe it is inevitable as well as desirable that it will come to be consistently applied in gray marketing cases.

7. Which one of the following best expresses the main point of the passage?
- (A) Gray marketing is unfair to trademark owners and should be legally controlled.
  - (B) Gray marketing is practiced in many different forms and places, and legislators should recognize the futility of trying to regulate it.
  - (C) The mechanisms used to control gray marketing across markets are different from those most effective in controlling gray marketing within markets.
  - (D) The three trademark law theories that have been applied in gray marketing cases lead to different case outcomes.
  - (E) Current theories used to interpret trademark laws have resulted in increased gray marketing activity.
8. The function of the passage as a whole is to
- (A) criticize the motives and methods of those who practice gray marketing
  - (B) evaluate the effects of both channel flow diversion and parallel importation
  - (C) discuss the methods that have been used to regulate gray marketing and evaluate such methods' degrees of success
  - (D) describe a controversial marketing practice and evaluate several legal views regarding it
  - (E) discuss situations in which certain marketing practices are common and analyze the economic factors responsible for their development
9. Which one of the following does the author offer as an argument against gray marketing?
- (A) Manufacturers find it difficult to monitor the effectiveness of promotional efforts made on behalf of products that are gray marketed.
  - (B) Gray marketing can discourage product promotion by authorized distributors.
  - (C) Gray marketing forces manufacturers to accept the low profit margins that

- result from quantity discounting.
- (D) Gray marketing discourages competition among unauthorized dealers.
- (E) Quality standards in the manufacture of products likely to be gray marketed may decline.
10. The information in the passage suggests that proponents of the theory of territoriality would probably differ from proponents of the theory of exhaustion on which one of the following issues?
- (A) the right of trademark owners to enforce, in countries in which the trademarks are registered, distribution agreements intended to restrict distribution to authorized channels
- (B) the right of trademark owners to sell trademarked goods only to those distributors who agree to abide by distribution agreements
- (C) the legality of channel flow diversion that occurs in a country other than the one in which a trademark is registered
- (D) the significance consumers attach to a trademark
- (E) the usefulness of trademarks as marketing tools
11. The author discusses the impact of gray marketing on goodwill in order to
- (A) fault trademark owners for their unwillingness to offer a solution to a major consumer complaint against gray marketing
- (B) indicate a way in which manufacturers sustain damage against which they ought to be protected
- (C) highlight one way in which gray marketing across markets is more problematic than gray marketing within a market
- (D) demonstrate that gray marketing does not always benefit the interests of unauthorized distributors
- (E) argue that consumers are unwilling to accept a reduction in price in exchange for elimination of service
12. The author's attitude toward the possibility that the courts will come to exercise consistent control over gray marketing practices can best be characterized as one of
- (A) resigned tolerance
- (B) utter dismay
- (C) reasoned optimism
- (D) unbridled fervor
- (E) cynical indifference
13. It can be inferred from the passage that some channel flow diversion might be eliminated if
- (A) profit margins on authorized distribution of goods were less than those on goods marketed through parallel importing

- (B) manufacturers relieved authorized channels of all responsibility for product promotion
- (C) manufacturers charged all authorized distributors the same unit price for products regardless of quantity purchased
- (D) the postsale service policies of authorized channels were controlled by manufacturers
- (E) manufacturers refused to provide the “extended product” to consumers who purchase goods in the gray market

Any study of autobiographical narratives that appeared under the ostensible authorship of African American writers between 1760 and 1865 inevitably raises concerns about authenticity and interpretation. Should an autobiography whose written composition was literally out of the hands of its narrator be considered as the literary equivalent of those autobiographies that were authored independently by their subjects?

In many cases, the so-called edited narrative of an ex-slave ought to be treated as a ghostwritten account insofar as literary analysis is concerned, especially when it was composed by its editor from “a statement of facts” provided by an African American subject. Blassingame has taken pains to show that the editors of several of the more famous antebellum slave narratives were “noted for their integrity” and thus were unlikely to distort the facts given them by slave narrators. From a literary standpoint, however, it is not the moral integrity of these editors that is *at issue* but the linguistic, structural, and tonal integrity of the narratives they produces. Even if an editor faithfully reproduced the facts of a narrator’s life, it was still the editor who decided what to make of these facts, how they should be emphasized, in what order they ought to be presented, and what was extraneous or germane. Readers of African American autobiography then and now have too readily accepted the presumption of these eighteenth- and nineteenth-century editors that experiential facts recounted orally could be recorded and sorted by an amanuensis-editor, taken out of their original contexts, and then published with editorial prefaces, footnotes, and appended commentary, all without compromising the validity of the narrative as a product of an African American consciousness.

Transcribed narratives in which an editor explicitly delimits his or her role undoubtedly may be regarded as more authentic and reflective of the narrator’s thought *in action* than those edited works that *flesh* out a statement of facts in ways unaccounted for. Still, it would be naïve to accord dictated oral narratives the same status as autobiographies composed and written by the subjects of the stories themselves. This point is illustrated by an analysis of Works Progress Administration interviews with ex-slaves in the 1930s that suggests that narrators often told interviewers what they seemed to want to hear. If it seemed impolitic for former slaves to tell all they knew and thought about the past to interviewers in the 1930s, the same could be said of escaped slaves on the run in the antebellum era. Dictated narratives, therefore, are literary texts whose authenticity is difficult to determine. Analysts should reserve close analytic readings for independently authored texts. Discussion of collaborative texts should take into account the conditions that governed their production.

14. Which one of the following best summarizes the main point of the passage?

- (A) The personal integrity of an autobiography’s editor has little relevance to its

- value as a literary work.
- (B) Autobiographies dictated to editors are less valuable as literature than are autobiographies authored by their subjects.
  - (C) The facts that are recorded in an autobiography are less important than the personal impressions of its author.
  - (D) The circumstances under which an autobiography was written should affect the way it is interpreted as literature.
  - (E) The autobiographies of African Americans written between 1760 and 1865 deserve more careful study than they have so far received.
15. The information in the passage suggests that the role of the “editor” (lines 23-24) is most like that of
- (A) an artist who wishes to invent a unique method of conveying the emotional impact of a scene in a painting
  - (B) a worker who must interpret the instructions of an employer
  - (C) a critic who must provide evidence to support opinions about a play being reviewed
  - (D) an architect who must make the best use of a natural setting in designing a public building
  - (E) a historian who must decide how to direct the reenactment of a historical event
16. Which one of the following best describes the author’s opinion about applying literary analysis to edited autobiographies?
- (A) The author is adamantly opposed to the application of literary analysis to edited autobiographies.
  - (B) The author is skeptical of the value of close analytical reading in the case of edited autobiographies.
  - (C) The author believes that literary analysis of the prefaces, footnotes, and commentaries that accompany edited autobiographies would be more useful than an analysis of the text of the autobiographies.
  - (D) The author believes that an exclusively literary analysis of edited autobiographies is more valuable than a reading that emphasizes their historical import.
  - (E) The author believes that the literary analysis of edited autobiographies would enhance their linguistic, structural, and tonal integrity.
17. The passage supports which one of the following statements about the readers of autobiographies of African Americans that were published between 1760 and 1865?
- (A) They were more concerned with the personal details in the autobiographies than with their historical significance.
  - (B) They were unable to distinguish between ghostwritten and edited



- autobiographies.
- (C) They were less naïve about the facts of slave life than are readers today.
- (D) They presumed that the editing of the autobiographies did not affect their authenticity.
- (E) They had little interest in the moral integrity of the editors of the autobiographies.
18. When one of the following words, as it is used in the passage, best serves to underscore the author's concerns about the authenticity of the autobiographies discussed?
- (A) "ostensible" (line 2)
- (B) "integrity" (line 18)
- (C) "extraneous" (line 27)
- (D) "delimits" (line 39)
- (E) "impolitic" (line 51)
19. According to the passage, close analytic reading of an autobiography is appropriate only when the
- (A) autobiography has been dictated to an experienced amanuensis-editor
- (B) autobiography attempts to reflect the narrator's thought in action
- (C) autobiography was authored independently by its subject
- (D) moral integrity of the autobiography's editor is well established
- (E) editor of the autobiography collaborated closely with its subject in its editing
20. It can be inferred that the discussion in the passage of Blassingame's work primarily serves which one of the following purposes?
- (A) It adds an authority's endorsement to the author's view that edited narratives ought to be treated as ghostwritten accounts.
- (B) It provides an example of a mistaken emphasis in the study of autobiography.
- (C) It presents an account of a new method of literary analysis to be applied to autobiography.
- (D) It illustrates the inadequacy of traditional approaches to the analysis of autobiography.
- (E) It emphasizes the importance of the relationship between editor and narrator.

A conventional view of nineteenth-century Britain holds that iron manufacturers and textile manufacturers from the north of England became the wealthiest and most powerful people in society after about 1832. According to Marxist historians, these industrialists were the target of the working class in its struggle for power. A new study by Rubinstein, however, suggests that the real wealth lay with the bankers and merchants of London. Rubinstein does not deny that a northern industrial elite existed but argues that it was consistently outnumbered and outdone by a London-based commercial elite. His claims are provocative and deserve consideration.

Rubinstein's claim about the location of wealth comes from his investigation of probate

records. These indicate the value of personal property, excluding real property (buildings and land), left by individuals at death. It does seem as if large fortunes were more frequently made in commerce than in industry and, within industry, more frequently from alcohol or tobacco than from textiles or metal. However, such records do not unequivocally make Rubinstein's case. Uncertainties abound about how the probate rules for valuing assets were actually applied. Mills and factories, being real property, were clearly excluded: machinery may also have been, for the same reason. What the valuation conventions were for stock-in-trade (goods for sale) is also uncertain. It is possible that their probate values were much lower than their actual market value: cash or near-cash, such as bank balances or stocks, were, on the other hand, invariably considered at full face value. A further complication is that probate valuations probably took no notice of a business's goodwill (favor with the public) which, since it represents expectations about future profit-making, would today very often be a large fraction of market value. Whether factors like these introduced systematic biases into the probate valuations of individuals with different types of businesses would be worth investigating.

The orthodox view that the wealthiest individuals were the most powerful is also questioned by Rubinstein's study. The problem for this orthodox view is that Rubinstein finds many millionaires who are totally unknown to nineteenth-century historians: the reason for their obscurity could be that they were not powerful. Indeed, Rubinstein dismisses any notion that great wealth had anything to do with entry into the governing elite, as represented by bishops, higher civil servants, and chairmen of manufacturing companies. The only requirements were university attendance and a father with a middle-class income.

Rubinstein, in another study, has begun to buttress his findings about the location of wealth by analyzing income tax returns, which reveal a geographical distribution of middle-class incomes similar to that of wealthy incomes revealed by probate records. But until further confirmatory investigation is done, his claims can only be considered partially convincing.

21. The main idea of the passage is that
- (A) the Marxist interpretation of the relationship between class and power in nineteenth-century Britain is no longer viable
  - (B) a simple equation between wealth and power is unlikely to be supported by new data from nineteenth-century British archives
  - (C) a recent historical investigation has challenged but not disproved the orthodox view of the distribution of wealth and the relationship of wealth to power in nineteenth-century Britain
  - (D) probate records provide the historian with a revealing but incomplete glimpse of the extent and location of wealth in nineteenth-century Britain
  - (E) an attempt has been made to confirm the findings of a new historical study of nineteenth-century Britain, but complete confirmation is likely to remain elusive
22. The author of the passage implies that probate records as a source of information about wealth in nineteenth-century Britain are
- (A) self-contradictory and misleading

- (B) ambiguous and outdated
  - (C) controversial but readily available
  - (D) revealing but difficult to interpret
  - (E) widely used by historians but fully understandable only by specialists
23. The author suggests that the total probate valuations of the personal property of individuals holding goods for sale in nineteenth-century Britain may have been
- (A) affected by the valuation conventions for such goods
  - (B) less accurate than the valuations for such goods provided by income tax returns
  - (C) less, on average, if such goods were tobacco-related than if they were alcohol-related
  - (D) greater, on average, than the total probate valuations of those individuals who held bank balances
  - (E) dependent on whether such goods were held by industrialists or by merchants or bankers
24. According to the passage, Rubinstein has provided evidence that challenges which one of the following claims about nineteenth-century Britain?
- (A) The distribution of great wealth between commerce and industry was not equal.
  - (B) Large incomes were typically made in alcohol and tobacco rather than in textiles and metal.
  - (C) A London-based commercial elite can be identified.
  - (D) An official governing elite can be identified.
  - (E) There was a necessary relationship between great wealth and power.
25. The author mentions that goodwill was probably excluded from the probate valuation of a business in nineteenth-century Britain most likely in order to
- (A) give an example of a business asset about which little was known in the nineteenth century
  - (B) suggest that the probate valuations of certain businesses may have been significant underestimations of their true market value
  - (C) make the point that this exclusion probably had an equal impact on the probate valuations of all nineteenth-century British businesses
  - (D) indicate that expectations about future profit-making is the single most important factor in determining the market value of certain businesses
  - (E) argue that the twentieth-century method of determining probate valuations of a business may be consistently superior to the nineteenth-century method
26. Which one of the following studies would provide support for Rubinstein's claims?
- (A) a study that indicated that many members of the commercial elite in

- nineteenth-century London had insignificant holdings of real property
- (B) a study that indicated that in the nineteenth century, industrialists from the north of England were in fact a target for working-class people
- (C) a study that indicated that, in nineteenth-century Britain, probate values of goods for sale were not as high as probate values of cash assets
- (D) a study that indicated that the wealth of nineteenth-century British industrialists did not appear to be significantly greater when the full value of their real property holdings was actually considered
- (E) a study that indicated that at least some members of the official governing elite in nineteenth-century Britain owned more real property than had previously been thought to be the case
27. Which one of the following, if true, would cast the most doubt on Rubinstein's argument concerning wealth and the official governing elite in nineteenth-century Britain?
- (A) Entry into this elite was more dependent on university attendance than on religious background.
- (B) Attendance at a prestigious university was probably more crucial than a certain minimum family income in gaining entry into this elite.
- (C) Bishops as a group were somewhat wealthier, at the point of entry into this elite, than were higher civil servants or chairmen of manufacturing companies.
- (D) The families of many members of this elite owned few, if any, shares in iron industries and textile industries in the north of England.
- (E) The composition of this elite included vice-chancellors, many of whom held office because of their wealth.

### **LSAT 10 SECTION I**

**Time 35 minutes 27 Questions**

***Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.***

Many argue that recent developments in electronic technology such as computers and videotape have enabled artists to vary their forms of expression. For example, video art can now achieve images whose effect is produced by "digitalization": breaking up the picture using computerized information processing. Such new technologies create new ways of seeing and hearing by adding different dimensions to older forms, rather than replacing those forms. Consider *Locale*, a film about a modern dance company. The camera operator wore a Steadicam™, an uncomplicated device that allows a camera to be mounted on a person so that the camera remains steady no matter how the operator moves. The Steadicam™ captures the dance in ways impossible with traditional mounts. Such new equipment also allows for the

preservation of previously unrecordable aspects of performances, thus enriching archives.

By Contrast, others claim that technology subverts the artistic enterprise: that artistic efforts achieved with machines preempt human creativity, rather than being inspired by it. The originality of musical performance, for example, might suffer, as musicians would be deprived of the opportunity to spontaneously change pieces of music before live audiences. Some even worry that technology will eliminate live performance altogether; performances will be recorded for home viewing, abolishing the relationship between performer and audience. But these negative views assume both that technology poses an unprecedented challenge to the arts and that we are not committed enough to the artistic enterprise to preserve the live performance, assumptions that seem unnecessarily cynical. In fact, technology has traditionally assisted our capacity for creative expression and can refine our notions of any give art form.

For example, the portable camera and the snapshot were developed at the same time as the rise of impressionist painting in the nineteenth century. These photographic technologies encouraged a new appreciation. In addition, impressionist artists like Degas studied the elements of light and movement captured by instantaneous photography and used their new understanding of the way our perceptions distort reality to try to more accurately capture reality in their work. Since photos can capture the "moments" of a movement, such as a hand partially raised in a gesture of greeting, Impressionist artists were inspired to paint such moments in order to more effectively convey the quality of spontaneous human action. Photography freed artists from the preconception that a subject should be painted in a static, artificial entirety, and inspired them to capture the random and fragmentary qualities of our world. Finally, since photography preempted painting as the means of obtaining portraits, painters had more freedom to vary their subject matter, thus giving rise to the abstract creations characteristic of modern art.

1. Which one of the following statements best expresses the main idea of the passage?
  - (A) The progress of art relies primarily on technology.
  - (B) Technological innovation can be beneficial to art.
  - (C) There are risks associated with using technology to create art.
  - (D) Technology will transform the way the public responds to art.
  - (E) The relationship between art and technology has a lengthy history.
2. It can be inferred from the passage that the author shares which one of the following opinions with the opponents of the use of new technology in art?
  - (A) The live performance is an important aspect of the artistic enterprise.
  - (B) The public's commitment to the artistic enterprise is questionable.
  - (C) Recent technological innovations present an entirely new sort of challenge to art.
  - (D) Technological innovations of the past have been very useful to artists.
  - (E) The performing arts are especially vulnerable to technological innovation.
3. Which one of the following, if true, would most undermine the position held by

- opponents of the use of new technology in art concerning the effect of technology on live performance?
- (A) Surveys show that when recordings of performances are made available for home viewing, the public becomes far more knowledgeable about different performing artists.
  - (B) Surveys show that some people feel comfortable responding spontaneously to artistic performances when they are viewing recordings of those performances at home.
  - (C) After a live performance, sales of recordings for home viewing of the particular performing artist generally increase.
  - (D) The distribution of recordings of artists' performances has begun to attract many new audience members to their live performances.
  - (E) Musicians are less apt to make creative changes in musical pieces during recorded performances than during live performances.
4. The author uses the example of the Steadicam™ primarily in order to suggest that
- (A) the filming of performances should not be limited by inadequate equipment
  - (B) new technologies do not need to be very complex in order to benefit art
  - (C) the interaction of a traditional art form with a new technology will change attitudes toward technology in general
  - (D) the replacement of a traditional technology with a new technology will transform definitions of a traditional art form
  - (E) new technology does not so much preempt as enhance a traditional art form
5. According to the passage, proponents of the use of new electronic technology in the arts claim that which one of the following is true?
- (A) Most people who reject the use of electronic technology in art forget that machines require a person to operate them.
  - (B) Electronic technology allows for the expansion of archives because longer performances can be recorded.
  - (C) Electronic technology assists artists in finding new ways to present their material.
  - (D) Electronic technology makes the practice of any art form more efficient by speeding up the creative process.
  - (E) Modern dance is the art form that will probably benefit most from the use of electronic technology.
6. It can be inferred from the passage that the author would agree with which one of the following statements regarding changes in painting since the nineteenth century?
- (A) The artistic experiments of the nineteenth century led painters to use a variety of methods in creating portraits, which they then applied to other subject



matter.

- (B) The nineteenth-century knowledge of light and movement provided by photography inspired the abstract works characteristic of modern art.
- (C) Once painters no longer felt that they had to paint conventional portraits, they turned exclusively to abstract portraiture.
- (D) Once painters were less limited to the impressionist style, they were able to experiment with a variety of styles of abstract art.
- (E) Once painters painted fewer conventional portraits, they had greater opportunity to move beyond the literal depiction of objects.

During the 1940s and 1950s the United States government developed a new policy toward Native Americans, often known as “readjustment.” Because the increased awareness of civil rights in these decades helped reinforce the belief that life on reservations prevented Native Americans from exercising the rights guaranteed to citizens under the United States Constitution, the readjustment movement advocated the end of the federal government’s involvement in Native American affairs and encouraged the assimilation of Native Americans as individuals into mainstream society. However, the same years also saw the emergence of a Native American leadership and efforts to develop tribal institutions and reaffirm tribal identity. The clash of these two trends may be traced in the attempts on the part of the Bureau of Indian Affairs (BIA) to convince the Oneida tribe of Wisconsin to accept readjustment.

The culmination of BIA efforts to sway the Oneida occurred at a meeting that took place in the fall of 1956. The BIA suggested that it would be to the Oneida’s benefit to own their own property and, like other homeowners, pay real estate taxes on it. The BIA also emphasized that, after readjustment, the government would not attempt to restrict Native Americans’ ability to sell their individually owned lands. The Oneida were then offered a one-time lump-sum payment of \$60,000 in lieu of the \$0.52 annuity guaranteed in perpetuity to each member of the tribe under the Canandaigua Treaty.

The efforts of the BIA to “sell” readjustment to the tribe failed because the Oneida realized that they had heard similar offers before. The Oneida delegates reacted negatively to the BIA’s first suggestion because taxation of Native American lands had been one past vehicle for dispossessing the Oneida: after the distribution of some tribal lands to individual Native Americans in the late nineteenth century, Native American lands became subject to taxation, resulting in new and impossible financial burdens, foreclosures, and subsequent tax sales of property. The Oneida delegates were equally suspicious of the BIA’s emphasis on the rights of individual landowners, since in the late nineteenth century many individual Native Americans had been convinced by unscrupulous speculators to sell their lands. Finally, the offer of a lump-sum payment was unanimously opposed by the Oneida delegates, who saw that changing the terms of a treaty might jeopardize the many pending land claims based upon the treaty.

As a result of the 1956 meeting, the Oneida rejected readjustment. Instead, they determined to improve tribal life by lobbying for federal monies for postsecondary education, for the improvement of drainage on tribal lands, and for the building of a convalescent home for tribal members. Thus, by learning the lessons of history, the Oneida were able to survive as a tribe in their homeland.

7. Which one of the following would be most consistent with the policy of readjustment described in the passage?
- (A) the establishment among Native Americans of a tribal system of a elected government
  - (B) the creation of a national project to preserve Native American language and oral history
  - (C) the establishment of programs to encourage Native Americans to move from reservations to urban areas
  - (D) the development of a large-scale effort to restore Native American lands to their original tribes
  - (E) the reaffirmation of federal treaty obligations to Native American tribes
8. According to the passage, after the 1956 meeting the Oneida resolved to
- (A) obtain improved social services and living conditions for members of the tribe
  - (B) pursue litigation designed to reclaim tribal lands
  - (C) secure recognition of their unique status as a self-governing Native American nation within the United States
  - (D) establish new kinds of tribal institutions
  - (E) cultivate a life-style similar to that of other United States citizens
9. Which one of the following best describes the function of the first paragraph in the context of the passage as a whole?
- (A) It summarizes the basis of a conflict underlying negotiations described elsewhere in the passage.
  - (B) It presents two positions, one of which is defended by evidence provided in succeeding paragraphs.
  - (C) It compares competing interpretations of a historical conflict.
  - (D) It analyzes the causes of a specific historical event and predicts a future development.
  - (E) It outlines the history of a government agency.
10. The author refers to the increased awareness of civil rights during the 1940s and 1950s most probably in order to
- (A) contrast the readjustment movement with other social phenomena
  - (B) account for the stance of the Native American leadership
  - (C) help explain the impetus for the readjustment movement
  - (D) explain the motives of BIA bureaucrats
  - (E) foster support for the policy of readjustment
11. The passage suggests that advocates of readjustment would most likely agree with which one of the following statements regarding the relationship between

the federal government and Native Americans?

- (A) The federal government should work with individual Native Americans to improve life on reservations.
  - (B) The federal government should be no more involved in the affairs of Native Americans than in the affairs of other citizens.
  - (C) The federal government should assume more responsibility for providing social services to Native Americans.
  - (D) The federal government should share its responsibility for maintaining Native American territories with tribal leaders.
  - (E) The federal government should observe all provisions of treaties made in the past with Native Americans.
12. The passage suggests that the Oneida delegates viewed the Canandaigua Treaty as
- (A) a valuable safeguard of certain Oneida rights and privileges
  - (B) the source of many past problems for the Oneida tribe
  - (C) a model for the type of agreement they hoped to reach with the federal government
  - (D) an important step toward recognition of their status as an independent Native American nation
  - (E) an obsolete agreement without relevance for their current condition
13. Which one of the following situations most closely parallels that of the Oneida delegates in refusing to accept a lump-sum payment of \$60,000?
- (A) A university offers a student a four-year scholarship with the stipulation that the student not accept any outside employment; the student refuses the offer and attends a different school because the amount of the scholarship would not have covered living expenses.
  - (B) A company seeking to reduce its payroll obligations offers an employee a large bonus if he will accept early retirement; the employee refuses because he does not want to compromise an outstanding worker's compensation suit.
  - (C) Parents of a teenager offer to pay her at the end of the month for performing weekly chores rather than paying her on a weekly basis; the teenager refuses because she has a number of financial obligations that she must meet early in the month.
  - (D) A car dealer offers a customer a \$500 cash payment for buying a new car; the customer refuses because she does not want to pay taxes on the amount, and requests instead that her monthly payments be reduced by a proportionate amount.
  - (E) A landlord offers a tenant several months rent-free in exchange for the tenant's agreeing not to demand that her apartment be painted every two years, as is required by the lease; the tenant refuses because she would have to spend her own time painting the apartment.

Direct observation of contemporary societies at the threshold of widespread literacy has not assisted our understanding of how such literacy altered ancient Greek society, in particular its political culture. The discovery of what Goody has called the “enabling effects” of literacy in contemporary societies tends to seduce the observer into confusing often rudimentary knowledge of how to read with popular access to important books and documents: this confusion is then projected onto ancient societies. “In ancient Greece,” Goody writes, “alphabetic reading and writing was important for the development of political democracy.”

An examination of the ancient Greek city Athens exemplifies how this sort of confusion is detrimental to understanding ancient politics. In Athens, the early development of a written law code was retrospectively mythologized as the critical factor in breaking the power monopoly of the old aristocracy: hence the Greek tradition of the “law-giver,” which has captured the imaginations of scholars like Goody. But the application and efficacy of all law codes depend on their interpretation by magistrates and courts, and unless the right of interpretation is “democratized,” the mere existence of written laws changes little.

In fact, never in antiquity did any but the elite consult documents and books. Even in Greek courts the juries heard only the relevant statutes read out during the proceedings, as they heard verbal testimony, and they then rendered their verdict on the spot, without the benefit of any discussion among themselves. True, in Athens the juries were representative of a broad spectrum of the population, and these juries, drawn from diverse social classes, both interpreted what they had heard and determined matters of fact. However, they guided solely by the speeches prepared for the parties by professional pleaders and by the quotations of laws or decrees within the speeches, rather than by their own access to any kind of document or book.

Granted, people today also rely heavily on a truly knowledgeable minority for information and its interpretation, often transmitted orally. Yet this is still fundamentally different from an ancient society in which there was no “popular literature,” i.e., no newspapers, magazines, or other media that dealt with sociopolitical issues. An ancient law code would have been analogous to the Latin Bible, a venerated document but a closed book. The resistance of the medieval Church to vernacular translations of the Bible, in the West at least, is therefore a pointer to the realities of ancient literacy. When fundamental documents are accessible for study only to an elite, the rest of the society is subject to the elite’s interpretation of the rules of behavior, including right political behavior. Athens, insofar as it functioned as a democracy, did so not because of widespread literacy, but because the elite had chosen to accept democratic institutions.

14. Which one of the following statements best expresses the main idea of the passage?
- (A) Democratic political institutions grow organically from the traditions and conventions of a society.
  - (B) Democratic political institutions are not necessarily the outcome of literacy in a society.
  - (C) Religious authority, like political authority, can determine who in a given society will have access to important books and documents.

- (D) Those who are best educated are most often those who control the institutions of authority in a society.
- (E) Those in authority have a vested interest in ensuring that those under their control remain illiterate.
15. It can be inferred from the passage that the author assumes which one of the following about societies in which the people possess a rudimentary reading ability?
- (A) They are more politically advanced than societies without rudimentary reading ability.
- (B) They are unlikely to exhibit the positive effects of literacy.
- (C) They are rapidly evolving toward widespread literacy.
- (D) Many of their people might not have access to important documents and books.
- (E) Most of their people would not participate in political decision-making.
16. The author refers to the truly knowledgeable minority in contemporary societies in the context of the fourth paragraph in order to imply which one of the following?
- (A) Because they have a popular literature that closes the gap between the elite and the majority, contemporary societies rely far less on the knowledge of experts than did ancient societies.
- (B) Contemporary societies rely on the knowledge of experts, as did ancient societies, because contemporary popular literature so frequently conveys specious information.
- (C) Although contemporary societies rely heavily on the knowledge of experts, access to popular literature makes contemporary societies less dependent on experts for information about rules of behavior than were ancient societies.
- (D) While only some members of the elite can become experts, popular literature gives the majority in contemporary society an opportunity to become members of such an elite.
- (E) Access to popular literature distinguishes ancient from contemporary societies because it relies on a level of educational achievement attainable only by a contemporary elite.
17. According to the passage, each of the following statements concerning ancient Greek juries is true EXCEPT:
- (A) They were somewhat democratic insofar as they were composed largely of people from the lowest social classes.
- (B) They were exposed to the law only insofar as they heard relevant statutes read out during legal proceedings.
- (C) They ascertained the facts of a case and interpreted the laws.
- (D) They did not have direct access to important books and documents that were

available to the elite.

- (E) They rendered verdicts without benefit of private discussion among themselves.
18. The author characterizes the Greek tradition of the “law-giver” (line 21) as an effect mythologizing most probably in order to
- (A) illustrate the ancient Greek tendency to memorialize historical events by transforming them into myths
  - (B) convey the historical importance of the development of the early Athenian written law code
  - (C) convey the high regard in which the Athenians held their legal tradition
  - (D) suggest that the development of a written law code was not primarily responsible for diminishing the power of the Athenian aristocracy
  - (E) suggest that the Greek tradition of the “law-giver” should be understood in the larger context of Greek mythology
19. The author draws an analogy between the Latin Bible and an early law code (lines 49-51) in order to make which one of the following points?
- (A) Documents were considered authoritative in premodern society in proportion to their inaccessibility to the majority.
  - (B) Documents that were perceived as highly influential in premodern societies were not necessarily accessible to the society’s majority.
  - (C) What is most revered in a nondemocratic society is what is most frequently misunderstood.
  - (D) Political documents in premodern societies exerted a social influence similar to that exerted by religious documents.
  - (E) Political documents in premodern societies were inaccessible to the majority of the population because of the language in which they were written.
20. The primary purpose of the passage is to
- (A) argue that a particular method of observing contemporary societies is inconsistent
  - (B) point out the weaknesses in a particular approach to understanding ancient societies
  - (C) present the disadvantages of a particular approach to understanding the relationship between ancient and contemporary societies
  - (D) examine the importance of developing an appropriate method for understanding ancient societies
  - (E) convey the difficulty of accurately understanding attitudes in ancient societies

The English who in the seventeenth and eighteenth centuries inhabited those colonies that would later become the United States shared a common political vocabulary with the English in England. Steeped as they were in the English political language, these colonials failed to



observe that their experience in America had given the words a significance quite different from that accepted by the English with whom they debated; in fact, they claimed that they were more loyal to the English political tradition than were the English in England.

In many respects the political institutions of England were reproduced in these American colonies. By the middle of eighteenth century, all of these colonies except four were headed by Royal Governors appointed by the King and perceived as bearing a relation to the people of the colony similar to that of the King to the English people. Moreover, each of these colonies enjoyed a representative assembly, which was consciously modeled, in powers and practices, after the English Parliament. In both England and these colonies, only property holders could vote.

Nevertheless, though English and colonial institutions were structurally similar, attitudes toward those institutions differed. For example, English legal development from the early seventeenth century had been moving steadily toward the absolute power of Parliament. The most unmistakable sign of this tendency was the legal assertion that the King was subject to the law. Together with this resolute denial of the absolute right of kings went the assertion that Parliament was unlimited in its power: it could change even the Constitution by its ordinary acts of legislation. By the eighteenth century the English had accepted the idea that the parliamentary representatives of the people were omnipotent.

The citizens of these colonies did not look upon the English Parliament with such fond eyes, nor did they concede that their own assemblies possessed such wide powers. There were good historical reasons for this. To the English the word "constitution" meant the whole body of law and legal custom formulated since the beginning of the kingdom, whereas to these colonials a constitution was a specific written document, enumerating specific powers. This distinction in meaning can be traced to the fact that the foundations of government in the various colonies were written charters granted by the Crown. These express authorizations to govern were tangible, definite things. Over the years these colonial had often repaired to the charters to justify themselves in the struggle against tyrannical governors or officials of the Crown. More than a century of government under written constitutions convinced these colonists of the necessity for and efficacy of protecting their liberties against governmental encroachment by explicitly defining all governmental powers in a document.

21. Which one of the following best expresses the main idea of the passage?
- (A) The colonials and the English mistakenly thought that they shared a common political vocabulary.
  - (B) The colonials and the English shared a variety of institutions.
  - (C) The colonials and the English had conflicting interpretations of the language and institutional structures that they shared.
  - (D) Colonial attitudes toward English institutions grew increasingly hostile in the eighteenth century.
  - (E) Seventeenth-century English legal development accounted for colonial attitudes toward constitutions.
22. The passage supports all of the following statements about the political conditions present by the middle of the eighteenth century in the American

colonies discussed in the passage EXCEPT:

- (A) Colonials who did not own property could not vote.
- (B) All of these colonies had representative assemblies modeled after the British Parliament.
- (C) Some of these colonies had Royal Governors.
- (D) Royal Governors could be removed from office by colonial assemblies.
- (E) In these colonies, Royal Governors were regarded as serving a function like that of a king.

23. The passage implies which one of the following about English kings prior to the early seventeenth century?

- (A) They were the source of all law.
- (B) They frequently flouted laws made by Parliament.
- (C) Their power relative to that of Parliament was considerably greater than it was in the eighteenth century.
- (D) They were more often the sources of legal reform than they were in the eighteenth century.
- (E) They had to combat those who believed that the power of Parliament was absolute.

24. The author mentions which one of the following as evidence for the eighteenth-century English attitude toward Parliament?

- (A) The English had become uncomfortable with institutions that could claim absolute authority.
- (B) The English realized that their interests were better guarded by Parliament than by the King.
- (C) The English allowed Parliament to make constitutional changes by legislative enactment.
- (D) The English felt that the King did not possess the knowledge that could enable him to rule responsibly.
- (E) The English had decided that it was time to reform their representative government.

25. The passage implies that the colonials discussed in the passage would have considered which one of the following to be a source of their debates with England?

- (A) their changed use of the English political vocabulary
- (B) English commitment to parliamentary representation
- (C) their uniquely English experience
- (D) their refusal to adopt any English political institutions
- (E) their greater loyalty to the English political traditions

26. According to the passage, the English attitude toward the English Constitution differed from the colonial attitude toward constitutions in that the English regarded their Constitution as
- (A) the legal foundation of the kingdom
  - (B) a document containing a collection of customs
  - (C) a cumulative corpus of legislation and legal traditions
  - (D) a record alterable by royal authority
  - (E) an unchangeable body of governmental powers
27. The primary purpose of the passage is to
- (A) expose the misunderstanding that has characterized descriptions of the relationship between seventeenth and eighteenth-century England and certain of its American colonies
  - (B) suggest a reason for England's treatment of certain of its American colonies in the seventeenth and eighteenth centuries
  - (C) settle an ongoing debate about the relationship between England and certain of its American colonies in the seventeenth and eighteenth centuries
  - (D) interpret the events leading up to the independence of certain of England's American colonies in the eighteenth century
  - (E) explain an aspect of the relationship between England and certain of its American colonies in the seventeenth and eighteenth centuries

**LSAT 11 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Oil companies need offshore platforms primarily because the oil or natural gas the companies extract from the ocean floor has to be processed before pumps can be used to move the substances ashore. But because processing crude (unprocessed oil or gas) on a platform rather than at facilities onshore exposes workers to the risks of explosion and to an unpredictable environment, researchers are attempting to diminish the need for human labor on platforms and even to eliminate platforms altogether by redesigning two kinds of pumps to handle crude. These pumps could then be used to boost the natural pressure driving the flow of crude, which, by itself, is sufficient only to bring the crude to the platform, located just above the wellhead. Currently, pumps that could boost this natural pressure sufficiently to drive the crude through a pipeline to the shore do not work consistently because of the crude's content. Crude may consist of oil or natural gas in multiphase states—combinations of liquids, gases, and solids under pressure—that do not reach the wellhead in constant proportions. The flow of crude oil, for example, can change quickly from 60 percent liquid to 70 percent gas. This surge

in gas content causes loss of “head”, or pressure inside a pump, with the result that a pump can no longer impart enough energy to transport the crude mixture through the pipeline and to the shore.

Of two pumps being redesigned, the positive-displacement pump is promising because it is immune to sudden shifts in the proportion of liquid to gas in the crude mixture. But the pump’s design, which consists of a single or twin screw pushing the fluid from one end of the pump to the other, brings crude into close contact with most parts of the pump, and thus requires that it be made of expensive, corrosion-resistant material. The alternative is the centrifugal pump, which has a rotating impeller that sucks fluid in at one end and forces fluid out at the other. Although this pump has a proven design and has worked for years with little maintenance in waste-disposal plants, researchers have discovered that because the swirl of its impeller separates gas out from the oil that normally accompanies it, significant reductions in head can occur as it operates.

Research in the development of these pumps is focused mainly on trying to reduce the cost of the positive-displacement pump and attempting to make the centrifugal pump more tolerant of gas. Other researchers are looking at ways of adapting either kind of pump for use underwater, so that crude could be moved directly from the sea bottom to processing facilities onshore, eliminating platforms.

1. Which one of following best expresses the main idea of the passage?
  - (A) Oil companies are experimenting with technologies that may help diminish the danger to workers from offshore crude processing.
  - (B) Oil companies are seeking methods of installing processing facilities underwater.
  - (C) Researchers are developing several new pumps designed to enhance human labor efficiency in processing facilities.
  - (D) Researchers are seeking to develop equipment that would preempt the need for processing facilities onshore.
  - (E) Researchers are seeking ways to separate liquids from gases in crude in order to enable safer processing.
2. The passage supports which one of the following statements about the natural pressure driving the flow of crude?
  - (A) It is higher than that created by the centrifugal pump.
  - (B) It is constant regardless of relative proportions of gas and liquid.
  - (C) It is able to carry the crude only as far as the wellhead.
  - (D) It is able to carry the crude to the platform.
  - (E) It is able to carry the crude to the shore.
3. Which one of the following best describes the relationship of the second paragraph to the passage as a whole?
  - (A) It offers concrete detail designed to show that the argument made in the first paragraph is flawed.

- (B) It provides detail that expands upon the information presented in the first paragraph.
- (C) It enhances the author's discussion by objectively presenting in detail the pros and cons of a claim made in the first paragraph.
- (D) It detracts from the author's discussion by presenting various problems that qualify the goals presented.
- (E) It modifies an observation made in the first paragraph by detailing viewpoints against it.
4. Which one of the following phrases, if substituted for the word "head" in line 47, would LEAST change the meaning of the sentence?
- (A) the flow of the crude inside the pump
- (B) the volume of oil inside the pump
- (C) the volume of gas inside the pump
- (D) the speed of the impeller moving the crude
- (E) the pressure inside of the pump
5. With which one of the following statements regarding offshore platforms would the author most likely agree?
- (A) If a reduction of human labor on offshore platform is achieved, there is no real need to eliminate platforms altogether.
- (B) Reducing human labor on offshore platforms is desirable because researchers' knowledge about the transportation of crude is dangerously incomplete.
- (C) The dangers involved in working on offshore platforms make their elimination a desirable goal.
- (D) The positive-displacement pump is the better alternative for researchers, because it would allow them to eliminate platforms altogether.
- (E) Though researchers have succeeded in reducing human labor on offshore platforms, they think that it would be inadvisable to eliminate platforms altogether, because these platforms have other uses.
6. Which one of the following can be inferred from the passage about pumps that are currently available to boost the natural pressure of crude?
- (A) The efficiency of these pumps depends on there being no gas in the flow of crude.
- (B) These pumps are more efficient when the crude is less subject to sudden increases in the proportion of gas to liquid.
- (C) A sudden change from solid to liquid in the flow of crude increases the efficiency of these pumps.
- (D) The proportion of liquid to gas in the flow of crude does not affect the efficiency of these pumps.
- (E) A sudden change from liquid to gas in the flow of crude increases the risk of

explosion due to rising pressure inside these pumps.

7. The passage implies that the positive-displacement pump differs from the centrifugal pump in that the positive-displacement pump
- (A) is more promising, but it also is more expensive and demands more maintenance
  - (B) is especially well researched, since it has been used in other settings
  - (C) involves the use of a single or twin screw that sucks fluid in at one end of the pump
  - (D) is problematic because it causes rapid shifts from liquid to gas content in crude
  - (E) involves exposure of many parts of the pump to crude
8. The passage implies that the current state of technology necessitates that crude be moved to shore
- (A) in a multiphase state
  - (B) in equal proportions of gas to liquid
  - (C) with small proportions of corrosive material
  - (D) after having been processed
  - (E) largely in the form of a liquid

To critics accustomed to the style of fifteenth-century narrative paintings by Italian artists from Tuscany, the Venetian examples of narrative paintings with religious subjects that Patricia Fortini Brown analyzes in a recent book will come as a great surprise. While the Tuscan paintings present large-scale figures, clear narratives, and simple settings, the Venetians filled their pictures with dozens of small figures and elaborate buildings, in addition to a wealth of carefully observed anecdotal detail often irrelevant to the paintings' principal subjects—the religious stories they narrate. Although it occasionally obscured these stories, this accumulation of circumstantial detail from Venetian life—the inclusion of prominent Venetian citizens, for example—was considered appropriate to the narration of historical subjects and underlined the authenticity of the historical events depicted. Indeed, Brown argues that the distinctive style of the Venetian paintings—what she calls the “eyewitness style”—was influenced by Venetian affinity for a strongly parochial type of historical writing, consisting almost exclusively of vernacular chronicles of local events embroidered with all kinds of inconsequential detail.

And yet, while Venetian attitudes toward history that are reflected in their art account in part for the difference in style between Venetian and Tuscan narrative paintings, Brown has overlooked some practical influences, such as climate. Tuscan churches are filled with frescoes that, in contrast to Venetian narrative paintings, consist mainly of large figures and easily recognized religious stories, as one would expect of paintings that are normally viewed from a distance and are designed primarily to remind the faithful of their religious tenets. In Venice, where the damp climate is unsuited to fresco, narrative frescoes in churches were almost nonexistent, with the result that Venetian artists and their public had no practical experience of the large-scale representation of familiar religious stories. Their model for painted stories was the cycle of secular historical paintings in the Venetian magistrate's palace, which were indeed the counterpart of written history and were made all the more authoritative by a proliferation of



circumstantial detail.

Moreover, because painting frescoes requires an unusually sure hand, particularly in the representation of human form, the development of drawing skill was central to artistic training in Tuscany, and by 1500 the public there tended to distinguish artists on the basis of how well they could draw human figures. In Venice, a city virtually without frescoes, this kind of skill was acquired and appreciated much later. Gentile Bellini, for example, although regarded as one of the supreme painters of the day, was feeble at drawing. On the other hand, the emphasis on architecture so evident in the Venetian narrative paintings was something that local painters obviously prized, largely because painting architecture in perspective was seen as a particular test of the Venetian painter's skill.

9. Which one of the following best states the main idea of the passage?
- (A) Tuscan painters' use of fresco explains the prominence of human figures in the narrative paintings that they produced during the fifteenth century.
  - (B) In addition to fifteenth-century Venetian attitudes toward history, other factors may help to explain the characteristic features of Venetian narrative paintings with religious subjects produced during that period.
  - (C) The inclusion of authentic detail from Venetian life distinguished fifteenth-century Venetian narrative paintings from those that were produced in Tuscany.
  - (D) Venetian painters were generally more skilled at painting buildings than Tuscan painters were at drawing human forms.
  - (E) The cycle of secular historical paintings in the Venetian magistrate's palace was the primary narrative paintings with religious subjects.
10. In the passage, the author is primarily concerned with
- (A) Pointing out the superiority of one painting style over another.
  - (B) Citing evidence that requires a reevaluation of a conventionally held view.
  - (C) Discussing factors that explain a difference in painting styles.
  - (D) Outlining the strengths and weaknesses of two opposing views regarding the evolution of a painting style.
  - (E) Arguing for the irrelevance of one theory and for its replacement by a more plausible alternative.
11. As it is described in the passage, Brown's explanation of the use of the eyewitness style in Venetian narrative painting suggests that
- (A) The painting of architecture in perspective requires greater drawing skill than does the representation of a human form in a fresco.
  - (B) Certain characteristics of a style of painting can reflect a style of historical writing that was common during the same period.
  - (C) The eyewitness style in Venetian narrative paintings with religious subjects was largely the result of the influence of Tuscan artists who worked primarily in fresco.

- (D) The historical detail in Venetian narrative paintings with religious subjects can be traced primarily to the influence of the paintings in the Venetian magistrate's palace.
- (E) A style of painting can be dramatically transformed by a sudden influx of artists from another region.
12. The author suggests that fifteenth-century Venetian narrative paintings with religious subjects were painted by artists who
- (A) were able to draw human figures with more skill after they were apprenticed to painters in Tuscany
- (B) assumed that their paintings would typically be viewed from a distance
- (C) were a major influence on the artists who produced the cycle of historical paintings in the Venetian magistrate's palace
- (D) were reluctant to paint frescoes primarily because they lacked the drawing skill that painting frescoes required
- (E) were better at painting architecture in perspective than they were at drawing human figures
13. The author implies that Venetian narrative paintings with religious subjects included the representation of elaborate buildings in part because
- (A) the ability to paint architecture in perspective was seen in Venice as proof of a painter's skill
- (B) the subjects of such paintings were often religious stories
- (C) large frescoes were especially conducive to representing architecture in perspective
- (D) the architecture of Venice in the fifteenth century was more elaborate than was the architecture of Tuscany
- (E) the paintings were imitations of a kind of historical writing that was popular in Tuscany
14. Which one of the following, if true, would most weaken the author's contention that fifteenth-century Venetian artists "had no practical experience of the large-scale representation of familiar religious stories" (line 40-42)?
- (A) The style of secular historical paintings in the palace of the Venetian magistrate was similar to that of Venetian narrative paintings with religious subjects.
- (B) The style of the historical writing produced by fifteenth-century Venetian authors was similar in its inclusion of anecdotal details to secular paintings produced during that century in Tuscany.
- (C) Many of the artists who produced Venetian narrative paintings with religious subjects served as apprentices in Tuscany, where they had become familiar with the technique of painting of frescoes.
- (D) Few of the frescoes painted in Tuscany during the fifteenth century had

secular subjects, and those that did often betrayed the artist's inability to represent elaborate architecture in perspective.

- (E) Few of the Venetian narrative paintings produced toward the end of the fifteenth century show evidence of the enhanced drawing skill that characterized the paintings produced in Venice a century later.

Currently, legal scholars agree that in some cases legal rules do not specify a definite outcome. These scholars believe that such indeterminacy results from the vagueness of language: the boundaries of the application of a term are often unclear. Nevertheless, they maintain that the system of legal rules by and large rests on clear core meanings that do determine definite outcomes for most cases. Contrary to this view, an earlier group of legal philosophers, called "realists," argued that indeterminacy pervades every part of the law.

The realists held that there is always a cluster of rules relevant to the decision in any litigated case. For example, deciding whether an aunt's promise to pay her niece a sum of money if she refrained from smoking is enforceable would involve a number of rules regarding such issues as offer, acceptance, and revocation. Linguistic vagueness in any one of these rules would affect the outcome of the case, making possible multiple points of indeterminacy, not just one or two, in any legal case.

For the realists, an even more damaging kind of indeterminacy stems from the fact that in a common-law system based on precedent, a judge's decision is held to be binding on judges in subsequent similar cases. Judicial decisions are expressed in written opinions, commonly held to consist of two parts: the holding (the decision for or against the plaintiff and the essential grounds or legal reasons for it, that is, what subsequent judges are bound by), and the dicta (everything in an opinion not essential to the decision, for example, comments about points of law not treated as the basis of the outcome). The realists argued that in practice the common-law system treats the "holding/dicta" distinction loosely. They pointed out that even when the judge writing an opinion characterizes part of it as "the holding," judges writing subsequent opinions, although unlikely to dispute the decision itself, are not bound by the original judge's perception of what was essential to the decision. Later judges have tremendous leeway in being able to redefine the holding and the dicta in a precedential case. This leeway enables judges to choose which rules of law formed the basis of the decision in the earlier case. When judging almost any case, then, a judge can find a relevant precedential case which, in subsequent opinions, has been read by one judge as stating one legal rule, and by another judge as stating another, possibly contradictory one. A judge thus faces an indeterminate legal situation in which he or she has to choose which rules are to govern the case at hand.

15. According to the passage, the realists argued that which one of the following is true of a common-law system?
- (A) It gives rise to numerous situations in which the decisions of earlier judges are found to be in error by later judges.
- (B) It possesses a clear set of legal rules in theory, but in practice most judges are unaware of the strict meaning of those rules.
- (C) Its strength lies in the requirement that judges decide cases according to precedent rather than according to a set of abstract principles.

- (D) It would be improved if judges refrained from willfully misinterpreting the written opinions of prior judges.
- (E) It treats the difference between the holding and the dicta in a written opinion rather loosely in practice.
16. According to the passage, which one of the following best describes the relationship between a judicial holding and a judicial decision?
- (A) The holding is not commonly considered binding on subsequent judges, but the decision is.
- (B) The holding formally states the outcome of the case, while the decision explains it.
- (C) The holding explains the decision but does not include it.
- (D) The holding consists of the decision and the dicta.
- (E) The holding sets forth and justifies a decision.
17. The information in the passage suggests that the realists would most likely have agreed with which one of the following statements about the reaction of judges to past interpretations of a precedential case, each of which states a different legal rule?
- (A) The judges would most likely disagree with one or more of the interpretations and overturn the earlier judges' decisions.
- (B) The judges might differ from each other concerning which of the interpretations would apply in a given case.
- (C) The judges probably would consider themselves bound by all the legal rules stated in the interpretations.
- (D) The judges would regard the lack of unanimity among interpretations as evidence that no precedents existed.
- (E) The judges would point out in their holdings the inherent contradictions arising from the earlier judges' differing interpretations.
18. It can be inferred from the passage that most legal scholars today would agree with the realists that
- (A) Linguistic vagueness can cause indeterminacy regarding the outcome of a litigated case.
- (B) In any litigated case, several different and possibly contradictory legal rules are relevant to the decision of the case.
- (C) The distinction between holding and dicta in a written opinion is usually difficult to determine in practice.
- (D) The boundaries of applicability of terms may sometimes be difficult to determine, but the core meanings of the terms are well established.
- (E) A common-law system gives judges tremendous leeway in interpreting precedents, and contradictor readings of precedential cases can usually be found.

19. The passage suggests that the realists believed which one of the following to be true of the dicta in a judge's written opinion?
- (A) The judge writing the opinion is usually careful to specify those parts of the opinion he or she considers part of the dicta.
  - (B) The appropriateness of the judge's decision would be disputed by subsequent judges on the basis of legal rules expressed in the dicta.
  - (C) A consensus concerning what constitutes the dicta in a judge's opinion comes to be fixed over time as subsequent similar cases are decided.
  - (D) Subsequent judges can consider parts of what the original judge saw as the dicta to be essential to the original opinion.
  - (E) The judge's decision and the grounds for it are usually easily distinguishable from the dicta.
20. Which one of the following best describes the overall organization of the passage?
- (A) A traditional point of view is explained and problems arising from it are described.
  - (B) Two conflicting systems of thought are compared point for point and then evaluated.
  - (C) A legal concept is defined and arguments justifying that definition are refuted.
  - (D) Two viewpoints on an issue are briefly described and one of those viewpoints is discussed at greater length.
  - (E) A theoretical description of how a system develops is contrasted with the actual practices characterizing the system.
21. Which one of the following titles best reflects the content of the passage?
- (A) Legal Indeterminacy: The Debate Continues
  - (B) Holding Versus Dicta: A Distinction Without a Difference
  - (C) Linguistic Vagueness: Is It Circumscribed in Legal Terminology?
  - (D) Legal Indeterminacy: The Realist's View of Its Scope
  - (E) Legal Rules and the Precedential System: How Judges Interpret the Precedents

Years after the movement to obtain civil rights for black people in the United States made its most important gains, scholars are reaching for a theoretical perspective capable of clarifying its momentous developments. New theories of social movements are being discussed, not just among social psychologists, but also among political theorists.

Of the many competing formulations of the "classical" social psychological theory of social movement, three are prominent in the literature on the civil rights movement: "rising expectations," "relative deprivation," and "J-curve." Each conforms to a causal sequence characteristic of classical social movement theory, linking some unusual condition, or "system strain," to the generation of unrest. When these versions of the classical theory are applied to the civil rights movement, the source of strain is identified as a change in black socioeconomic

status that occurred shortly before the widespread protest activity of the movement.

For example, the theory of rising expectations asserts that protest activity was a response to psychological tensions generated by gains experienced immediately prior to the civil rights movement. Advancement did not satisfy ambition, but created the desire for further advancement. Only slightly different is the theory of relative deprivation. Here the impetus to protest is identified as gains achieved during the premovement period, **coupled with** simultaneous failure to make any appreciable headway relative to the dominant group. The J-curve theory argues that the movement occurred because a prolonged period of rising expectations and gratification was followed by a sharp reversal.

Political theorists have been dismissive of these applications of classical theory to the civil rights movement. Their arguments **rest on** the conviction that, implicitly, the classical theory trivializes the political ends of movement participants, focusing rather on presumed psychological dysfunctions: reduction of complex social situations to simple paradigms of stimulus and response obviates the relevance of all but the shortest-term analysis. Furthermore, the theories lack predictive value: “strain” is always present to some degree, but social movement is not. How can we know which strain will provoke upheaval?

These very legitimate complaints having frequently been made, it remains to find a means of testing the strength of the theories. Problematically, while proponents of the various theories have contradictory interpretations of socioeconomic conditions leading to the civil rights movement, examination of various statistical records regarding the material status of black Americans yields ample evidence to support any of the three theories. The steady rise in median black family income supports the rising expectations hypothesis; the stability of the economic position of black **vis-à-vis** white Americans lends credence to the relative deprivation interpretation; unemployment data are consistent with the J-curve theory. A better test is the comparison of each of these economic indicators with the frequency of movement-initiated events reported in the press; unsurprisingly, none correlates significantly with the pace of reports about movement activity.

22. It can be inferred from the passage that the classical theory of social movement would not be appropriately applied to an annual general election because such an election
- (A) may focus on personalities rather than on political issues
  - (B) is not provoked primarily by an unusual condition
  - (C) may be decided according to the psychological needs of voters
  - (D) may not entail momentous developments
  - (E) actually entails two or more distinct social movements
23. According to the passage, the “rising expectations” and “relative deprivation” models differ in which one of the following ways?
- (A) They predict different responses to the same socioeconomic conditions.
  - (B) They disagree about the relevance of psychological explanations for protest movements.
  - (C) They are meant to explain different kinds of social change.



- (D) They describe the motivation of protesters in slightly different ways.
- (E) They disagree about the relevance of socioeconomic status to system strain.
24. The author implies that political theorists attribute which one of the following assumptions to social psychologists who apply the classical theory of social movements to the civil rights movement?
- (A) Participants in any given social movement have conflicting motivations.
- (B) Social movements are ultimately beneficial to society.
- (C) Only strain of a socioeconomic nature can provoke a social movement.
- (D) The political ends of movement participants are best analyzed in terms of participants' psychological motivations.
- (E) Psychological motivations of movement participants better illuminate the causes of social movements than do participants' political motivations.
25. Which one of the following statements is supported by the results of the "better test" discussed in the last paragraph of the passage?
- (A) The test confirms the three classical theories discussed in the passage.
- (B) The test provides no basis for deciding among the three classical theories discussed in the passage.
- (C) The test shows that it is impossible to apply any theory of social movements to the civil rights movement.
- (D) The test indicates that press coverage of the civil rights movement was biased.
- (E) The test verifies that the civil rights movement generated socioeconomic progress.
26. The validity of the "better test" (line 65) as proposed by the author might be undermined by the fact that
- (A) the press is selective about the movement activities it chooses to cover
- (B) not all economic indicators receive the same amount of press coverage
- (C) economic indicators often contradict one another
- (D) a movement-initiated event may not correlate significantly with any of the three economic indicators
- (E) the pace of movement-initiated events is difficult to anticipate
27. The main purpose of the passage is to
- (A) Persuade historians of the indispensability of a theoretical framework for understanding recent history.
- (B) Present a new model of social movement.
- (C) Account for a shift in a theoretical debate.
- (D) Show the unity underlying the diverse classical models of social movement.
- (E) Discuss the reasoning behind and shortcomings of certain social

psychological theories.

### **LSAT 12 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Nearly every writer on the philosophy of civil rights activist Martin Luther King, Jr., makes a connection between King and Henry David Thoreau, usually via Thoreau's famous essay, "Civil Disobedience" (1849). In his book *Stride Toward Freedom* (1958), King himself stated that Thoreau's essay was his first intellectual contact with the theory of passive resistance to governmental laws that are perceived as morally unjust. However, this emphasis on Thoreau's influence on King is unfortunate: first, King would not have agreed with many other aspects of Thoreau's philosophy, including Thoreau's ultimate acceptance of violence as a form of protest; second, an overemphasis on the influence of one essay has kept historians from noting other correspondences between King's philosophy and **transcendentalism**. "Civil Disobedience" was the only example of transcendentalist writing with which King was familiar, and in many other transcendentalist writings, including works by Ralph Waldo Emerson and Margaret Fuller, King would have found ideas more nearly akin to his own.

The kind of civil disobedience King had in mind was, in fact, quite different from Thoreau's view of **civil disobedience**. Thoreau, like most other transcendentalists, was primarily interested in reform of the individual, whereas King was primarily interested in reform of society. As a protest against the Mexican War, Thoreau refused to pay taxes, but he did not hope by his action to force a change in national policy. While he encouraged others to adopt similar protests, he did not attempt to mount any mass protest action against unjust laws. In contrast to Thoreau, King began to advocate the use of mass civil disobedience to effect revolutionary changes within the social system.

However, King's writings suggest that, without realizing it, he was an incipient transcendentalist. Most transcendentalists subscribed to the concept of "higher law" and included civil disobedience to unjust laws as part of their strategy. They often invoked the concept of higher law to justify their opposition to slavery and to advocate disobedience to the strengthened Fugitive Slave Law of 1850. In his second major book, King's discussion of just and unjust laws and the responsibility of the individual is very similar to the transcendentalists' discussion of higher law. In reference to how one can advocate breaking some laws and obeying others, King notes that there are two types of laws, just and unjust; he describes a just law as a "code that **squares with the moral law**" and an unjust law as a "code that is out of harmony with the moral law." Thus, King's opposition to the injustice of legalized segregation in the twentieth century is philosophically akin to the transcendentalists' opposition to the Fugitive Slave Law in the nineteenth century.

1. Which one of the following best states the main idea of the passage?  
(A) King's philosophy was more influenced by Thoreau's essay on civil

- disobedience than by any other writing of the transcendentalists.
- (B) While historians may have overestimated Thoreau's influence on King, King was greatly influenced by a number of the transcendentalist philosophers.
- (C) Thoreau's and King's views on civil disobedience differed in that King was more concerned with the social reform than with the economic reform of society.
- (D) Although historians have overemphasized Thoreau's influence on King, there are parallels between King's philosophy and transcendentalism that have not been fully appreciated.
- (E) King's ideas about law and civil disobedience were influenced by transcendentalism in general and Thoreau's essays in particular.
2. Which one of the following statements about "Civil Disobedience" would the author consider most accurate?
- (A) It was not King's first contact with the concept of passive resistance to unjust laws.
- (B) It was one of many examples of transcendentalist writing with which King was familiar.
- (C) It provided King with a model for using passive resistance to effect social change.
- (D) It contains a number of ideas with which other transcendentalists strongly disagreed.
- (E) It influenced King's philosophy on passive resistance to unjust laws.
3. In the first paragraph, the author is primarily concerned with
- (A) chronicling the development of King's philosophy on passive resistance to unjust law
- (B) suggesting that a common emphasis on one influence on King's philosophy has been misleading
- (C) providing new information about the influence of twentieth-century philosophers on King's work
- (D) summarizing the work of historians of the most important influences on King's philosophy
- (E) providing background information about nineteenth-century transcendentalist philosophers
4. According to the passage, which one of the following is true of Emerson and Fuller?
- (A) Some of their ideas were less typical of transcendentalism than were some of Thoreau's ideas.
- (B) They were more concerned with the reform of society than with the reform of the individual.

- (C) They would have been more likely than Thoreau to agree with King on the necessity of mass protest in civil disobedience.
  - (D) Their ideas about civil disobedience and unjust laws are as well known as Thoreau's are.
  - (E) Some of their ideas were more similar to King's than were some of Thoreau's.
5. According to the passage, King differed from most transcendentalists in that he
- (A) opposed violence as a form of civil protest
  - (B) opposed war as an instrument of foreign policy under any circumstances
  - (C) believed that just laws had an inherent moral value
  - (D) was more interested in reforming society than in reforming the individual
  - (E) protested social and legal injustice in United States society rather than United States foreign policy
6. The passage suggests which one of the following about Thoreau?
- (A) He was the first to develop fully the theory of civil disobedience.
  - (B) His work has had a greater influence on contemporary thinkers than has the work of Emerson and Fuller.
  - (C) His philosophy does not contain all of the same elements as the philosophies of the other transcendentalists.
  - (D) He advocated using civil disobedience to force the federal government to change its policies on war.
  - (E) He is better known for his ideas on social and legal reform than for his ideas on individual reform.
7. The passage provides support for which one of the following statements about the quotations in lines 52-55?
- (A) They are an example of a way in which King's ideas differed from Thoreau's but were similar to the ideas of other transcendentalists.
  - (B) They provide evidence that proves that King's philosophy was affected by transcendentalist thought.
  - (C) They suggest that King, like the transcendentalists, judged human laws by ethical standards.
  - (D) They suggest a theoretical basis for King's philosophy of government.
  - (E) They provide a paraphrase of Thoreau's position on just and unjust laws.

In *Democracies and its Critics*, Robert Dahl defends both democratic value and pluralist democracies, or polyarchies (a rough shorthand term for Western political systems). Dahl argues convincingly that the idea of democracy rests on political equality—the equality capacity of all citizens to determine or influence collective decisions. Of course, as Dahl recognizes, if hierarchical ordering is inevitable in any structure of government, and if no society can guarantee perfect equality in the resources that may give rise to political influence, the democratic principle of political equality is incapable of full realization. So actual systems can be

deemed democratic only as approximations to the ideal. It is on these grounds that Dahl defends polyarchy.

As a representative system in which elected officials both determine government policy and are accountable to a broad-based electorate, polyarchy reinforces a diffusion of power away from any single center and toward a variety of individuals, groups, and organizations. It is this centrifugal characteristic, Dahl argues, that makes polyarchy the nearest possible approximation to the democratic ideal. Polyarchy achieves this diffusion of power through party competition and the operation of pressure groups. Competing for votes, parties seek to offer different sections of the electorate what they most want; they do not ask what the majority thinks of an issue, but what policy commitments will sway the electoral decisions of particular groups. Equally, groups that have strong feelings about an issue can organize in pressure groups to influence public policy.

During the 1960s and 1970s, criticism of the theory of pluralist democracy was vigorous. Many critics pointed to a gap between the model and the reality of Western political systems. They argued that the distribution of power resources other than the vote was so uneven that the political order systematically gave added weight to those who were already richer or organizationally more powerful. So the power of some groups to exclude issues altogether from the political agenda effectively countered any diffusion of influence on decision-making.

Although such criticism became subdued during the 1980s, Dahl himself seems to support some of the earlier criticism. Although he regrets that some Western intellectuals demand more democracy from polyarchies than is possible, and is cautious about the possibility of further democratization, he nevertheless ends his book by asking what changes in structures and consciousness might make political life more democratic in present polyarchies. One answer, he suggests, is to look at the economic order of polyarchies from the point of view of the citizen as well as from that of producers and consumers. This would require a critical examination of both the distribution of those economic resources that are at the same time political resources, and the relationship between political structures and economic enterprises.

8. The characterization of polyarchies as “centrifugal” (line 22) emphasizes the
- (A) way in which political power is decentralized in a polyarchy
  - (B) central role of power resources in a polyarchy
  - (C) kind of concentrated power that political parties generate in a polyarchy
  - (D) dynamic balance that exists between economic enterprises and elected officials in a polyarchy
  - (E) dynamic balance that exists between voters and elected officials in a polyarchy
9. In the third paragraph, the author of the passage refers to criticism of the theory of polyarchy democracy primarily in order to
- (A) refute Dahl’s statement that Western intellectuals expect more democracy from polyarchies than is possible
  - (B) advocate the need for rethinking the basic principles on which the theory of democracy rests

- (C) suggest that the structure of government within pluralist democracies should be changed
  - (D) point out a flaw in Dahl's argument that the principle of political equality cannot be fully realized
  - (E) point out an objection to Dahl's defense of polyarchy
10. According to the passage, the aim of a political party in a polyarchy is to do which one of the following?
- (A) determine what the position of the majority of voters is on a particular issue
  - (B) determine what position on an issue will earn the support of particular groups of voters
  - (C) organize voters into pressure groups in order to influence public policy on a particular issue
  - (D) ensure that elected officials accurately represent the position of the party on specific issue
  - (E) ensure that elected officials accurately represent the position of the electorate on specific issues
11. It can be inferred from the passage that Dahl assumes which one of the following in his defense of polyarchies?
- (A) Polyarchies are limited in the extent to which they can embody the idea of democracy.
  - (B) The structure of polyarchical governments is free of hierarchical ordering.
  - (C) The citizens of a polyarchy have equal access to the resources that provide political influence.
  - (D) Polyarchy is the best political system to foster the growth of political parties.
  - (E) Polyarchy is a form of government that is not influenced by the interests of economic enterprises.
12. Which one of the following is most closely analogous to pluralist democracies as they are described in relation to the democratic principle of political equality?
- (A) an exact copy of an ancient artifact that is on display in a museum
  - (B) a performance of a musical score whose range of tonality cannot be completely captured by any actual instruments
  - (C) a lecture by a former astronaut to a class of young students who would like to be astronauts
  - (D) the commemoration of a historical event each year by a historian presenting a lecture on a topic related to the event
  - (E) the mold from which a number of identical castings of a sculpture are made
13. Which one of the following, if true, would most strengthen Dahl's defense of polyarchy?
- (A) The political agenda in a polyarchy is strongly influenced by how power



resources other than the vote are distributed.

- (B) The outcome of elections is more often determined by the financial resources candidates are able to spend during campaigns than by their stands on political issue.
- (C) Public policy in a polyarchy is primarily determined by decision-makers who are not accountable to elected officials.
- (D) Political parties in a polyarchy help concentrate political power in the central government.
- (E) Small and diverse pressure groups are able to exert as much influence on public policy in a polyarchy as are large and powerful groups.

14. The passage can best be described as

- (A) an inquiry into how present-day polyarchies can be made more democratic
- (B) a commentary on the means pressure groups employ to exert influence within polyarchies
- (C) a description of the relationship between polyarchies and economic enterprises
- (D) a discussion of the strengths and weaknesses of polyarchy as a form of democracy
- (E) an overview of the similarities between political parties and pressure groups in a polyarchy

The old belief that climatic stability accounts for the high level of species diversity in the Amazon River basin of South America emerged, strangely enough, from observations of the deep sea. Sanders discovered high diversity among the mud-dwelling animals of the deep ocean. He argued that such diversity could be attributed to the absence of significant fluctuations in climate and physical conditions, without which the extinction of species should be rare. In the course of time new species would continue to evolve, and so the rate of speciation would be greater than the rate of extinction, resulting in the accumulation of great diversity. Sanders argued that the Amazon tropical rain forest is analogous to the deep sea: because the rain forest has a stable climate, extinction should be rare. Evidence that some species of rain-forest trees have persisted for some 30 million years in the Amazon basin, added to the absence of winter and glaciation, supports this view.

Recently however, several observations have cast doubt on the validity of the stability hypothesis and suggest that the climate of the Amazon basin has fluctuated significantly in the past. Haffer noted that different species of birds inhabit different corners of the basin in spite of the fact that essentially unbroken green forest spreads from the western edge to the eastern edge of the region. This pattern presented a puzzle to biologists studying the distributions of plants and animals: why would different species inhabit different parts of the forest if the habitat in which they lived had a stable climate?

Haffer proposed a compelling explanation for the distribution of species. Observing that species found on high ground are different from those on low ground and knowing that in the Amazon lowlands are drier than uplands, he proposed that during the ice ages the Amazon

lowlands became a near-desert arid plain; meanwhile, the more elevated regions became islands of moisture and hence served as refuges for the fauna and flora of the rain forest. Populations that were once continuous diverged and became permanently separated. Haffer's hypothesis appears to explain the distribution of species as well as the unusual species diversity. The ice-age refuges would have protected existing species from extinction. But the periodic geographic isolation of related populations (there have been an estimated 13 ice ages to date) would have facilitated the development of new species as existing species on the lowlands adapted to changing climates.

Although no conclusive proof has yet been found to support Haffer's hypothesis, it has led other researchers to gauge the effects of climatic changes, such as storms and flooding, on species diversity in the Amazon basin. Their research suggests that climatic disturbances help account for the splendid diversity of the Amazon rain forest.

15. As discussed in the first paragraph of the passage, Sanders' analogy between the deep sea and the Amazon basin involves which one of the following assumptions?
- (A) Both the Amazon basin and the deep sea support an unusually high rate of speciation.
  - (B) Both the rain-forest trees in the Amazon basin and the mud-dwelling animals in the deep sea have survived for 30 million years.
  - (C) Both the deep sea and the Amazon basin have not experienced dramatic changes in climate or physical conditions.
  - (D) A dependable supply of water to the Amazon basin and the deep sea has moderated the rate of extinction in both habitats.
  - (E) The rate of speciation in the Amazon basin is equivalent to the rate of speciation in the deep sea.
16. The author of the passage would most likely agree with which one of the following statements about Haffer's hypothesis?
- (A) It provides an intriguing and complete explanation for the high rate of species diversity in the Amazon basin.
  - (B) It is partially correct in that a number of climatic disturbances account for species diversity in the Amazon basin.
  - (C) It has not yet been verified, but it has had an influential effect on current research on species diversity in the Amazon basin.
  - (D) It is better than Sanders' theory in accounting for the low rate of species extinction in the Amazon basin.
  - (E) It provides a compelling explanation for the distribution of species in the Amazon basin but does not account for the high species diversity.
17. According to the passage, lowlands in the Amazon basin currently differ from uplands in which one of the following respects?
- (A) Lowlands are desertlike, whereas uplands are lush.

- (B) Lowlands are less vulnerable to glaciation during the ice ages than are uplands.
- (C) Uplands support a greater diversity of species than do lowlands.
- (D) Uplands are wetter than are lowlands.
- (E) Uplands are more densely populated than are lowlands.
18. Which one of the following best describes the organization of the passage?
- (A) A hypothesis is discussed, evidence that undercuts that hypothesis is presented and a new hypothesis that may account for the evidence is described.
- (B) A recently observed phenomenon is described, an explanation for that phenomenon is discussed, and the explanation is evaluated in light of previous research findings.
- (C) Several hypotheses that may account for a puzzling phenomenon are described and discounted, and a more promising hypothesis is presented.
- (D) A hypothesis and the assumptions on which it is based are described, and evidence is provided to suggest that the hypothesis is only partially correct.
- (E) Two alternative explanations for a phenomenon are presented and compared, and experiments designed to test each theory are described.
19. The author of the passage mentions the number of ice ages in the third paragraph most probably in order to
- (A) provide proof that cooler and drier temperatures are primarily responsible for the distribution of species in the Amazon
- (B) explain how populations of species were protected from extinction in the Amazon basin
- (C) explain how most existing species were able to survive periodic climatic disturbances in the Amazon basin
- (D) suggest that certain kinds of climatic disturbances cause more species diversity than do other kinds of climatic disturbances
- (E) suggest that geographic isolation may have occurred often enough to cause high species diversity in the Amazon basin
20. The passage suggests that which one of the following is true of Sanders' hypothesis?
- (A) He underestimated the effects of winter and glaciation in the Amazon basin on the tropical rain forest.
- (B) He failed to recognize the similarity in physical conditions of the Amazon lowlands and the Amazon uplands.
- (C) He failed to take into account the relatively high rate of extinction during the ice ages in the Amazon basin.
- (D) He overestimated the length of time that species have survived in the Amazon

basin.

(E) He failed to account for the distribution of species in the Amazon basin.

21. Which one of the following is evidence that would contribute to the “proof” mentioned in line 54?

(A) Accurately dated sediment cores from a freshwater lake in the Amazon indicate that the lake’s water level rose significantly during the last ice age.

(B) Data based on radiocarbon dating of fossils suggest that the Amazon uplands were too cold to support rain forests during the last ice age.

(C) Computer models of climate during global ice ages predict only insignificant reductions of monsoon rains in tropical areas such as the Amazon.

(D) Fossils preserved in the Amazon uplands during the last ice age are found together with minerals that are the products of an arid landscape.

(E) Fossilized pollen from the Amazon lowlands indicates that during the last ice age the Amazon lowlands supported vegetation that needs little water rather than the rain forests they support today.

Although surveys of medieval legislation, guild organization, and terminology used to designate different medical practitioners have demonstrated that numerous medical specialties were recognized in Europe during the **Middle Ages**, most historians continue to equate the term “woman medical practitioner,” wherever they encounter it in medieval records, with “midwife.” This common practice obscures the fact that, although women were not represented on all levels of medicine equally, they were represented in a variety of specialties throughout the broad medical community. A reliable study by Wickersheimer and Jacquart documents that of 7,647 medical practitioners in France during the twelfth through fifteenth centuries, 121 were women; of these, only 44 were identified as midwives, while the rest practiced as physicians, surgeons, apothecaries, barbers, and other healers.

While preserving terminological distinctions somewhat increases the quality of the information extracted from medieval documents concerning women medical practitioners, scholars must also reopen the whole question of why documentary evidence for women medical practitioners comprises such a tiny fraction of the evidence historians of medieval medicine usually present. Is this due to the limitations of the historical record, as has been claimed, or does it also result from the methods historians use? Granted, apart from medical licenses, the principal sources of information regarding medical practitioners available to researchers are wills, property transfers, court records, and similar documents, all of which typically underrepresent women because of restrictive medieval legal traditions. Nonetheless, the parameters researchers choose when they define their investigations may contribute to the problem. Studies focusing on the upper echelons of “learned” medicine, for example, tend to exclude healers on the legal and social fringes of medical practice, where most women would have been found.

The advantages of broadening the scope of such studies is immediately apparent in Pelling and Webster’s study of sixteenth-century London. Instead of focusing solely on officially recognized and licensed practitioners, the researchers defined a medical practitioner as “any individual whose occupation is basically concerned with the care of the sick.” Using this

definition, they found **primary source** information suggesting that there were 60 women medical practitioners in the city of London in 1560. Although this figure may be slightly exaggerated, the evidence contrasts strikingly with that of Gottfried, whose earlier survey identified only 28 women medical practitioners in all of England between 1330 and 1530.

Finally, such studies provide only statistical information about the variety and prevalence of women's medical practice in medieval Europe. Future studies might also make profitable use of analyses developed in other areas of women's history as a basis for exploring the social context of women's medical practice. Information about economic rivalry in medicine, women's literacy, and the control of medical knowledge could add much to our growing understanding of women medical practitioners' role in medieval society.

22. Which one of the following best expresses the main point of the passage?
- (A) Recent studies demonstrate that women medical practitioners were more common in England than in the rest of Western Europe during the Middle Ages.
  - (B) The quantity and quality of the information historians uncover concerning women's medical practice in medieval Europe would be improved if they changed their methods of study.
  - (C) The sparse evidence for women medical practitioners in studies dealing with the Middle Ages is due primarily to the limitations of the historical record.
  - (D) Knowledge about the social issues that influenced the role women medical practitioners played in medieval society has been enhanced by several recent studies.
  - (E) Analyses developed in other areas of women's history could probably be used to provide more information about the social context of women's medical practice during the Middle Ages.
23. Which one of the following is most closely analogous to the error the author believes historians make when they equate the term "woman medical practitioner" with "midwife"?
- (A) equating pear with apple
  - (B) equating science with biology
  - (C) equating supervisor with subordinate
  - (D) equating member with nonmember
  - (E) equating instructor with trainee
24. It can be inferred from the passage that the author would be most likely to agree with which one of the following assertions regarding Gottfried's study?
- (A) Gottfried's study would have recorded a much larger number of women medical practitioners if the time frame covered by the study had included the late sixteenth century.
  - (B) The small number of women medical practitioners identified in Gottfried's study is due primarily to problems caused by inaccurate sources.

- (C) The small number of women medical practitioners identified in Gottfried's study is due primarily to the loss of many medieval documents.
- (D) The results of Gottfried's study need to be considered in light of the social changes occurring in Western Europe during the fourteenth and fifteenth centuries.
- (E) In setting the parameters for his study, Gottfried appears to have defined the term "medical practitioner" very narrowly.
25. The passage suggests that a future study that would be more informative about medieval women medical practitioners might focus on which one of the following?
- (A) the effect of social change on the political and economic structure of medieval society
- (B) the effect of social constraints on medieval women's access to a medical education
- (C) the types of medical specialties that developed during the Middle Ages
- (D) the reasons why medieval historians tend to equate the term "woman medical practitioner" with midwife
- (E) the historical developments responsible for the medieval legal tradition's restrictions on women
26. The author refers to the study by Wickersheimer and Jacquart in order to
- (A) demonstrate that numerous medical specialties were recognized in Western Europe during the Middle Ages
- (B) demonstrate that women are often underrepresented in studies of medieval medical practitioners
- (C) prove that midwives were officially recognized as members of the medical community during the Middle Ages
- (D) prove that midwives were only a part of a larger community of women medical practitioners during the Middle Ages
- (E) prove that the existence of midwives can be documented in Western Europe as early as the twelfth century
27. In the passage, the author is primarily concerned with doing which one of the following?
- (A) describing new methodological approaches
- (B) revising the definitions of certain concepts
- (C) comparing two different analyses
- (D) arguing in favor of changes in method
- (E) chronicling certain historical developments



## Time 35 minutes 26 Questions

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Modern architecture has been criticized for emphasizing practical and technical issues at the expense of aesthetic concerns. The high-rise buildings constructed throughout the industrialized world in the 1960s and 1970s provide ample evidence that cost-efficiency and utility have become the overriding concerns of the modern architect. However, Otto Wagner's seminal text on modern architecture, first published in Germany in 1896, indicates that the failure of modern architecture cannot be blamed on the ideals of its founders.

Wagner's *Modern Architecture* called for a new style based on modern technologies and models of construction. He insisted that there could be no return to traditional, preindustrial models; only by accepting wholeheartedly the political and technological revolutions of the nineteenth century could the architect establish the forms appropriate to a modern, urban society. "All modern creation," Wagner wrote, "must correspond to the new materials and demands of the present...must illustrate our own better, democratic, self-confident, ideal nature," and must incorporate the new "colossal technical and scientific achievements" of the age. This would indeed seem to be the basis of a purely materialist definition of architecture, a prototype for the simplistic form-follows-function dogma that opponents have identified as the intellectual basis of modern architecture.

But the picture was more complex, for Wagner was always careful to distinguish between art and engineering. Ultimately, he envisaged the architect developing the skills of the engineer without losing the powers of aesthetic judgment that Wagner felt were unique to the artist. "Since the engineer is seldom a born artist and the architect must learn as a rule to be an engineer, architects will in time succeed in extending their influence into the realm occupied by the engineers, so that legitimate aesthetic demands can be met in a satisfactory way." In this symbiotic relationship essential to Modernism, art was to exercise the controlling influence.

No other prospect was imaginable for Wagner, who was firmly rooted as a designer and, indeed, as a teacher in the Classical tradition. The apparent inconsistency of a confessed Classicist advising against the mechanical imitation of historical models and arguing for new forms appropriate to the modern age created exactly the tension that made Wagner's writings and buildings so interesting. While he justified, for example, the choice of a circular ground plan for churches in terms of optimal sight-lines and the technology of the gasometer, the true inspiration was derived from the centralized churches of the Italian Renaissance. He acknowledged as rationalist that there was no way back to the social and technological conditions that had produced the work of Michelangelo or Fischer von Erlach, but he recognized his emotional attachment to the great works of the Italian Renaissance and Austrian Baroque.

1. Which one of the following best expresses the main idea of the passage?  
(A) Modern architecture has been criticized for emphasizing practical and technical issues and for failing to focus on aesthetic concerns.

- (B) Critics have failed to take into account the technological innovations and aesthetic features that architects have incorporated into modern buildings.
- (C) Wagner's *Modern Architecture* provides architects with a chronicle of the origins of modern architecture.
- (D) Wagner's *Modern Architecture* indicates that the founders of modern architecture did not believe that practical issues should supersede the aesthetic concerns of the past.
- (E) Wagner's seminal text, *Modern Architecture*, provides the intellectual basis for the purely materialistic definition of modern architecture.
2. According to the passage, Wagner asserts which one of the following about the roles of architect and engineer?
- (A) The architect should make decision about aesthetic issues and leave decision about technical matters to the engineers.
- (B) The engineer has often developed the powers of aesthetic judgment previously thought to be unique to the architect.
- (C) The judgment of the engineer should be as important as the judgment of the architect when decisions are made about aesthetic issues.
- (D) The technical judgment of the engineer should prevail over the aesthetic judgment of the architect in the design of modern buildings.
- (E) The architect should acquire the knowledge of technical matters typically held by the engineer.
3. The passage suggests that Wagner would be LEAST likely to agree with which one of the following statements about classical architecture and the modern architect?
- (A) The modern architect should avoid the mechanical imitation of the models of the Italian Renaissance and Austrian Baroque.
- (B) The modern architect cannot design buildings appropriate to a modern, urban society and still retain emotional attachments to the forms of the Italian Renaissance and Austrian Baroque.
- (C) The modern architect should possess knowledge of engineering as well as of the architecture of the past.
- (D) The modern architect should not base designs on the technological conditions that underlay the design of the models of the Italian Renaissance and Austrian Baroque.
- (E) The designs of modern architects should reflect political ideals different from those reflected in the designs of classical architecture.
4. The passage suggests which one of the following about the quotations from *Modern Architecture* cited in the second paragraph?
- (A) They represent the part of Wagner's work that has had the least influence on the architects who designed the high-rise buildings of the 1960s and 1970s.

- (B) They describe the part of Wagner’s work that is most often evoked by proponents of Wagner’s ideas on art and technology.
- (C) They do not adequately reflect the complexity of Wagner’s ideas on the use of modern technology in architecture.
- (D) They reflect Wagner’s active participation in the political revolutions of the nineteenth century.
- (E) They provide an overview of Wagner’s ideas on the relationship between art and technology.
5. The author of the passage states which one of the following about the concerns of modern architecture?
- (A) Cost-efficiency, utility, and aesthetic demands are the primary concerns of the modern architect.
- (B) Practical issues supersede aesthetic concerns in the design of many modern buildings.
- (C) Cost-efficiency is more important to the modern architects than are other practical concerns.
- (D) The design of many new buildings suggests that modern architects are still inspired by architectural forms of the past.
- (E) Many modern architects use current technology to design modern buildings that are aesthetically pleasing.
6. The author mentions Wagner’s choice of a “circular ground plan for churches” (line 54) most likely in order to
- (A) provide an example of the kinds of technological innovations Wagner introduced into modern architecture
- (B) provide an example of Wagner’s dismissal of historical forms from Italian Renaissance
- (C) provide an example of a modern building where technological issues were much less significant than aesthetic demands
- (D) provide evidence of Wagner’s tendency to imitate Italian Renaissance and Austrian Baroque models
- (E) provide evidence of the tension between Wagner’s commitment to modern technology and to the Classical tradition
7. The passage is primarily concerned with
- (A) summarizing the history of a debate
- (B) explaining a traditional argument
- (C) describing and evaluating a recent approach
- (D) justifying a recent criticism by presenting new evidence
- (E) supporting an assertion by discussing an important work

In order to explain the socioeconomic achievement, **in the face of** disadvantages due to

racial discrimination, of Chinese and Japanese immigration to the United States and their descendants, sociologists have typically applied either culturally based or structurally based theories—but never both together. To use an economic metaphor, culturally based explanations assert the importance of the supply side of the labor market, emphasizing the qualities immigrant groups bring with them for competition in the United States labor market. Such explanations reflect a human-capital perspective in which status attainment is seen as a result of individuals' ability to generate resources. Structurally based explanations, on the other hand, examine the market condition of the immigrants' host society, particularly its discriminatory practices and their impact on the status attainment process of immigrant groups. In the economic metaphor, structural explanations assert the importance of the demand side of the labor market.

In order to understand the socioeconomic mobility of Chinese and Japanese immigrants and their descendants, only an analysis of supply-side and demand-side factors together, in the context of historical events, will suffice. On the cultural or supply side, differences in immigration pattern and family formation resulted in different rates of socioeconomic achievement for Chinese and Japanese immigrants. For various reasons, Chinese immigrants remained sojourners and did not (except for urban merchants) establish families. They were also hampered by ethnic conflict in the labor market. Japanese immigrants, on the other hand, were less constrained, made the transition from sojourner to settler within the first two decades of immigration, and left low-wage labor to establish small businesses based on a household mode of production. Chinese sojourners without families were more vulnerable to demoralization, whereas Japanese immigrants faced societal hostility with the emotional resources provide by a stable family life. Once Chinese immigrants began to establish nuclear families and produce a second generation, instituting household production similar to that established by Japanese immigrants, their socioeconomic attainment soon paralleled that of Japanese immigrants and their descendants.

On the structural or demand side, changes in institutional constraints, immigration laws, labor markets, and societal hostility were rooted in the dynamics of capitalist economic development. Early capitalist development generated a demand for low-wage labor that could not be fulfilled. Early Chinese and Japanese emigration was a response to this demand. In an advanced capitalist economy, the demand for immigrant labor is more differentiated: skilled professional and technical labor fills empty positions in the primary labor market and, with the traditional unskilled low-wage labor, creates two immigrant streams. The high levels of education attained by the descendants of Chinese and Japanese immigrants and their concentration in strategic states such as California paved the way for the movement of the second generation into the expanding primary labor market in the advanced capitalist economy that existed after the Second World War.

8. Which one of the following best expresses the main idea of the passage?
- (A) The socioeconomic achievement of Chinese and Japanese immigrants and their descendants is best explained by a historical examination of the economic structures prevalent in the United States when such immigrant groups arrived.
  - (B) The socioeconomic achievement of Chinese and Japanese immigrants and

- their descendants is best explained by an examination of their cultural backgrounds, in particular their level of educational attainment.
- (C) The socioeconomic achievement of Chinese and Japanese immigrants and their descendants has taken place in the context of a culturally based emphasis on the economic welfare of the nuclear family.
- (D) Only the market structure of the capitalist economy of the United States in which supply has historically been regulated by demand can account for the socioeconomic achievement of Chinese and Japanese immigrants and their descendants.
- (E) Only an analysis that combines an examination of the culture of Chinese and Japanese immigrant groups and the socioeconomic structure of the host country can adequately explain the socioeconomic achievement of Chinese and Japanese immigrants and their descendants.
9. Which one of the following can best be described as a supply-side element in the labor market, as such elements are explained in the passage?
- (A) concentration of small businesses in a given geographical area
- (B) need for workers with varying degrees of skill
- (C) high value placed by immigrants on work
- (D) expansion of the primary labor market
- (E) development of an advanced capitalist economy
10. Which one of the following best states the function of the author's mention of "two immigration streams" (line 62)?
- (A) It demonstrates the effects of changes in human capital.
- (B) It illustrates the operation of the primary labor market.
- (C) It explains the nature of early Chinese and Japanese immigration.
- (D) It characterizes the result of changing demand-side factors.
- (E) It underscores an influence on the labor market.
11. It can be inferred that the author's analysis of the socioeconomic achievement of Chinese and Japanese immigrants and their descendants differs from that of most sociologists primarily in that most sociologists
- (A) address the effects of the interaction of causal factors
- (B) exclude the factor of a developing capitalist economy
- (C) do not apply an economic metaphor
- (D) emphasize the disadvantageous effects of racial discrimination
- (E) focus on a single type of theoretical explanation
12. It can be inferred that which one of the following was an element of the experience of both Chinese and Japanese immigrants in the United States?
- (A) initial status as sojourners



- (B) slow accumulation of capital
- (C) quick transition from laborer to manager
- (D) rapid establishment of nuclear families
- (E) rapid acquisition of technical skills

13. The author is primarily concerned with

- (A) advancing a synthesis of approaches to an issue
- (B) challenging a tentative answer to a question
- (C) evaluating the soundness of theories
- (D) resolving the differences between schools of thought
- (E) outlining the achievements of a group

Although the legal systems of England and the United States are superficially similar, they differ profoundly in their approaches to and uses of legal reasons: substantive reasons in the United States, whereas in England the reverse is true. This distinction reflects a difference in the visions of law that prevail in the two countries. In England the law has traditionally been viewed as a system of rules; the United States favors a vision of law as an outward expression of the community's sense of right and justice.

Substantive reasons, as applied to law, are based on moral, economic, political, and other considerations. These reasons are found both "in the law" and "outside the law," so to speak. Substantive reasons inform the content of a large part of the law: constitutions, statutes, contracts, verdicts, and the like. Consider, for example, a statute providing (to make a proviso or stipulation) that "no vehicles shall be taken into public parks". Suppose that no specific rationales or purposes were explicitly written into this statute, but that it was clear (from its legislative history) that the substantive purpose of the statute was to ensure quiet and safety in the park. Now suppose that a veterans' group mounts a World War II jeep (in running order but without a battery) as a war memorial on a concrete slab in the park, and charges are brought against its members. Most judges in the United States would find the defendants not guilty because what they did had no adverse effect on park quiet and safety.

Formal reasons are different in that they frequently prevent substantive reasons from coming into play, even when substantive reasons are explicitly incorporated into the law at hand. For example, when a document fails to comply with stipulated requirements, the court may render the document legally ineffective. A will requiring written witness may be declared null and void and therefore, unenforceable for the formal reason that the requirement was not observed. Once the legal rule—that a will is invalid for lack of proper witnessing—has been clearly established, and the legality of the rule is not in question, application of that rule precludes from consideration substantive arguments in favor of the will's validity or enforcement.

Legal scholars in England and the United States have long bemused themselves with extreme examples of formal and substantive reasoning. On the one hand, formal reasoning in England has led to wooden interpretations of statutes and an unwillingness to develop the common law through judicial activism. On the other hand, freewheeling substantive reasoning in the United States has resulted in statutory interpretations so liberal that the texts of some



statutes have been ignored altogether.

14. Which one of the following best describes the content of the passage as a whole?
- (A) an analysis of similarities and differences between the legal systems of England and the United States
  - (B) a reevaluation of two legal systems with the use of examples
  - (C) a contrast between the types of reasons embodied in the United States and England legal systems
  - (D) an explanation of how two distinct visions of the law shaped the development of legal reasoning
  - (E) a presentation of two types of legal reasons that shows the characteristics they have in common
15. It can be inferred from the passage that English judges would be likely to find the veterans' group discussed in the second paragraph guilty of violating the statute because
- (A) not to do so would encourage others to act as the group did
  - (B) not to do so would be to violate the substantive reasons underlying the law
  - (C) the veterans failed to comply with the substantive purpose of the statute
  - (D) the veterans failed to demonstrate that their activities had no adverse effect on the public
  - (E) the veterans failed to comply with the stipulated requirements of the statute
16. From the discussion of wills in the third paragraph it can be inferred that substantive arguments as to the validity of a will might be considered under which one of the following circumstances?
- (A) The legal rule requiring that a will be witnessed in writing does not stipulate the format of the will.
  - (B) The legal rule requiring that a will be witnessed stipulates that the will must be witnessed in writing by two people.
  - (C) The legal rule requiring that a will be witnessed in writing stipulates that the witnessing must be done in the presence of a judge.
  - (D) A judge rules that the law requires a will to be witnessed in writing regardless of **extenuating circumstances**.
  - (E) A judge rules that the law can be interpreted to allow for a verbal witness to a will in a case involving a medical emergency.
17. The author of the passage makes use of all of the following in presenting the discussion of the English and the United States legal systems EXCEPT
- (A) comparison and contrast
  - (B) generalization
  - (C) explication of term
  - (D) a chronology of historical developments

- (E) a hypothetical case
18. Which one of the following best describes the function of the last paragraph of the passage?
- (A) It presents the consequences of extreme interpretations of the two types of legal reasons discussed by the author.
  - (B) It shows how legal scholars can incorrectly use extreme examples to support their views.
  - (C) It corrects inaccuracies in legal scholars' views of the nature of the two types of legal systems.
  - (D) It suggests how characterizations of the two types of legal reasons can become convoluted and inaccurate.
  - (E) It presents scholars' characterizations of both legal systems that are only partially correct.
19. The author of the passage suggests that in English law a substantive interpretation of a legal rule might be warranted under which one of the following circumstances?
- (A) Social conditions have changed to the extent that to continue to enforce the rule would be to decide contrary to present-day social norms.
  - (B) The composition of the legislature has changed to the extent that to enforce the rule would be contrary to the views of the majority in the present legislative assembly.
  - (C) The legality of the rule is in question and its enforcement is open to judicial interpretation.
  - (D) Individuals who have violated the legal rule argue that application of the rule would lead to unfair judicial interpretations.
  - (E) Superior court judges have consistently ruled in decisions regarding the interpretation of the legal rule.
20. According to the passage, which one of the following statements about substantive reasons is true?
- (A) They may be written into laws, but they may also exert an external influence on the law.
  - (B) They must be explicitly written into the law in order to be relevant to the application of the law.
  - (C) They are legal in nature and determine particular applications of most laws.
  - (D) They often provide judges with specific rationales for disregarding the laws of the land.
  - (E) They are peripheral to the law, whereas formal reasons are central to the law.

How does the brain know when carbohydrates have been or should be consumed? The answer to this question is not known, but one element in the explanation seems to be the neurotransmitter **serotonin**, one of a class of chemical mediators that may be released from a

presynaptic neuron and that cause the transmission of a nerve impulse across a synapse to an adjacent postsynaptic neuron. In general, it has been found that drugs that selectively facilitate serotonin-mediated neurotransmission tend to cause weight loss, whereas drugs that block serotonin-mediated transmission often have the opposite effect: they often induce carbohydrate craving and consequent weight gain.

Serotonin is a derivative of **tryptophan**, an amino acid that is normally present at low levels in the bloodstream. The rate of conversion is affected by the proportion of carbohydrates in an individual's diet: carbohydrates stimulate the secretion of insulin, which facilitates the uptake of most amino acids into peripheral tissues, such as muscles. Blood tryptophan levels, however, are unaffected by insulin, so the proportion of tryptophan in the blood relative to the other amino acids increases when carbohydrates are consumed. Since tryptophan competes with other amino acids for transport across the blood-brain barrier into the brain, insulin secretion indirectly speeds tryptophan's entry into the **central nervous system** where, in a special cluster of neurons, it is converted into serotonin.

The level of serotonin in the brain in turn affects the amount of carbohydrate an individual chooses to eat. Rats that are allowed to choose among synthetic foods containing different proportions of carbohydrate and protein will normally alternate between foods containing mostly protein and those containing mostly carbohydrate. However, if rats are given drugs that enhance the effect of serotonin, the rats' carbohydrate intake is reduced. On the other hand, when rats are given drugs that interrupt serotonin-mediated neurotransmission, their brains fail to respond when carbohydrates are eaten, so the desire for them persists.

In human beings a serotoninlike drug,  $\alpha$ -fenfluramine (which release serotonin into brain synapses and then prolong its action by blocking its reabsorption into the presynaptic neuron), selectively suppresses carbohydrate snacking (and its associated weight gain) in people who crave carbohydrates. In contrast, drugs that block serotonin-mediated transmission or that interact with neurotransmitters other than serotonin have the opposite effect: they often induce carbohydrate craving and subsequent weight gain. People who crave carbohydrates report feeling refreshed and invigorated after eating a carbohydrate-rich meal (which would be expected to increase brain serotonin levels), in contrast, those who do not crave carbohydrates become sleepy following a high-carbohydrate meal. These findings suggest that serotonin has other effects that may be useful indicators of serotonin levels in human beings.

21. Which one of the following best states the main idea of the passage
- (A) The body's need for carbohydrates varies with the level of serotonin in the blood.
  - (B) The body's use of carbohydrates can be regulated by the administration of serotoninlike drugs.
  - (C) The role of serotonin in regulating the consumption of carbohydrates is similar in rats and in humans.
  - (D) The body's desire for carbohydrates can be influenced by serotonin or serotoninlike drugs.
  - (E) Tryptophan initiates a chain of events that regulates the body's use of carbohydrates.

22. The term “rate” (line 17) refers to the rate at which
- (A) serotonin is produced from tryptophan
  - (B) carbohydrates are taken into the body
  - (C) carbohydrates stimulate the secretion of insulin
  - (D) insulin facilitates the uptake of amino acids into peripheral tissues
  - (E) tryptophan enters the bloodstream
23. It can be inferred that a person is likely to crave carbohydrates when
- (A) the amount of insulin produced is too high
  - (B) the amount of serotonin in the brain is too low
  - (C) more tryptophan than usual crosses the blood-brain barrier
  - (D) neurotransmission by neurotransmitters other than serotonin is interrupted
  - (E) amino acids other than tryptophan are taken up by peripheral tissues
24. The information in the passage indicates that if human beings were given a drug that inhibits the action of serotonin, which one of the following might be expected to occur?
- (A) Subjects would probably show a preference for carbohydrate-rich snacks rather than protein-rich snacks.
  - (B) Subjects would probably become sleepy after eating a carbohydrate-rich meal.
  - (C) Subjects would be more likely to lose weight than before they took the drug.
  - (D) Subjects’ blood tryptophan levels would probably increase.
  - (E) Subjects’ desire for both carbohydrates and proteins would increase.
25. The primary purpose of the second paragraph in the passage is to
- (A) provide an overview of current research concerning the effect of serotonin on carbohydrate consumption
  - (B) contrast the role of tryptophan in the body with that of serotonin
  - (C) discuss the role of serotonin in the transmission of neural impulses
  - (D) explain how the brain knows that carbohydrates should be consumed
  - (E) establish a connection between carbohydrate intake and the production of serotonin
26. It can be inferred that after a person has taken *d*-fenfluramine, he or she will probably be
- (A) inclined to gain weight
  - (B) sleepy much of the time
  - (C) unlikely to crave carbohydrates
  - (D) unable to sleep as much as usual
  - (E) likely to secrete more insulin than usual

27. The author's primary purpose is to
- (A) defend a point of view
  - (B) correct a misconception
  - (C) assess conflicting evidence
  - (D) suggest new directions for investigation
  - (E) provide information that helps explain a phenomenon

**LSAT 14 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

A major tenet of the neurosciences has been that all neurons (nerve cells) in the brains of vertebrate animals are formed early in development. An adult vertebrate, it was believed, must **make do with** a fixed number of neurons: those lost through disease or injury are not replaced, and adult learning takes place not through generation of new cells but through modification of connections among existing ones.

However, new evidence for neurogenesis (the birth of new neurons) has come from the study of canary song. Young canaries and other songbirds learn to sing much as humans learn to speak, by imitating models provided by their elders. Several weeks after birth, a young bird produces its first rudimentary attempts at singing; over the next few months the song becomes more structured and stable, reaching a fully developed state by the time the bird approaches its first **breeding season**. But this repertoire of song is not permanently learned. After each breeding season, during late summer and fall, the bird loses mastery of its developed "vocabulary," and its song becomes as unstable as that of a juvenile bird. During the following winter and spring, however, the canary acquires new songs, and by the next breeding season it has developed an entirely new repertoire.

Recent neurological research into this learning and relearning process has shown that the two most important regions of the canary's brain related to the learning of songs actually vary in size at different times of the year. In the spring, when the bird's song is highly developed and uniform, the regions are roughly twice as large as they are in the fall. Further experiments tracing individual nerve cells within these regions have shown that the number of neurons drops by about 38 percent after the breeding season, but by the following breeding season, new ones have been generated to replace them. A possible explanation for this continual replacement of nerve cells may have to do with the canary's relatively long life span and the requirements of flight. Its brain would have to be substantially larger and heavier than might be feasible for flying if it had to carry all the brain cells needed to process and retain all the information gathered over a lifetime.

Although the idea of neurogenesis in the adult mammalian brain is still not generally accepted, these findings might help uncover a mechanism that would enable the human brain

to repair itself through neurogenesis. Whether such replacement of neurons would disrupt complex learning processes or long-term memory is not known, but songbird research **challenges** scientists to identify the genes or hormones that **orchestrate** neurogenesis in the young human brain and to learn how to activate them in the adult brain.

1. Which one of the following best expresses the main idea of the passage?
  - (A) New evidence of neurogenesis in canaries challenges an established neurological theory concerning brain cells in vertebrates and suggests the possibility that human brains may repair themselves.
  - (B) The brains of canaries differ from the brains of other vertebrate animals in that the brains of adult canaries are able to generate neurons.
  - (C) Recent studies of neurogenesis in canaries, building on established theories of vertebrate neurology, provide important clues as to why researchers are not likely to discover neurogenesis in adult humans.
  - (D) Recent research into neurogenesis in canaries refutes a long-held belief about the limited supply of brain cells and provides new information about neurogenesis in the adult human brain.
  - (E) New information about neurogenesis in canaries challenges older hypotheses and clarifies the importance of the yearly cycle in learning processes and neurological replacement among vertebrates.
2. According to the passage, which one of the following is true of the typical adult canary during the late summer and fall?
  - (A) The canary's song repertoire takes on a fully structured and stable quality.
  - (B) A process of neurogenesis replaces the song-learning neurons that were lost during the preceding months.
  - (C) The canary begins to learn an entirely new repertoire of songs based on the models of other canaries.
  - (D) The regions in the canary's brain that are central to the learning of song decrease in size.
  - (E) The canary performs slightly modified versions of the songs it learned during the preceding breeding season.
3. Information in the passage suggests that the author would most likely regard which one of the following as LEAST important in future research on neurogenesis in humans?
  - (A) research on possible similarities between the neurological structures of humans and canaries
  - (B) studies that compare the ratio of brain weight to body weight in canaries to that in humans
  - (C) neurological research on the genes or hormones that activate neurogenesis in the brain of human infants
  - (D) studies about the ways in which long-term memory functions in the human



brain

(E) research concerning the processes by which humans learn complicated tasks

4. Which one of the following, if true, would most seriously undermine the explanation proposed by the author in the third paragraph?
- (A) A number of songbird species related to the canary have a shorter life span than the canary and do not experience neurogenesis.
  - (B) The brain size of several types of airborne birds with life spans similar to those of canaries has been shown to vary according to a two-year cycle of neurogenesis.
  - (C) Several species of airborne birds similar to canaries in size are known to have brains that are substantially heavier than the canary's brain.
  - (D) Individual canaries that have larger-than-average repertoires of songs tend to have better developed muscles for flying.
  - (E) Individual canaries with smaller and lighter brains than the average tend to retain a smaller-than-average repertoire of songs.
5. The use of the word "vocabulary" (line 23) serves primarily to
- (A) demonstrate the presence of a rudimentary grammatical structure in canary song
  - (B) point out a similarity between the patterned groupings of sounds in a canary's song and the syllabic structures of words
  - (C) stress the stability and uniformity of canary's song throughout its lifetime
  - (D) suggest a similarity between the possession of a repertoire of words among humans and a repertoire of songs among canaries
  - (E) imply that the complexity of the canary's song repertoire is equal to that of human language
6. According to the passage, which one of the following factors may help account for the occurrence of neurogenesis in canaries?
- (A) the life span of the average canary
  - (B) the process by which canaries learn songs
  - (C) the frequency of canary breeding seasons
  - (D) the number of regions in the canary brain related to song learning
  - (E) the amount of time an average canary needs to learn a repertoire of songs
7. Which one of the following best describes the organization of the third paragraph?
- (A) A theory is presented, analyzed, and modified, and a justification for the modification is offered.
  - (B) Research results are advanced and reconciled with results from other studies, and a shared principle is described.
  - (C) Research results are presented, further details are provided, and a hypothesis

is offered to explain the results.

- (D) Research results are reported, their implications are explained, and an application to a related field is proposed.
- (E) Research results are reported, their significance is clarified, and they are reconciled with previously established neurological tenets.

8. It can be inferred from the passage that the author would most likely describe the current understanding of neurogenesis as
- (A) exhaustive
  - (B) progressive
  - (C) incomplete
  - (D) antiquated
  - (E) incorrect

For too many years scholars of African American history focused on the harm done by slaveholders and by the institution of slavery, rather than on what Africans in the United States were able to accomplish despite the effects of that institution. In *Myne Owne Ground*, T. H. Breen and Stephen Innes contribute significantly to a recent, welcome shift from a white-centered to a black-centered inquiry into the role of African Americans in the American colonial period. Breen and Innes focus not on slaves, but on a small group of freed indentured servants in Northampton County (in the Chesapeake Bay region of Virginia) who, according to the authors, maintained their freedom, secured property, and interacted with persons of different races and economic standing from 1620 through the 1670s. African Americans living on the Chesapeake were to some extent disadvantaged, say Breen and Innes, but this did not preclude the attainment of status roughly equal to that of certain white planters of the area. Continuously acting within black social networks, and forming economic relationships with white planters, local Native Americans, indentured servants, and white settlers outside the gentry class, the free African Americans of Northampton County **held their own** in the **rough-hewn** world of Chesapeake Bay.

The authors emphasize that in this early period, when the percentage of African Americans in any given Chesapeake county was still no more than 10 percent of the population, very little was predetermined so far as racial status or race relations were concerned. By schooling themselves in the local legal process and by working prodigiously on the land, African Americans acquired property, established families, and warded off contentious white neighbors. Breen and Innes do acknowledge that political power on the Chesapeake was asymmetrically distributed among black and white residents. However, they underemphasize much evidence that customary law, only gradually embodies in **statutory law**, was **closing in** on free African Americans well before the 1670s: during the 1660s, when the proportion of African Americans in Virginia increased dramatically, Virginia tightened a law regulating interracial relations (1662) and enacted a statute prohibiting baptism from altering slave status (1667). Anthony Johnson, a leader in the community of free African Americans in the Chesapeake Bay region, sold the land he had cultivated for more than twenty years and moved north with his family around 1665, an action that the authors attribute to a search for "fresh, more productive land." But the answer to why the Johnsons left that area where they had labored so long may lie in their

realization that their white neighbors were already beginning the transition from a largely white indentured labor force to reliance on a largely black slave labor force, and that the institution of slavery was threatening their descendants' chances for freedom and success in Virginia.

9. The author of the passage objects to many scholarly studies of African American history for which one of the following reasons?
- (A) Their emphases have been on statutory law rather than on customary law.
  - (B) They have ignored specific historical situations and personages in favor of broad interpretations.
  - (C) They have focused on the least eventful periods in African American history.
  - (D) They have underemphasized the economic system that was the basis of the institution of slavery.
  - (E) They have failed to focus to a sufficient extent on the achievements of African Americans.
10. Which one of the following can be inferred from the passage concerning the relationship between the African American population and the law in the Chesapeake Bay region of Virginia Between 1650 and 1670?
- (A) The laws affecting black citizens were embodied in statutes much more gradually than were laws affecting white citizens.
  - (B) As the percentage of black citizens in the population grew, the legal restrictions placed on them also increased.
  - (C) Because of discriminatory laws, black farmers suffered more economic setbacks than did white farmers.
  - (D) Because of legal constraints on hiring indentured servants, black farmers faced a chronic labor shortage on their farms.
  - (E) The adherence to customary law was more rigid in regions with relatively large numbers of free black citizens.
11. The author of the passage most probably refers to Anthony Johnson and his family in order to
- (A) provide a specific example of the potential shortcomings of Breen and Innes' interpretation of historical events
  - (B) provide a specific example of relevant data overlooked by Breen and Innes in their discussion of historical events
  - (C) provide a specific example of data that Breen and Innes might profitably have used in proving their thesis
  - (D) argue that the standard interpretation of historical events is superior to Breen and Innes' revisionist interpretation
  - (E) argue that a new historiographical method is needed to provide a full and coherent reading of historical events
12. The attitude of the author of the passage toward Breen and Innes' study can best

- be described as one of
- (A) condescending dismissal
  - (B) wholehearted acceptance
  - (C) contentious challenge
  - (D) qualified approval
  - (E) sincere puzzlement

13. The primary purpose of the passage is to
- (A) summarize previous interpretations
  - (B) advocate a new approach
  - (C) propose and then illustrate a thesis
  - (D) present and evaluate an interpretation
  - (E) describe a historical event

Late nineteenth-century books about the French artist Watteau (1684-1721) betray a curious **blind spot**: more than any single artist before or since, Watteau provided his age with an influential image of itself, and nineteenth-century writers accepted this image as genuine. This was largely due to the enterprise of Watteau's friends who, soon after his death, organized the printing of engraved reproductions of the great bulk of his work—both his paintings and his drawings—so that Watteau's total artistic output became and continued to be more accessible than that of any other artist until the twentieth-century advent of art monographs illustrated with photographs. These engravings presented aristocratic (and would-be aristocratic) eighteenth-century French society with an image of itself that was highly acceptable and widely imitate by other artists, however little relationship that image bore to reality. By 1884, the bicentenary of Watteau's birth, it was standard practice for biographers to refer to him as "the personification of the witty and amiable eighteenth century."

In fact, Watteau saw little enough of that "witty and amiable" century for which so much nostalgia was generally felt between about 1870 and 1920, a period during which enthusiasm for the artist reached its peak. The eighteenth century's first decades, the period of his artistic activity, were fairly calamitous ones. During his short life, France was almost continually at war: his native region was overrun with foreign troops, and Paris was threatened by siege and by a rampaging army rabble. The dreadful winter of 1709, the year of Watteau's first Paris successes, was marked by military defeat and a disastrous famine.

Most of Watteau's nineteenth-century admirers simply ignored the grim background of the works they found so lyrical and charming. Those who took the inconvenient historical facts into consideration did so only in order to refute the widely held deterministic view that the content and style of an artist's work were absolutely dictated by heredity and environment. (For Watteau admirers, such determinism was unthinkable: the artist was born in a Flemish town only six years after it first became part of France, yet Watteau was quintessentially French. As one patriotic French biographer put it, "In Dreden, Potsdam, and Berlin I have never come across a Watteau without feeling refreshed by a breath of native air." Even such writers, however, persisted in according Watteau's canvases a privileged status as representative "personifications" of the eighteenth century. The discrepancy between historical fact and

artistic vision, useful in refuting the extreme deterministic position, merely forced these writers to seek a new formula that allowed them to preserve the desired identity between image and reality, this time a rather suspiciously psychic one: Watteau did not record the society he knew, but rather “foresaw” a society that developed shortly after his death.

14. Which one of the following best describes the overall organization of the passage?
- (A) A particular phenomenon is discussed, the reasons that it is atypical are put forward, and these reasons are evaluated and refined.
  - (B) An assumption is made, results deriving from it are compared with what is known to be true, and the assumption is finally rejected as counterfactual.
  - (C) A point of view is described, one hypothesis accounting for it is introduced and rejected, and a better hypothesis is offered for consideration.
  - (D) A general characterization is offered, examples supporting it are introduced, and its special applicability to a particular group is asserted.
  - (E) A particular viewpoint is explained, its shortcomings are discussed, and its persistence in the face of these is noted.
15. The passage suggests that late-nineteenth-century biographers of Watteau considered the eighteenth century to be “witty and amiable” in large part because of
- (A) what they saw as Watteau’s typical eighteenth-century talent for transcending reality through art
  - (B) their opposition to the determinism that dominated late-nineteenth-century French thought
  - (C) a lack of access to historical source material concerning the early eighteenth century in France
  - (D) the nature of the image conveyed by the works of Watteau and his many imitators
  - (E) their political bias in favor of aristocratic regimes and societies
16. According to the passage, explanations of artistic production based on determinism were unthinkable to Watteau admirers for which one of the following reasons?
- (A) If such explanations were widely accepted, too many people who would otherwise have admired Watteau would cease to appreciate Watteau’s works.
  - (B) If such explanations were adopted, they would make it difficult for Watteau admirers to explain why Watteau’s works were purchased and admired by foreigners.
  - (C) If such explanations were correct, many artists who, like Watteau, considered themselves French would have to be excluded from histories of French art.
  - (D) If such simple explanations were offered, other more complex arguments concerning what made Watteau’s works especially charming would go

unexplored.

- (E) If such explanations were true, Watteau's works would reflect a "Flemish" sensibility rather than the especially "French" one these admirers saw in them.
17. The phrase "curious blind spot" (line 2 -3) can best be interpreted as referring to which one of the following?
- (A) some biographers' persistent inability to appreciate what the author considers a particularly admirable equality
- (B) certain writers' surprising lack of awareness of what the author considers an obvious discrepancy
- (C) some writers' willful refusal to evaluate properly what the author considers a valuable source of information about the past
- (D) an inexplicable tendency on the part of some writers to undervalue an artist whom the author considers extremely influential
- (E) a marked bias in favor of a certain painter and a concomitant prejudice against contemporaries the author considers equally talented
18. It can be inferred from the passage that the author's view of Watteau's works differs most significantly from that of most late-nineteenth-century Watteau admirers in which one of the following ways?
- (A) Unlike most late-nineteenth-century Watteau admirers, the author appreciates the importance of Watteau's artistic accomplishment.
- (B) The author finds Watteau's works to be much less lyrical and charming than did most late-nineteenth-century admirers of the works.
- (C) In contrast to most late-nineteenth-century Watteau admirers, the author finds it misleading to see Watteau's works as accurately reflecting social reality.
- (D) The author is much more willing to entertain deterministic explanations of the origins of Watteau's works than were most late-nineteenth-century Watteau admirers.
- (E) Unlike most late-nineteenth-century admirers of Watteau, the author considers it impossible for any work of art to personify or represent a particular historical period.
19. The author asserts that during the period of Watteau's artistic activity French society was experiencing which one of the following?
- (A) widespread social upheaval caused by war
- (B) a pervasive sense of nostalgia for an idealized past
- (C) increased domination of public affairs by a powerful aristocracy
- (D) rapid adoption by the middle classes of aristocratic manners and life-style
- (E) a need to reconcile the French self-image with French social realities
20. The information given in the passage suggests that which one of the following



principles accurately characterizes the relationship between an artist's work and the impact it is likely to have on a society?

- (A) An artist's recognition by society is most directly determined by the degree to which his or her works are perceived as lyrical and charming.
- (B) An artist will have the greatest influence on a society that values art particularly highly.
- (C) The works of an artist who captures the true and essential nature of a given society will probably have a great impact on that society.
- (D) The degree of influence an artist's vision will have on a society is conditional on the visibility of the artist's work.
- (E) An artist who is much imitated by contemporaries will usually fail to have an impact on a society unless the imitators are talented.

Faced with the problems of insufficient evidence, of conflicting evidence, and of evidence relayed through the flawed perceptual, retentive, and narrative abilities of witnesses, a jury is forced to draw inferences in its attempt to ascertain the truth. By applying the same cognitive tools they have developed and used over a lifetime, jurors engage in the inferential exercise that lawyers call fact-finding. In certain decision-making contexts that are relevant to the trial of lawsuits, however, these normally reliable cognitive tools may cause jurors to commit inferential errors that distort rather than reveal the truth.

Although juries can make a variety of inferential errors, most of these mistakes in judgment involve the drawing of an unwarranted conclusion from the evidence, that is, deciding that the evidence proves something that, in reality, it does not prove. For example, evidence that the defendant in a criminal prosecution has a prior conviction may encourage jurors to presume the defendant's guilt, because of their preconception that a person previously convicted of a crime must be inclined toward repeated criminal behavior. That commonly held belief is at least a partial distortion of reality; not all former convicts engage in repeated criminal behavior. Also, jury may give more probative weight than objective analysis would allow to vivid photographic evidence depicting a shooting victim's wounds, or may underestimate the weight of defense testimony that is not delivered in a sufficiently forceful or persuasive manner. Finally, complex or voluminous evidence might be so confusing to a jury that its members would draw totally unwarranted conclusions or even ignore the evidence entirely.

Recent empirical research in cognitive psychology suggests that people tend to commit inferential errors like these under certain predictable circumstances. By examining the available information, the situation, and the type of decision being made, cognitive psychologists can describe the kinds of inferential errors a person or group is likely to make. These patterns of human decision-making may provide the courts with a guide to evaluating the effect of evidence on the reliability of the jury's inferential processes in certain situations.

The notion that juries can commit inferential errors that jeopardize the accuracy of the fact-finding process is not unknown to the courts. In fact, one of a presiding judge's duties is to minimize jury inferential error through explanation and clarification. Nonetheless, most judges now employ only a limited and primitive concept of jury inferential error: limited because it fails

to recognize the potential for error outside certain traditional situations, primitive because it ignores the research and conclusions of psychologists in favor of notions about human cognition held by lawyers.

21. Which one of the following best expresses the main idea of the passage?
- (A) When making decisions in certain predictable situations, juries may commit inferential errors that obscure rather than reveal the truth.
  - (B) The views of human cognition taken by cognitive psychologists on the one hand and by the legal profession on the other are demonstrably dissimilar.
  - (C) When confronting powerful preconceptions, particularly shocking evidence, or complex, situation, jurors make errors in judgment.
  - (D) The problem of inferential error by juries is typical of the difficulties with cognitive processes that people face in their everyday lives.
  - (E) Juries would probably make more reliable decisions if cognitive psychologists, rather than judges, instructed them about the problems inherent in drawing unwarranted conclusions.
22. Of the following hypothetical reforms in trial procedure, which one would the author be most likely to support as the best way to address the problem of jury inferential error?
- (A) a move away from jury trial
  - (B) the institution of minimum formal educational requirements for jurors
  - (C) the development of strict guidelines for defense testimony
  - (D) specific training for judges in the area of jury instruction
  - (E) restrictions on lawyers' use of psychological research
23. In the second paragraph, the author's primary purpose is to
- (A) refute the idea that the fact-finding process is a complicated exercise
  - (B) emphasize how carefully evidence must be presented in order to avoid jury inferential error
  - (C) explain how commonly held beliefs affect the jury's ability to ascertain the truth
  - (D) provide examples of situations that may precipitate jury errors
  - (E) recommend a method for minimizing mistakes by juries
24. Which one of the following best describes the author's attitude toward the majority of judges today?
- (A) apprehensive about whether they are consistent in their instruction of juries
  - (B) doubtful of their ability to draw consistently correct conclusions based on the evidence
  - (C) critical of their failure to take into account potentially helpful research
  - (D) pessimistic about their willingness to make significant changes in trial procedure

- (E) concerned about their allowing the presentation of complex and voluminous evidence in the courtroom
25. Which one of the following statements, if true, would most seriously undermine the author's suggestion about the use of current psychological research in the courtroom?
- (A) All guidelines about human behavior must take account of variations in the patterns of human decision-making.
- (B) Current models of how humans make decisions apply reliably to individuals but do not hold for decisions made by groups.
- (C) The current conception of jury inferential error employed by judges has been in use for nearly a century.
- (D) Inferential errors can be more easily predicted in controlled situations such as the trial of lawsuits than in other kinds of decision-making processes.
- (E) In certain predictable circumstances, juries are less susceptible to inferential errors than they are in other circumstances.
26. It can be inferred from the passage that the author would be most likely to agree with which one of the following generalizations about lawyers?
- (A) They have a less sophisticated understanding of human cognition than do psychologists.
- (B) They often present complex or voluminous information merely in order to confuse a jury.
- (C) They are no better at making logical inferences from the testimony at a trial than are most judges.
- (D) They have worked to help judges minimize jury inferential error.
- (E) They are unrealistic about the ability of jurors to ascertain the truth.
27. The author would be most likely to agree with which one of the following generalizations about a jury's decision-making process?
- (A) The more evidence that a jury has, the more likely it is that the jury will reach a reliable verdict.
- (B) Juries usually overestimate the value of visual evidence such as photographs.
- (C) Jurors have preconceptions about the behavior of defendants that prevent them from making an objective analysis of the evidence in a criminal trial.
- (D) Most of the jurors who make inferential errors during a trial do so because they are unaccustomed to having to make difficult decisions based on inferences.
- (E) The manner in which evidence is presented to a jury may influence the jury either to overestimate or to underestimate the value of that evidence.

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

It is a fundamental tenet of geophysics that the Earth's magnetic field can exist in either of two polarity states: a "normal" state, in which north-seeking compass needles point to the geographic north, and a "reverse" state, in which they point to the geographic south. Geological evidence shows that periodically the field's polarity reverses, and that these reversals have been taking place at an increasing rate. Evidence also indicates that the field does not reverse instantaneously from one polarity state to another; rather, the process involves a transition period that typically spans a few thousand years.

Though this much is known, the underlying causes of the reversal phenomenon are not well understood. It is generally accepted that the magnetic field itself is generated by the motion of free electrons in the outer core, a slowly churning mass of molten metal sandwiched between the Earth's mantle (the region of the Earth's interior lying below the crust) and its solid inner core. In some way that is not completely understood, gravity and the Earth's rotation, acting on temperature and density differences within the outer core fluid, provide the driving forces behind the generation of the field. The reversal phenomenon may be triggered when something disturbs the heat circulation pattern of the outer core fluid, and with it the magnetic field.

Several explanations for this phenomenon have been proposed. One proposal, the "heat-transfer hypothesis," is that the triggering process is intimately related to the way the outer core vents its heat into the mantle. For example, such **heat transfer** could create hotter (rising) or cooler (descending) blobs of material from the inner and outer boundaries of the fluid core, thereby perturbing the main heat-circulation pattern. A more controversial alternative proposal is the asteroid-impact hypothesis. In this scenario an extended period of cold and darkness results from the impact of an asteroid large enough to send a great cloud of dust into the atmosphere. Following this climatic change, ocean temperatures drop and the polar ice caps grow, redistributing the Earth's seawater. This redistribution increases the rotational acceleration of the mantle, causing friction and turbulence near the outer core-mantle boundary and initiating reversal of the magnetic field.

How well do these hypotheses account for such observations as the long-term increase in the frequency of reversal? In support of the asteroid-impact model, it had been argued that the gradual cooling of the average ocean temperature would enable progressively smaller asteroid impacts (which are known to occur more frequently than larger impacts) to cool the Earth's climate sufficiently to induce ice-cap growth and reversals. But theories that depend on extraterrestrial intervention seem less convincing than theories like the first, which account for the phenomenon solely by means of the thermodynamic state of the outer core and its effect on the mantle.

1. Which one of the following statements regarding the Earth's outer core is best supported by information presented in the passage?  
(A) Heat circulation in the outer core controls the growth and diminution of the

- polar ice caps.
- (B) Impact of asteroids on the Earth's surface alters the way in which the outer core vents its heat into the mantle.
  - (C) Motion of electrons within the metallic fluid in the outer core produces the Earth's magnetic field.
  - (D) Friction and turbulence near the boundary between the outer core and the mantle are typically caused by asteroid impacts.
  - (E) Cessation of heat circulation within the outer core brings on multiple reversals in the Earth's magnetic field.
2. The author's objection to the second hypothesis discussed in the passage is most applicable to which one of the following explanations concerning the extinction of the dinosaurs?
- (A) The extinction of the dinosaurs was the result of gradual changes in the composition of the Earth's atmosphere that occurred over millions of years.
  - (B) The dinosaurs became extinct when their food supply was disrupted following the emergence of mammals.
  - (C) The dinosaurs succumbed to the new, colder environment brought about by a buildup of volcanic ash in the atmosphere.
  - (D) After massively overpopulation the planet, dinosaurs disappeared due to widespread starvation and the rapid spread of disease.
  - (E) After radical climatic changes resulted from the impact of a comet, dinosaurs disappeared from the Earth.
3. The author mentions the creation of blobs of different temperatures in the Earth's outer core (lines 34-38) primarily in order to
- (A) present a way in which the venting of heat from the outer core might disturb the heat-circulation pattern within the outer core
  - (B) provide proof for the proposal that ventilation of heat from the outer core into the mantle triggers polarity reversal
  - (C) give an example of the way in which heat circulates between the Earth's outer core and the Earth's exterior
  - (D) describe how the outer core maintains its temperature by venting its excess heat into the Earth's mantle
  - (E) argue in favor of the theory that heat circulation in the Earth's interior produces the magnetic field
4. Which one of the following statements regarding the polarity of the Earth's magnetic field is best supported by information in the passage?
- (A) Most, but not all, geophysicists agree that the Earth's magnetic field may exist in two distinct polarity states.
  - (B) Changes in the polarity of the Earth's magnetic field have occurred more often in the recent past than in the distant past.

- (C) Heat transfer would cause reversals of the polarity of the Earth's magnetic field to occur more quickly than would asteroid impact.
  - (D) Geophysicists' understanding of the reversal of the Earth's magnetic field has increased significantly since the introduction of the heat-transfer hypothesis.
  - (E) Friction near the boundary of the inner and outer cores brings on reversal of the polarity of the geomagnetic field.
5. Which one of the following can be inferred regarding the two proposals discussed in the passage?
- (A) Since their introduction they have sharply divided the scientific community.
  - (B) Both were formulated in order to explain changes in the frequency of polarity reversal.
  - (C) Although no firm conclusions regarding them have yet been reached, both have been extensively investigated.
  - (D) They are not the only proposals scientists have put forward to explain the phenomenon of polarity reversal.
  - (E) Both were introduced some time ago and have since fallen into disfavor among geophysicists.
6. The author mentions each of the following as possible contributing causes to reversals of the Earth's magnetic field EXCEPT
- (A) changes in the way heat circulates within the outer core fluid
  - (B) extended periods of colder temperatures on the Earth's surface
  - (C) the creation of circulation blobs of outer core material of different temperatures
  - (D) changes in circulation patterns in the Earth's oceans
  - (E) clouding of the Earth's atmosphere by a large amount of dust

Innovations in language are never completely new. When the words used for familiar things change, or words for new things enter the language, they are usually borrowed or adapted from stock. Assuming new roles, they drag their old meanings along behind them like flickering shadow. This seems especially true of the language of the contemporary school of literary criticism that now prefers to describe its work simply and rather presumptuously as theory but is still popularly referred to as poststructuralism or *deconstruction*.

The first neologisms adopted by this movement were *signifier* and *signified*, employed to distinguish arbitrariness of the term we choose. The use of these particular terms (rather than, respectively, *words* and *thing*) underlined the seriousness of the naming process and its claim on our attention. Since in English "to signify" can also mean "to portend," these terms also suggest that words predict coming events.

With the use of the term *deconstruction* we move into another and more complex realm of meaning. The most common use of the terms *construction* and *deconstruction* is in the building trades, and their borrowing by literary theorists for a new type of criticism cannot help but have certain overtones to the outsider. First, the usage suggests that the creation and critical



interpretation of literature are not organic but mechanical processes; that the author of any piece of writing is not an inspired, intuitive artist, but merely a laborer who cobbles existing materials (words) into more or less conventional structures. The term *deconstruction* implies that the text has been put together like a building or a piece of machinery, and that it is in need of being taken apart, not so much in order to repair it as to demonstrate underlying inadequacies, false assumptions, and inherent contradictions. This process can supposedly be repeated many times and by many literary **hard hats**; it is expected that each *deconstruction* will reveal additional flaws and expose the illusions or bad faith of the builder. The fact that deconstructionists prefer to describe their activities as *deconstruction* rather than *criticism* is also revealing. *Criticism* and *critic* derive from the Greek *Kritikos*, "skillful in judging, decisive." Deconstruction, on the other hand, has no overtones of skill or wisdom; it merely suggests demolition of an existing building. In popular usage criticism suggests censure but not change. If we find fault with a building, we may condemn it, but we do not carry out the demolition ourselves. The deconstructionist, by implication, is both judge and executioner who leaves a text totally dismantled, if not reduced to a pile of rubble.

7. Which one of the following best expresses the main idea of the passage?
- (A) Implicit in the terminology of the school of criticism known as *deconstruction* are meanings that reveal the true nature of the deconstructionist's endeavor.
  - (B) The appearance of the terms *signifier* and *signified* in the field of literary theory anticipated the appearance of an even more radical idea known as *deconstruction*.
  - (C) Innovations in language and relations between old and new meanings of terms are a special concern of the new school of criticism known as *deconstruction*.
  - (D) Deconstructionists maintain that it is insufficient merely to judge a work: the critic must actively dismantle it.
  - (E) Progress in the field of literary theory is best achieved by looking for new terms like *signifier* and *deconstruction* that might suggest new critical approaches to a work.
8. Which one of the following is a claim that the author of the passage makes about deconstructionists?
- (A) Deconstructionists would not have been able to formulate their views adequately without the terms *signifier* and *signified*.
  - (B) Deconstructionists had no particular purpose in mind in choosing to use neologisms.
  - (C) Deconstructionists do not recognize that their own theory contains inherent contradictions.
  - (D) Deconstructionists find little interest in the relationship between words and their referents.
  - (E) Deconstructionists use the terms *signifier* and *signified* to stress the

importance of the process of naming.

9. Which one of the following generalizations about inventions is most analogous to the author's point about innovation in language?
- (A) A new invention usually consists of components that are specifically manufactured for the new invention.
  - (B) A new invention is usually behind the times, never making as much use of all the available modern technology as it could.
  - (C) A new invention usually consists of components that are already available but are made to function in new ways.
  - (D) A new invention is most useful when it is created with attention to the historical tradition established by implements previously used to do the same job.
  - (E) A new invention is rarely used to its full potential because it is surrounded by out-of-date technology that hinder its application.
10. The author of the passage uses the word "criticism" in lines 46-56 primarily in order to
- (A) give an example
  - (B) introduce a contrast
  - (C) undermine an argument
  - (D) codify a system
  - (E) dismiss an objection
11. Which one of the following best describes the function of the second paragraph within the passage as a whole?
- (A) It introduces a hypothesis that the author later expands upon.
  - (B) It qualifies a claim made earlier by the author.
  - (C) It develops an initial example of the author's general thesis.
  - (D) It predicts a development.
  - (E) It presents a contrasting view.
12. The passage suggests that the author most probably holds the view that an important characteristic of literary criticism is that it
- (A) demonstrate false assumptions and inherent contradictions
  - (B) employ skill and insight
  - (C) be carried out by one critic rather than many
  - (D) reveal how a text is put together like a building
  - (E) point out the superiority of conventional text structures
13. The passage suggests that which one of the following most accurately describes the author's view of deconstructionist thought?
- (A) The author is guardedly optimistic about the ability of deconstruction to

reveal the intentions and biases of a writer.

- (B) The author endorses the utility of deconstruction for revealing the role of older meanings of words.
- (C) The author is enthusiastic about the significant neologisms that deconstruction has introduced into literary criticism.
- (D) The author regards deconstruction's tendency to focus only on the problems and faults of literary texts as too mechanical.
- (E) The author condemns deconstruction's attempts to define literary criticism as a creative act.

(The following passage was written in 1986)

The **legislation** of a country recently considered a bill designed to reduce the uncertainty inherent in the ownership of art by specifying certain conditions that must be met before an allegedly stolen work of art can be reclaimed by a plaintiff. The bill places the burden of proof in reclamation litigation entirely on the plaintiff, who must demonstrate that the holder of an item knew at the time of purchase that it had been stolen. Additionally, the bill creates a uniform national statute of limitations for reclamation of stolen cultural property.

**Testifying** in support of the bill, James D. Burke, a citizen of the country and one of its leading art museum directors, specially praised the inclusion of a statute of limitations; otherwise, he said, other countries could seek to reclaim valuable art objects, no matter how long they have been held by the current owner or how legitimately they were acquired. Any country could enact a patrimony law stating that anything ever made within the boundaries of that country is its cultural property. Burke expressed the fear that lead to ruinous legal defense costs for museums.

However, because such reclamation suits have not yet been a problem, there is little basis for Burke's concern. In fact, the proposed legislation would establish too many unjustifiable barriers to the location and recovery of stolen objects. The main barrier is that the bill considers the announcement of an art transaction in a museum publication to be adequate evidence of an attempt to notify a possible owner. There are far too many such publications for the victim of a theft to survey, and with only this form of disclosure, a stolen object could easily remain unlocated even if assiduously searched for. Another stipulation requires that a purchaser show the object to a scholar for verification that it is not stolen, but it is a rare academic who is aware of any but the most publicized art thefts. Moreover, the time limit specified by the statute of limitations is very short, and the requirement that the plaintiff demonstrate that the holder had knowledge of the theft is unrealistic. Typically, stolen art changes hands several times before rising to the level in the marketplace where a curator or collector would see it. At that point, the object bears no trace of the initial transaction between the thief and the first purchaser, perhaps the only one in the chain who knowingly acquired a stolen work of art.

Thus, the need for new legislation to protect holders of art is not obvious. Rather, what is necessary is legislation remedying the difficulties that legitimate owners of works of art, and countries from which such works have been stolen, have in locating and reclaiming these stolen works.

14. Which one of the following most accurately summarizes the main point of the

passage?

- (A) Various legal disputes have recently arisen that demonstrate the need for legislation clarifying the legal position of museums in suits involving the repossession of cultural property.
  - (B) A bill intended to prevent other governments from recovering cultural property was recently introduced into the legislature of a country at the behest of its museum directors.
  - (C) A bill intended to protect good-faith purchasers of works of art from reclamation litigation is unnecessary and fails to address the needs of legitimate owners attempting to recover stolen art works.
  - (D) Clashes between museum professionals and members of the academic community regarding governmental legislation of the arts can best be resolved by negotiation and arbitration, not by litigation.
  - (E) The desire of some governments to use legislation and litigation to recover cultural property stolen from their countries has led to abuses in international patrimony legislation.
15. The uncertainty mentioned in line 2 of the passage refers to the
- (A) doubt that owners of works of art often harbor over whether individuals have a moral right to possess great art
  - (B) concern that owners of works of art often have that their possession of such objects may be legally challenged at any time
  - (C) questions that owners of works of art often have concerning the correct identification of the age and origin of their objects
  - (D) disputes that often arise between cultural institutions vying for the opportunity to purchase a work of art
  - (E) apprehension that owners of works of art often feel concerning the possibility that their objects may be damaged or stolen from them
16. Which one of the following is an example of the kind of action that Burke feared would pose a serious threat to museums in his country?
- (A) the passage of a law by another country forbidding the future export of any archaeological objects uncovered at sites within its territory
  - (B) an international accord establishing strict criteria for determining whether a work of art can be considered stolen and specifying the circumstances under which it must be returned to its country of origin
  - (C) the passage of a law by another country declaring that all objects created by its aboriginal people are the sole property of that country
  - (D) an increase in the acquisition of culturally significant works of art by private collectors, who are more capable than museums of bearing the cost of litigation but who rarely display their collections to the public
  - (E) the recommendation of a United Nations committee studying the problem of

art theft that all international sales of cultural property be coordinated by a central regulatory body

17. According to the passage, Burke envisaged the most formidable potential adversaries of his country's museums in reclamation litigation to be
- (A) commercial dealers in art
  - (B) law enforcement officials in his own country
  - (C) governments of other countries
  - (D) private collectors of art
  - (E) museums in other countries
18. The author suggests that in the country mentioned in line 1, litigation involving the reclamation of stolen works of art has been
- (A) less common than Burke fears it will become without passage of a national stature of limitations for reclamation of stolen cultural property
  - (B) increasing as a result of the passage of legislation that aids legitimate owners of art in their attempts to recover stolen works
  - (C) a serious threat to museums and cultural institutions that have unwittingly added stolen artifacts to their collections
  - (D) a signal of the legitimate frustrations of victims of art theft
  - (E) increasing as a result of an increase in the amount of art theft
19. Which one of the following best describes the author's attitude towards the proposed bill?
- (A) impassioned support
  - (B) measured advocacy
  - (C) fearful apprehension
  - (D) reasoned opposition
  - (E) reluctant approval
20. Which one of the following best exemplifies the sort of legislation considered necessary by the author of the passage?
- (A) a law requiring museums to notify foreign governments and cultural institutions of all the catalogs and scholarly journals that they publish
  - (B) a law providing for the creation of a national warehouse for storage of works of art that are the subject of litigation
  - (C) a law instituting a national fund for assisting museums to bear the expenses of defending themselves against reclamation suits
  - (D) A law declaring invalid all sales of culture property during the last ten years by museums of one country to museums of another
  - (E) A law requiring that a central archive be established for collecting and distributing information concerning all reported thefts of cultural property

Until recently, few historians were interested in analyzing the similarities and differences between serfdom in Russia and slavery in the United States. Even Alexis de Tocqueville, who recognized the significant comparability of the two nations, never compared their systems of servitude, despite his interest in United States slavery. Moreover, the almost simultaneous abolition of Russian serfdom and United States slavery in the 1860s—a riveting coincidence that should have drawn more modern scholars to a comparative study of the two systems of servitude—has failed to arouse the interest of scholars. Though some historians may have been put off by the forbidding political differences between nineteenth-century Russia and the United States—one an imperial monarchy, the other a federal democracy—a recent study by Peter Kolchin identifies differences that are illuminating, especially with regard to the different kinds of rebellion exhibited by slaves and serfs.

Kolchin points out that nobles owning serfs in Russia constituted only a tiny proportion of the population, while in the southern United States, about a quarter of all White people were members of slave-owning families. And although in the southern United States only 2 percent of slaves worked on plantations where more than a hundred slaves worked, in Russia almost 80 percent of the serfs worked for nobles who owned more than a hundred serfs. In Russia most serfs rarely saw their owners who tended to rely on intermediaries to manage their estates, while most southern planters lived on their land and interacted with slaves on a regular basis.

These differences in demographics partly explain differences in the kinds of resistance that slaves and serfs practiced in their respective countries. Both serfs and slaves engaged in a wide variety of rebellious activity, from silent sabotage, much of which has escaped the historical record, to organized armed rebellions, which were more common in Russia. The practice of absentee ownership, combined with the large numbers in which serfs were owned, probably contributed significantly to the four great rebellions that swept across Russia at roughly fifty-year intervals in the seventeenth and eighteenth centuries. The last of these, occurring between 1773 and 1774, enlisted more than a million serfs in a futile attempt to overthrow the Russian nobility. Russian serfs also participated in smaller acts of collective defiance called the *volnenie*, which typically started with a group of serfs who complained of grievances by petition and went out on strike. Confrontations between slaves and plantation authorities were also common, but they tended to be much less collective in nature than those that occurred in Russia, probably in part because the number of workers on each estate was smaller in the United States than was the case in Russia.

21. Which one of the following best states the main idea of the passage?
- (A) Differences in the demographics of United States slavery and Russian serfdom can help explain the different kinds of resistance practiced by slaves and serfs in their respective countries.
  - (B) Historians have yet to undertake an adequate comparison and contrast of Russian serfdom and United States slavery.
  - (C) Revolts by Russian serfs were commonly characterized by collective action.
  - (D) A recent study has questioned the value of comparing United States slavery to Russian serfdom, especially in light of the significant demographic and cultural differences between the two countries.



- (E) De Tocqueville failed to recognize the fundamental differences between Russian serfdom and United States slavery which more recent historians have identified.
22. According to the author, de Tocqueville was similar to many modern historians in his
- (A) interest in the demographic differences between Russia and the United States during the nineteenth century
  - (B) failure to undertake a comparison of Russian serfdom and United States slavery
  - (C) inability to explain why United States slavery and Russian serfdom were abolished during the same decade
  - (D) overestimation of the significance of the political differences between Russia and the United States
  - (E) recognition of the essential comparability of Russia and the United States
23. Which one of the following assertions, if true, would provide the most support for Kolchin's principal conclusion regarding the relationship of demographics to rebellion among Russian serfs and United States slaves?
- (A) Collective defiance by serfs during the nineteenth century was confined almost exclusively to their participation in the *volnenie*.
  - (B) The rebellious activity of United States slaves was more likely to escape the historical record than was the rebellious activity of Russian serfs.
  - (C) Organized rebellions by slaves in the Western Hemisphere during the nineteenth century were most common in colonies with large estates that normally employed more than a hundred slaves.
  - (D) In the southern United States during the nineteenth century, those estates that were managed by intermediaries rather than by the owner generally relied upon the labor of at least a hundred slaves.
  - (E) The intermediaries who managed estates in Russia during the nineteenth century were in general much more competent as managers than the owners of the estates that they managed.
24. The fact that United States slavery and Russian serfdom were abolished during the same decade is cited by the author in the first paragraph primarily in order to
- (A) emphasize that rebellions in both countries eventually led to the demise of the two institutions
  - (B) cite a coincidence that de Tocqueville should have been able to foresee
  - (C) suggest one reason why more historians should have been drawn to a comparative study of the two institutions
  - (D) cite a coincidence that Kolchin's study has failed to explain adequately
  - (E) emphasize the underlying similarities between the two institutions

25. The author cites which one of the following as a factor that might have discouraged historians from undertaking a comparative study of Russian serfdom and United States slavery?
- (A) major differences in the political systems of the two countries
  - (B) major differences in the demographics of the two countries
  - (C) the failure of de Tocqueville to address the subject
  - (D) differences in the size of the estates on which slaves and serfs labored
  - (E) the comprehensiveness of Kolchin's own work
26. According to the passage, Kolchin's study asserts that which one of the following was true of Russian nobles during the nineteenth century?
- (A) They agreed to the abolition of serfdom in the 1860s largely as a result of their having been influenced by the abolition of slavery in the United States.
  - (B) They became more directly involved in the management of their estates as a result of the rebellions that occurred in the previous century.
  - (C) They commonly agreed to at least some of the demands that arose out of the *volnenie*.
  - (D) They had relatively little direct contact with the serfs who worked on their estates.
  - (E) They hastened the abolition of serfdom by failing to devise an effective response to the collective nature of the serfs' rebellious activity.
27. The passage suggests that which one of the following was true of southern planters in the United States?
- (A) They were as prepared for collective protest as were their Russian counterparts.
  - (B) Few of them owned plantations on which fewer than a hundred slaves worked.
  - (C) They managed their estates more efficiently than did their Russian counterparts.
  - (D) Few of them relied on intermediaries to manage their estates.
  - (E) The size of their estates was larger on average than the size of Russian estates.

### **LSAT 16 SECTION I**

**Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Until the 1980s, most scientists believed that noncatastrophic geological processes caused the extinction of dinosaurs that occurred approximately 66 million years ago, at the end of the

Cretaceous period. Geologists argued that a dramatic drop in sea level coincided with the extinction of the dinosaurs and could have caused the climatic changes that resulted in this extinction as well as the extinction of many ocean species.

This view was seriously challenged in the 1980s by the discovery of large amounts of iridium in a layer of clay deposited at the end of the Cretaceous period. Because iridium is extremely rare in rocks on the Earth's surface but common in meteorites, researchers theorized that it was the impact of a large meteorite that dramatically changed the earth's climate and thus triggered the extinction of the dinosaurs.

Currently available evidence, however, offers more support for a new theory, the volcanic-eruption theory. A vast eruption of lava in India coincided with the extinctions that occurred at the end of the Cretaceous period, and the release of carbon dioxide from this episode of volcanism could have caused the climatic change responsible for the demise of the dinosaurs. Such outpourings of lava are caused by instability in the lowest layer of the Earth's mantle, located just above the Earth's core. As the rock that constitutes this layer is heated by the Earth's core, it becomes less dense and portions of it eventually escape upward as blobs or molten rock, called "diapirs," that can, under certain circumstances, erupt violently through the Earth's crust.

Moreover, the volcanic-eruption theory, like the impact theory, accounts for the presence of iridium in sedimentary deposits; it also explains matters that the meteorite-impact theory does not. Although iridium is extremely rare on the Earth's surface, the lower regions of the Earth's mantle have roughly the same composition as meteorites and contain large amounts of iridium, which in the case of a diapir eruption would probably be emitted as iridium hexafluoride, a gas that would disperse more uniformly in the atmosphere than the iridium-containing matter thrown out from a meteorite impact. In addition, the volcanic-eruption theory may explain why the end of the Cretaceous period was marked by a gradual change in sea level. Fossil records indicate that for several hundred thousand years prior to the relatively sudden disappearance of the dinosaurs, the level of the sea gradually fell, causing many marine organisms to die out. This change in sea level might well have been the result of a distortion in the Earth's surface that resulted from the movement of diapirs upward toward the Earth's crust, and the more cataclysmic extinction of the dinosaurs could have resulted from the explosive volcanism that occurred as material from the diapirs erupted onto the Earth's surface.

1. The passage suggests that during the 1980s researchers found meteorite impact a convincing explanation for the extinction of dinosaurs, in part because
  - (A) earlier theories had failed to account for the gradual extinction of many ocean species at the end of the Cretaceous period
  - (B) geologists had, up until that time, underestimated the amount of carbon dioxide that would be released during an episode of explosive volcanism
  - (C) a meteorite could have served as a source of the iridium found in a layer of clay deposited at the end of the Cretaceous period
  - (D) no theory relying on purely geological processes had, up until that time, explained the cause of the precipitous drop in sea level that occurred at the end of the Cretaceous period

- (E) the impact of a large meteorite could have resulted in the release of enough carbon dioxide to cause global climatic change
2. According to the passage, the lower regions of the Earth's mantle are characterized by
- (A) a composition similar to that of meteorites
  - (B) the absence of elements found in rocks on the Earth's crust
  - (C) a greater stability than that of the upper regions
  - (D) the presence of large amounts of carbon dioxide
  - (E) a uniformly lower density than that of the upper regions
3. It can be inferred from the passage that which one of the following was true of the lava that erupted in India at the end of the Cretaceous period?
- (A) It contained less carbon dioxide than did the meteorites that were striking the Earth's surface during that period.
  - (B) It was more dense than the molten rock, located just above the Earth's core.
  - (C) It released enough iridium hexafluoride into the atmosphere to change the Earth's climate dramatically.
  - (D) It was richer in iridium than rocks usually found on the Earth's surface.
  - (E) It was richer in iridium than were the meteorites that were striking the Earth's surface during that period.
4. In the passage, the author is primarily concerned with doing which one of the following?
- (A) describing three theories and explaining why the latest of these appears to be the best of the three
  - (B) attacking the assumptions inherent in theories that until the 1980s had been largely accepted by geologists
  - (C) outlining the inadequacies of three different explanations of the same phenomenon
  - (D) providing concrete examples in support of the more general assertion that theories must often be revised in light of new evidence
  - (E) citing evidence that appears to confirm the skepticism of geologists regarding a view held prior to the 1980s
5. The author implies that if the theory described in the third paragraph is true, which one of the following would have been true of iridium in the atmosphere at the end of the Cretaceous period?
- (A) Its level of concentration in the Earth's atmosphere would have been high due to a slow but steady increase in the atmospheric iridium that began in the early Cretaceous period.
  - (B) Its concentration in the Earth's atmosphere would have increased due to the dramatic decrease in sea level that occurred during the Cretaceous period.

- (C) It would have been directly responsible for the extinction of many ocean species.
- (D) It would have been more uniformly dispersed than iridium whose source had been the impact of a meteorite on the Earth's surface.
- (E) It would have been more uniformly dispersed than indium released into the atmosphere as a result of normal geological processes that occur on Earth.
6. The passage supports which one of the following claims about the volcanic-eruption theory?
- (A) It does not rely on assumptions concerning the temperature of molten rock at the lowest pan of the Earth's mantle.
- (B) It may explain what caused the gradual fall in sea level that occurred for hundreds of thousands of years prior to the more sudden disappearance of the dinosaurs.
- (C) It bases its explanation on the occurrence of periods of increased volcanic activity similar to those shown to have caused earlier mass extinctions.
- (D) It may explain the relative scarcity of iridium in rocks on the Earth's surface compared to its abundance in meteorites.
- (E) It accounts for the relatively uneven distribution of iridium in the layer of clay deposited at the end of the Cretaceous period.
7. Which one of the following, if true, would cast the most doubt on the theory described in the last paragraph of the passage?
- (A) Fragments of meteorites that have struck the Earth are examined and found to have only minuscule amounts of iridium hexafluoride trapped inside of them.
- (B) Most diapiir eruptions in the geological history of the Earth have been similar in size to the one that occurred in India at the end of the Cretaceous period and have not been succeeded by periods of climatic change.
- (C) There have been several periods in the geological history of the Earth, before and after the Cretaceous period, during which large numbers of marine species have perished.
- (D) The frequency with which meteorites struck the Earth was higher at the end of the Cretaceous period than at the beginning of the period.
- (E) Marine species tend to be much more vulnerable to extinction when exposed to a dramatic and relatively sudden change in sea level than when they are exposed to a gradual change in sea level similar to the one that preceded the extinction of the dinosaurs.

It has become something of a truism in folklore studies that until recently the lore was more often studied than the folk. That is, folklorists concentrated on the folklore—the songs, tales, and proverbs themselves—and ignored the people who transmitted that lore as part of their oral culture. However, since the early 1970s, folklore studies have begun to regard folk performers as people of creativity who are as worthy of attention as are artists who transmit



their ideas in writing. This shift of emphasis has also encouraged a growing interest in women folk performers.

Until recently, folklorists tended to collect folklore from women on only a few topics such as health and games. In other areas, as Weigle and Farrer have noted, if folklorists "had a choice between a story as told by a man or as told by a woman, the man's version was chosen." It is still too early to tell how profoundly this situation has changed, but one can point to several recent studies in which women performers play central roles. Perhaps more telling is the focus of the most recently published major folklore textbook, *The Dynamics of Folklore*. Whereas earlier textbooks gave little attention to women and their folklore, this book devotes many pages to women folk performers.

Recognition of women as important bearers of folklore is not entirely a recent phenomenon. As early as 1903, a few outstanding women folk performers were the focus of scholarly attention. But the scholarship devoted to these women tended to focus primarily on presenting the performer's repertoire. Recent works about women folk artists, however, have been more biographically oriented. Juha Pentikainen's study of Marina Tokalo, a Finnish healer and narrator of folktales, is especially extensive and probing. Though interested in the problems of repertoire analysis, Pentikainen gives considerable attention to the details of Tokalo's life and cultural background, so that a full picture of a woman and her folklore emerges. Another notable work is Roger Abraham's book, which presents a very clear picture of the significance of traditional singing in the life of noted ballad singer Almeda Riddle. Unfortunately, unlike Pentikainen's study, Abraham's study contains little repertoire analysis.

These recent books reflect the current interest of folklorists in viewing folklore in context and thus answering questions about what folklore means to the people who use it. One unexpected result of this line of study has been the discovery that women may use the same folklore that men use, but for very different purposes. This realization has potential importance for future folklore studies in calling greater attention to the type of study required if a folklorist wants truly to understand the role folklore plays in a particular culture.

8. Which one of the following best describes the main point of the passage?
- (A) It is only since the early 1970s that folklore studies have begun to recognize women as important bearers of folklore.
  - (B) A careful analysis of the repertoires of women folk performers has led to a new discovery with important implications for future folklore studies.
  - (C) Recent studies of women folk performers have focused primarily on the problems of repertoire analysis to the exclusion of a discussion of the culture within which the folklore was developed.
  - (D) The emphasis in folklore studies has shifted from a focus on the life and the cultural background of the folk performers themselves to a broader understanding of the role folklore plays in a culture.
  - (E) A change in the focus of folklore studies has led to increased interest in women folk performers and to a new understanding of the importance of the context in which folklore is produced.
9. The author of the passage refers to *The Dynamics of Folklore* primarily in order



to

- (A) support the idea that it is too soon to tell whether or not folklorists are giving greater attention to women's folklore
  - (B) refute Weigle and Farrer's contention that folklorists prefer to collect folklore from men rather than from women
  - (C) support the assertion that scholarship devoted to women folk performers tends to focus primarily on repertoire
  - (D) present an example of the new emphasis in folklore studies on the performer rather than on the folklore
  - (E) suggest that there are some signs that women folk performers are gaining increased critical attention in the field of folklore
10. The focus of which one of the following books would most clearly reflect the current interest of the folklorists mentioned in the last paragraph?
- (A) an anthology of tales and songs collected exclusively from women in different cultures
  - (B) a compilation of tales and songs from both men and women covering a great variety of traditional and nontraditional topics
  - (C) a study of the purpose and meaning of a tale or song for the men and women in a particular culture
  - (D) an analysis of one particular tale or song that documents changes in the text of the folklore over a period of time
  - (E) a comparison of the creative process of performers who transmit folklore with that of artists who transmit their ideas in writing
11. According to the passage, which one of the following changes has occurred in the field of folklore since the early 1970s?
- (A) increased recognition of the similar ways in which men and women use folklore
  - (B) increased recognition of folk performers as creative individuals
  - (C) increased emphasis on the need for repertoire analysis
  - (D) less emphasis on the relationship between cultural influences and folklore
  - (E) less emphasis on the individual performers and more emphasis on the meaning of folklore to a culture
12. It can be inferred from the passage that early folklorists assumed that which one of the following was true?
- (A) The people who transmitted the folklore did not play a creative role in the development of that folklore.
  - (B) The people who transmitted the folklore were not consciously aware of the way in which they creatively shaped that folklore.
  - (C) The text of a song or tale did not change as the folklore was transmitted from

- one generation to another.
- (D) Women were not involved in transmitting folklore except for songs or tales dealing with a few traditional topics.
- (E) The meaning of a piece of folklore could differ depending on whether the tale or song was transmitted by a man or by a woman.
13. Based on the information in the passage, which one of the following is most closely analogous to the type of folklore studies produced before the early 1970s?
- (A) An anthropologist studies the implements currently used by an isolated culture, but does not investigate how the people of that culture designed and used those implements.
- (B) A manufacturer hires a consultant to determine how existing equipment in a plant might be modified to improve efficiency, but does not ask employees for their suggestions on how to improve efficiency.
- (C) A historian studies different types of documents dealing with a particular historical event, but decides not to review newspaper accounts written by journalists who lived through that event.
- (D) An archaeologist studies the artifacts of an ancient culture to reconstruct the life-style of that culture, but does not actually visit the site where those artifacts were unearthed.
- (E) An architect designs a private home for a client, but ignores many of the client's suggestions concerning minor details about the final design of the home.
14. The author of the passage uses the term "context" (line 50) to refer to
- (A) a holistic assessment of a piece of folklore rather than a critical analysis of its parts
- (B) a study that examines a piece of folklore in light of earlier interpretations provided by other folklorists
- (C) the parts of a piece of folklore that can shed light on the meaning of the entire piece
- (D) the environment and circumstances in which a particular piece of folklore is used
- (E) the location in which the story line of a piece of folklore is set
15. The author's attitude toward Roger Abraham's book can best be described as one of
- (A) wholehearted approval
- (B) qualified admiration
- (C) uneasy ambivalence
- (D) extreme skepticism
- (E) trenchant criticism

J. G. A. Pocock's numerous investigations have all revolved around the fruitful assumption that a work of political thought can only be understood in light of the linguistic constraints to which its author was subject, for these prescribed both the choice of subject matter and the author's conceptualization of this subject matter. Only the occasional epic theorist, like Machiavelli or Hobbes, succeeded in breaking out of these bonds by redefining old terms and inventing new ones. The task of the modern commentator is to identify the "language" or "vocabulary" with and within which the author operated. While historians of literature have always been aware that writers work within particular traditions, the application of this notion to the history of political ideas forms a sharp contrast to the assumptions of the 1950s, when it was naively thought that the close reading of a text by an analytic philosopher was sufficient to establish its meaning, even if the philosopher had no knowledge of the period of the text's composition.

The language Pocock has most closely investigated is that of "civic humanism." For much of his career he has argued that eighteenth-century English political thought should be interpreted as a conflict between rival versions of the "virtue" central to civic humanism. On the one hand, he argues, this virtue is described by representatives of the Tory opposition using a vocabulary of public spirit and self-sufficiency. For these writers the societal ideal is the small, independent landowner in the countryside. On the other hand, Whig writers describe such virtue using a vocabulary of commerce and economic progress; for them the ideal is the merchant.

In making such linguistic discriminations Pocock has disassociated himself from historians like Namier, who deride all eighteenth-century English political language as "cant." But while Pocock's ideas have proved fertile when applied to England, they are more controversial when applied to the late-eighteenth-century United States. Pocock's assertion that Jefferson's attacks on the commercial policies of the Federalists simply echo the language of the Tory opposition in England is at odds with the fact that Jefferson rejected the elitist implications of that group's notion of virtue and asserted the right of all to participate in commercial society. Indeed, after promptings by Quentin Skinner, Pocock has admitted that a counterlanguage—one of rights and liberties—was probably as important in the political discourse of the late-eighteenth-century United States as the language of civic humanism. Fortunately, it is not necessary to rank the relative importance of all the different vocabularies in which eighteenth-century political argument was conducted. It is sufficient to recognize that any interesting text is probably a mixture of several of these vocabularies, and to applaud the historian who, though guilty of some exaggeration, has done the most to make us aware of their importance.

16. The main idea of the passage is that

- (A) civic humanism, in any of its manifestations, cannot entirely explain eighteenth-century political discourse
- (B) eighteenth-century political texts are less likely to reflect a single vocabulary than to combine several vocabularies
- (C) Pocock's linguistic approach, though not applicable to all eighteenth-century political texts, provides a useful model for historians of political theory
- (D) Pocock has more successfully accounted for the nature of political thought in

- eighteenth-century England than in the eighteenth-century United States
- (E) Pocock's notion of the importance of language in political texts is a logical extension of the insights of historians of literature
17. According to the passage, Pocock most clearly associates the use of a vocabulary of economic progress with
- (A) Jefferson
  - (B) Federalists
  - (C) English Whigs
  - (D) English Tories rural
  - (E) English landowners
18. The author's attitude toward Pocock is best revealed by which of the following pairs of words?
- (A) "fruitful" (line 2) and "cant" (line 39)
  - (B) "sharp" (line 16) and "elitist" (line 46)
  - (C) "naively" (line 17) and "controversial" (line 41)
  - (D) "fertile" (line 40) and "applaud" (line 60)
  - (E) "simply" (line 44) and "importance" (line 55)
19. The passage suggests that one of the "assumptions of the 1950s" (line 17) regarding the meaning of a political text was that this meaning
- (A) could be established using an approach similar to that used by literary historians
  - (B) could be definitively established without reference to the text's historical background
  - (C) could be closely read in several different ways depending on one's philosophic approach
  - (D) was constrained by certain linguistic preconceptions held by the text's author
  - (E) could be expressed most clearly by an analytic philosopher who had studied its historical context
20. The author of the passage would most likely agree that which one of the following is a weakness found in Pocock's work?
- (A) the use of the term "language" to describe the expressive features of several diverse kinds of discourse
  - (B) the overemphatic denigration of the role of the analytic philosopher in establishing the meaning of a political, or indeed any, text
  - (C) the emphasis on the overriding importance of civic humanism in eighteenth-century English political thought
  - (D) the insistence on a single linguistic dichotomy to account for political thought in eighteenth-century England and the United States

- (E) the assignment of certain vocabularies to particular parties in eighteenth-century England without taking note of how these vocabularies overlapped

21. Which one of the following best describes the organization of the passage?
- (A) A description of a thesis is offered, specific cases are considered, and an evaluation is given.
- (B) A thesis is brought forward, the thesis is qualified, and evidence that calls the qualification into question is stated.
- (C) A hypothesis is described, examples that suggest it is incorrect are summarized, and supporting examples are offered.
- (D) A series of evaluations are given, concrete reasons are put forward, and a future direction for research is suggested.
- (E) Comparisons and contrasts are made, some categories of evaluation are suggested, and a framework for applying these categories is implied.

In 1964 the United States federal government began attempts to eliminate racial discrimination in employment and wages: the United States Congress enacted Title VII of the Civil Rights Act, prohibiting employers from making employment decisions on the basis of race. In 1965 President Johnson issued Executive Order 11,246, which prohibited discrimination by United States government contractors and emphasized direct monitoring of minority representation in contractors' work forces.

Nonetheless, proponents of the "continuous change" hypothesis believe that United States federal law had a marginal impact on the economic progress made by black people in the United States between 1940 and 1975. Instead they emphasize slowly evolving historical forces, such as long-term trends in education that improved segregated schools for black students during the 1940s and were operative during and after the 1960s. They argue that as the quality of black schools improved relative to that of white schools, the earning potential of those attending black schools increased relative to the earning potential of those attending white schools.

However, there is no direct evidence linking increased quality of underfunded segregated black schools to these improvements in earning potential. In fact, even the evidence on relative schooling quality is ambiguous. Although in the mid-1940s term length at black schools was approaching that in white schools, the rapid growth in another important measure of school quality, school expenditures, may be explained by increases in teachers' salaries, and historically, such increases have not necessarily increased school quality. Finally, black individuals in all age groups, even those who had been educated at segregated schools before the 1940s, experienced post-1960 increases in their earning potential. If improvements in the quality of schooling were an important determinant of increased returns, only those workers who could have benefited from enhanced school quality should have received higher returns. The relative improvement in the earning potential of educated black people of all age groups in the United States is more consistent with a decline in employment discrimination.

An additional problem for continuity theorists is how to explain the rapid acceleration of black economic progress in the United States after 1964. Education alone cannot account for

the rate of change. Rather, the coincidence of increased United States government antidiscrimination pressure in the mid-1960s with the acceleration in the rate of black economic progress beginning in 1965 argues against the continuity theorists' view. True, correlating federal intervention and the acceleration of black economic progress might be incorrect. One could argue that changing attitudes about employment discrimination sparked both the adoption of new federal policies and the rapid acceleration in black economic progress. Indeed, the shift in national attitude that made possible the enactment of Title VII was in part produced by the persistence of racial discrimination in the southern United States. However, the fact that the law had its greatest effect in the South, in spite of the vigorous resistance of many Southern leaders, suggests its importance for black economic progress.

22. According to the passage, Title VII of the 1964 Civil Rights Act differs from Executive Order 11. 246 in that Title VII
- (A) monitors employers to ensure minority representation
  - (B) assesses the work forces of government contractors
  - (C) eliminates discriminatory disparities in wages
  - (D) focuses on determining minority representation in government
  - (E) governs hiring practices in a wider variety of workplaces
23. Which one of the following statements about schooling in the United States during the mid-1940s can be inferred from the passage?
- (A) School expenditures decreased for white schools.
  - (B) The teachers in white schools had more time to cover material during a school year than did teachers in black schools.
  - (C) The basic curriculum of white schools was similar to the curriculum at black schools.
  - (D) White schools did not change substantially in quality.
  - (E) Although the salaries of teachers in black schools increased, they did not keep pace with the salaries of teachers in white schools.
24. The primary purpose of the passage is to
- (A) explain why an argument about black economic progress is incomplete
  - (B) describe the impact of education on black economic progress
  - (C) refute an argument about the factors influencing black economic progress
  - (D) describe black economic progress before and after the 1960s
  - (E) clarify the current view about the factors influencing black economic progress
25. Which one of the following best states the position of proponents of the "continuous change" hypothesis regarding the relationship between law and racial discrimination?
- (A) Individuals cannot be forced by legal means to behave in nondiscriminatory ways.
  - (B) Discriminatory practices in education have been effectively altered by legal



- means.
- (C) Legislation alone has had little effect on racially discriminatory behavior.
- (D) Legislation is necessary, but not sufficient, to achieve changes in racial attitudes.
- (E) Legislation can only exacerbate conflicts about racially discriminatory behavior.
26. The author concedes that “correlating federal intervention and the acceleration of black economic progress might be incorrect” (lines 58-60) primarily in order to
- (A) strengthen the overall argument by anticipating an objection
- (B) introduce another factor that may have influenced black economic progress
- (C) concede a point to the continuity theorists
- (D) change the overall argument in light of the views of the continuity theorists
- (E) introduce a discussion about the impact of federal intervention on discrimination
27. The “continuous change” hypothesis, as it is presented in the passage, can best be applied to which one of the following situations?
- (A) Homes are found for many low-income families because the government funds a project to build subsidized housing in an economically depressed area.
- (B) A depressed economy does not cause the closing of small businesses in a local community because the government provides special grants to aid these businesses.
- (C) Unemployed people are able to obtain jobs because private contractors receive tax incentives for constructing office buildings in an area with a high unemployment rate.
- (D) A housing shortage is remedied because the changing state of the economy permits private investors to finance construction in a depressed area.
- (E) A community’s sanitation needs are met because neighborhood organizations lobby aggressively for government assistance.

**LSAT 17 SECTION I****Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

For the poet Philips Whitely, who was brought to colonial New England as a slave in 1761, the formal literary code of eighteenth-century English was thrice removed: by the initial barrier of the unfamiliar English language, by the discrepancy between spoken and literary forms of

English, and by the African tradition of oral rather than written verbal art. Wheatley transcended these barriers—she learned the English language and English literary forms so quickly and well that she was composing good poetry in English within a few years of her arrival in New England.

Wheatley's experience exemplifies the meeting of oral and written literary cultures. The aesthetic principles of the African oral tradition were preserved in America by folk artists in work songs, dancing, field hollers, religious music, the use of the drum, and, after the drum was forbidden, in the perpetuation of drum effects in song. African languages and the functions of language in African societies not only contributed to the emergence of a distinctive Black English but also exerted demonstrable effects on the manner in which other Americans spoke English. Given her African heritage and her facility with English and the conventions of English poetry, Wheatley's work had the potential to apply the ideas of a written literature to an oral literary tradition in the creation of an African American literary language.

But this was a potential that her poetry unfortunately did not exploit. The standards of eighteenth-century English poetry, which itself reflected little of the American language, led Wheatley to develop a notion of poetry as a closed system, derived from imitation of earlier written works. No place existed for the rough-and-ready Americanized English she heard in the streets, for the English spoken by Black people, or for Africanisms. The conventions of eighteenth-century neoclassical poetry ruled out casual talk; her choice and feelings had to be generalized according to rules of poetic diction and characterization; the particulars of her African past, if they were to be dealt with at all, had to be subordinated to the reigning conventions. African poetry did not count as poetry in her new situation, and African aesthetic canons were irrelevant to the new context because no linguistic or social framework existed to reinforce them. Wheatley adopted a foreign language and a foreign literary tradition; they were not extensions of her past experience, but replacements.

Thus limited by the eighteenth-century English literary code, Wheatley's poetry contributed little to the development of a distinctive African American literary language. Yet by the standards of the literary conventions in which she chose to work, Wheatley's poetry is undeniably accomplished, and she is justly celebrated as the first Black American poet.

1. Which one of the following best expresses the main idea of the passage?
  - (A) Folk artists employed more principles of African oral tradition in their works than did Phillis Wheatley in her poetry.
  - (B) Although Phillis Wheatley had to overcome significant barriers in learning English, she mastered the literary conventions of eighteenth-century English as well as African aesthetic canons.
  - (C) Phillis Wheatley's poetry did not fulfill the potential inherent in her experience but did represent a significant accomplishment.
  - (D) The evolution of a distinctive African American literary language can be traced from the creations of African American folk artists to the poetry of Phillis Wheatley.
  - (E) Phillis Wheatley joined with African American folk artists in preserving the principles of the African oral tradition.

2. The approach to poetry taken by a modern-day Italian immigrant in America would be most analogous to Phillis Wheatley's approach, as it is described in the passage, if the immigrant
- (A) translated Italian literary forms into the American idiom
  - (B) combined Italian and American literary traditions into a new form of poetic expression
  - (C) contributed to the development of a distinctive Italian American literary style
  - (D) defined artistic expression in terms of eighteenth-century Italian poetic conventions
  - (E) adopted the language and forms of modern American poetry
3. According to the passage, African languages had a notable influence on
- (A) the religious music of colonists in New England
  - (B) the folk art of colonists in New England
  - (C) formal written English
  - (D) American speech patterns
  - (E) eighteenth-century aesthetic principles
4. By a "closed system" of poetry (line 34-35), the author most probably means poetry that
- (A) cannot be written by those who are not raised knowing its conventions
  - (B) has little influence on the way language is actually spoken
  - (C) substitutes its own conventions for the aesthetic principles of the past
  - (D) does not admit the use of street language and casual talk
  - (E) is ultimately rejected because its conventions leave little room for further development
5. According to the passage, the standards of eighteenth century English poetry permitted Wheatley to include which one of the following in her poetry?
- (A) generalized feelings
  - (B) Americanized English
  - (C) themes from folk art
  - (D) casual talk
  - (E) Black speech
6. Which one of the following, if true, would most weaken the author's argument concerning the role that Wheatley played in the evolution of an African American literary language?
- (A) Wheatley's poetry was admired in England for its faithfulness to the conventions of neoclassical poetry.
  - (B) Wheatley compiled a history in English of her family's experiences in Africa and America.

- (C) The language barriers that Wheatley overcame were eventually transcended by all who were brought from Africa as slaves.
  - (D) Several modern African American poets acknowledge the importance of Wheatley's poetry to American literature.
  - (E) Scholars trace themes and expressions in African American poetry back to the poetry of Wheatley.
7. It can be inferred that the author of the passage would most probably have praised Phillis Wheatley's poetry more if it had
- (A) affected the manner in which slaves and freed Black people spoke English
  - (B) defined African American artistic expression in terms of earlier works
  - (C) adopted the standards of eighteenth-century English poetry
  - (D) combined elements of the English literary tradition with those of the African oral tradition
  - (E) focused on the barriers that written English literary forms presented to Black artists
8. Which one of the following most accurately characterizes the author's attitude with respect to Phillis Wheatley's literary accomplishments?
- (A) enthusiastic advocacy
  - (B) qualified admiration
  - (C) dispassionate impartiality
  - (D) detached ambivalence
  - (E) perfunctory dismissal

One scientific discipline, during its early stages of development, is often related to another as an antithesis to its thesis. The thesis discipline tend to concern itself with discovery and classification of phenomena, to offer holistic explanations emphasizing pattern and form, and to use existing theory to explain the widest possible range of phenomena. The paired or antidiscipline, on the other hand, can be characterized by a more focused approach, concentrating on the units of construction, and by a belief that the discipline can be reformulated in terms of the issues and explanations of the antidiscipline.

The relationship of cytology (cell biology) to biochemistry in the late nineteenth century, when both disciplines were growing at a rapid pace, exemplifies such a pattern. Researchers in cell biology found mounting evidence of an intricate cell architecture. They also deduced the mysterious choreography of the chromosomes during cell division. Many biochemists, on the other hand, remained skeptical of the idea that so much structure existed, arguing that the chemical reactions that occur in cytological preparations might create the appearance of such structures. Also, they stood apart from the debate then raging over whether protoplasm, the complex of living material within a cell, is homogeneous, networklike, granular, or foamlike. Their interest lay in the core "fundamental" issues of the chemical nature of protoplasm, especially the newly formulated enzyme theory of life.

In general, biochemists judged cytologists to be too ignorant of chemistry to grasp the

basic processes, whereas cytologists considered the methods of biochemists inadequate to characterize the structures of the living cell. The renewal of Mendelian genetics and, later, progress in chromosome mapping did little at first to effect a synthesis.

Both sides were essentially correct. Biochemistry has more than justified its extravagant early claims by explaining so much of the cellular machinery. But in achieving this feat (mostly since 1950) it has been partially transformed into the new discipline of molecular biology—biochemistry that deals with spatial arrangements and movements of large molecules. At the same time cytology has metamorphosed into modern cellular biology. Aided by electron microscopy, it has become more similar in language and outlook to molecular biology. The interaction of a discipline and its antidiscipline has moved both sciences toward a synthesis, namely molecular genetics.

This interaction between paired disciplines can have important results. In the case of late nineteenth-century cell research, progress was fueled by competition among the various attitudes and issues derived from cell biology and biochemistry. Joseph Fruton, a biochemist, has suggested that such competition and the resulting tensions among researchers are a principal source of vitality and “are likely to lead to unexpected and exciting novelties in the future, as they have in the past.”

9. Which one of the following best states the central idea of the passage?
- (A) Antithetical scientific disciplines can both stimulate and hinder one another's research in complex ways.
  - (B) Antithetical scientific disciplines often interact with one another in ways that can be highly useful.
  - (C) As disciplines such as cytology and biochemistry advance, their interaction necessarily leads to a synthesis of their approaches.
  - (D) Cell research in the late nineteenth century was plagued by disagreements between cytologists and biochemists.
  - (E) In the late nineteenth century, cytologists and biochemists made many valuable discoveries that advanced scientific understanding of the cell.
10. The passage states that in the late nineteenth century cytologists deduced the
- (A) maps of chromosomes
  - (B) chemical nature of protoplasm
  - (C) spatial relationship of molecules within the cell
  - (D) role of enzymes in biological processes
  - (E) sequence of the movement of chromosomes during cell division
11. It can be inferred from the passage that in the late nineteenth century the debate over the structural nature of protoplasm (line 25-29) was most likely carried on
- (A) among cytologists
  - (B) among biochemists
  - (C) between cytologists and biochemists
  - (D) between cytologists and geneticists

- (E) between biochemists and geneticists
12. According to the passage, cytologists in the late nineteenth century were critical of the cell research of biochemists because cytologists believed that
- (A) the methods of biochemistry were inadequate to account for all of the chemical reactions that occurred in cytological preparations
  - (B) the methods of biochemistry could not adequately discover and explain the structures of living cells
  - (C) biochemists were not interested in the nature of protoplasm
  - (D) biochemists were not interested in cell division
  - (E) biochemists were too ignorant of cytology to understand the basic processes of the cell
13. The author quotes Fruton (lines 62-64) primarily in order to
- (A) restate the author's own conclusions
  - (B) provide new evidence about the relationship of cytology to biochemistry
  - (C) summarize the position of the biochemists described in the passage
  - (D) illustrate the difficulties encountered in the synthesis of disciplines
  - (E) emphasize the ascendancy of the theories of biochemists over those of cytologists
14. Which one of the following inferences about when the enzyme theory of life was formulated can be drawn from the passage?
- (A) The theory was formulated before the appearance of molecular biology.
  - (B) The theory was formulated before the initial discovery of cell architecture.
  - (C) The theory was formulated after the completion of chromosome mapping.
  - (D) The theory was formulated after a synthesis of the ideas of cytologists and biochemists had occurred.
  - (E) The theory was formulated at the same time as the beginning of the debate over the nature of protoplasm.
15. Which one of the following statements about cells is most compatible with the views of late nineteenth-century biochemists as those views are described in the passage?
- (A) The secret of cell function resides in the structure of the cell.
  - (B) Only by discovering the chemical composition of protoplasm can the processes of the cell be understood.
  - (C) Scientific knowledge about the chemical composition of the cell can help to explain behavioral patterns in organisms.
  - (D) The most important issue to be resolved with regard to the cell is determining the physical characteristics of protoplasm.
  - (E) The methods of chemistry must be supplemented before a full account of the



cell's structures can be made.

16. Which one of the following best describes the organization of the material presented in the passage?
- (A) An account of a process is given, and then the reason for its occurrence is stated.
  - (B) A set of examples is provided and then a conclusion is drawn from them.
  - (C) A general proposition is stated, and then an example is given.
  - (D) A statement of principles is made, and then a rationale for them is debated.
  - (E) A problem is analyzed, and then a possible solution is discussed.

There are two major systems of criminal procedure in the modern world—the adversarial and the inquisitorial. Both systems were historically preceded by the system of private vengeance in which the victim of a crime fashioned a remedy and administered it privately, either personally or through an agent.

The modern adversarial system is only one historical step removed from the private vengeance system and still remains some of its characteristic feature. For example, even though the right to initiate legal action against a criminal has now been extended to all members of society (as represented by the office of the public prosecutor), and even though the police department has effectively assumed the pretrial investigative functions on behalf of the prosecution, the adversarial system still leaves the defendant to conduct his or her own pretrial investigation. The trial is viewed as a forensic duel between two adversaries, presided over by a judge who, at the start, has no knowledge of the investigative background of the case. In the final analysis the adversarial system of criminal procedure symbolizes and regularizes punitive combat.

By contrast, the inquisitorial system begins historically where the adversarial system stopped its development. It is two historical steps removed from the system of private vengeance. From the standpoint of legal anthropology, then, it is historically superior to the adversarial system. Under the inquisitorial system, the public prosecutor has the duty to investigate not just on behalf of society but also on behalf of the defendant. Additionally, the public prosecutor has the duty to present the court not only evidence that would convict the defendant, but also evidence that could prove the defendant's innocence. The system mandates that both parties permit full pretrial discovery of the evidence in their possession. Finally, an aspect of the system that makes the trial less like a duel between two adversarial parties is that the inquisitorial system mandates that the judge take an active part in the conduct of the trial, with a role that is both directive and protective.

Fact-finding is at the heart of the inquisitorial system. This system operates on the philosophical premise that in a criminal action the crucial factor is the body of facts, not the legal rule (in contrast to the adversarial system), and the goal of the entire procedure is to attempt to recreate, in the mind of the court, the commission of the alleged crime.

Because of the inquisitorial system's thoroughness in conducting its pretrial investigation, it can be concluded that, if given the choice, a defendant who is innocent would prefer to be tried under the inquisitorial system, whereas a defendant who is guilty would prefer to be tried under the adversarial system.

17. It can be inferred from the passage that the crucial factor in a trial under the adversarial system is
- (A) rules of legality
  - (B) dramatic reenactments of the crime
  - (C) the search for relevant facts
  - (D) the victim's personal pursuit of revenge
  - (E) police testimony about the crime
18. The author sees the judge's primary role in a trial under the inquisitorial system as that of
- (A) passive observer
  - (B) biased referee
  - (C) uninvolved administrator
  - (D) aggressive investigator
  - (E) involved manager
19. According to the passage, a central distinction between the system of private vengeance and the two modern criminal procedure systems was the shift in responsibility for initiating legal action against a criminal from the
- (A) defendant to the courts
  - (B) victim to society
  - (C) defendant to the prosecutor
  - (D) courts to a law enforcement agency
  - (E) victim to the judge
20. All of the following are characteristics of the inquisitorial system that the author cites EXCEPT
- (A) It is based on cooperation rather than conflict.
  - (B) It encourages full disclosure of evidence.
  - (C) It requires that the judge play an active role in the conduct of the trial.
  - (D) It places the defendant in charge of his or her defense.
  - (E) It favors the innocent.
21. The author's attitude toward the inquisitorial system can best be described as
- (A) doubtful that its judges can be both directive and protective
  - (B) satisfied that it has potential for uncovering the relevant facts in a case
  - (C) optimistic that it will replace the adversarial system
  - (D) wary about its downplaying of legal rules
  - (E) critical of its close relationship with the private vengeance system

Outside the medical profession, there are various efforts to **cut medicine down to size**: not only widespread malpractice litigation and massive governmental regulation, but also attempts

by consumer groups and others to redefine medicine as a trade rather than as a profession, and the physician as merely a technician for hire under contract. Why should physicians (or indeed all sensible people) resist such efforts to give the practice of medicine a new meaning? We can gain some illumination from etymology. "Trade," from Germanic and Anglo-Saxon roots meaning "a course or pathway," has come to mean derivatively a habitual occupation and has been related to certain skills and crafts. On the other hand, while "profession" today also entails a habit of work, the word "profession" itself traces to an act of self-conscious and public—even confessional—speech. "To profess" preserves the meaning of its Latin source, to declare publicly; to announce, affirm, avow." A profession is an activity or occupation to which its practitioner publicly professes, that is, confesses, devotion. But public announcement seems insufficient; publicly declaring devotion to plumbing or auto repair would not turn these trades into professions.

Some believe that learning and knowledge are the diagnostic signs of a profession. For reasons probably linked to the medieval university, the term "profession" has been applied to the so-called learned professions—medicine, law, and theology—the practices of which are founded upon inquiry and knowledge rather than mere "know how." Yet it is not only the pursuit and acquisition of knowledge that makes one a professional. The knowledge involved makes the profession one of the learned variety, but its professional quality is rooted in something else.

Some mistakenly seek to locate that something else in the prestige and honor accorded professionals by society, evidenced in their special titles and the special deference and privileges they receive. But externalities do not constitute medicine a profession. Physicians are not professionals because they are honored; rather, they are honored because of their profession. Their titles and the respect they are shown superficially signify and acknowledge something deeper, *that* physicians are persons of the professional sort, knowingly and freely devoting themselves to a way of life worthy of such devotion. Just as lawyers devote themselves to rectifying injustices, looking up to what is lawful and right; just as teachers devote themselves to the education of the young, looking up to truth and wisdom; so physicians heal the sick, looking up to health and wholesomeness. Being a professional is thus rooted in our moral nature and in that which warrants and impels making a public confession to a way of life.

Professing oneself a professional is an ethical act because it is not a silent and private act, but an articulated and public one; because it promised continuing devotion to a way of life, not merely announces a present preference or a way to a livelihood; because it is an activity in service to some high good that insists on devotion; because it is difficult and demanding. A profession *engages* one's character and heart, not merely one's mind and hands.

22. According to the author, which one of the following is required in order that one be a professional?
- (A) significant prestige and a title
  - (B) "know-how" in a particular field
  - (C) a long and difficult educational endeavor
  - (D) a commitment to political justice

- (E) a public confession of devotion to a way of life
23. Which one of the following best expresses the main point made by the author in the passage?
- (A) Medicine is defined as a profession because of the etymology of the word “profession”.
- (B) It is a mistake to pay special honor to the knowledge and skills of physicians.
- (C) The work of physicians is under attack only because it is widely misunderstood.
- (D) The correct reason that physicians are professionals is that their work involves public commitment to a high good.
- (E) Physicians have been encouraged to think of themselves as technicians and need to reorient themselves toward ethical concerns.
24. The question posed by the author in lines 7-10 of the passage introduces which one of the following?
- (A) the author’s belief that it is futile to resist the trend toward defining the physician’s work as a trade
- (B) the author’s dislike of governmental regulation and consumer advocacy
- (C) the author’s inquiry into the nature of the practice of medicine
- (D) the author’s suggestions for rallying sensible people to a concentrated defense of physicians
- (E) the author’s fascination with the origins of words
25. In the passage, the author mentions or suggests all of the following EXCEPT
- (A) how society generally treats physicians
- (B) that the practice of medicine is analogous to teaching
- (C) that being a professional is in part a public act
- (D) the specific knowledge on which trades are based
- (E) how a livelihood is different from a profession
26. The author’s attitude toward professionals is best described as
- (A) eager that the work of one group of professionals, physicians, be viewed from a new perspective
- (B) sympathetic toward professionals who have become demoralized by public opinion
- (C) surprised that professionals have been balked by governmental regulations and threats of litigation
- (D) dismayed that most professionals have come to be considered technicians
- (E) certain that professionals confess a commitment to ethical ideals
27. Based on the information in the passage, it can be inferred that which one of the following would most logically begin a paragraph immediately following the

passage?

- (A) A skilled handicraft is a manual art acquired by habituation that enables trades people to tread regularly and reliably along the same path.
  - (B) Critics might argue that being a doctor, for example, requires no ethical or public act; thus medicine, as such, is morally neutral, does not bind character, and can be used for good or ill.
  - (C) Sometimes the pursuit of personal health competes with the pursuit of other goods, and it has always been the task of the community to order and define competing ends.
  - (D) Not least among the myriad confusions and uncertainties of our time are those attending efforts to discern and articulate the essential characteristics of the medial profession.
  - (E) When, in contrast, we come to physicians of the whole body, we come tacitly acknowledging the meaning of illness and its potential threat to all that we hold dear.
28. Which one of the following best describes the author's purpose in lines 18-42 of the passage?
- (A) The author locates the "something else" that truly constitutes a profession.
  - (B) The author dismisses efforts to redefine the meaning of the term "profession."
  - (C) The author considers, and largely criticizes several definitions of what constitutes a profession.
  - (D) The author clarifies the meaning of the term "profession" by advocating a return to its linguistic and historical roots.
  - (E) The author distinguishes trades such as plumbing and auto repair from professions such as medicine, law, and theology.

**LSAT 18 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The fairness of the judicial process depends on the objective presentation of facts to an impartial jury made up of one's peers. Present the facts, and you have a fair trial. However, fact-finding, especially for interpersonal disagreements, is not so straightforward and is often contaminated by variables that reach beyond the legal domain.

A trial is an attempt to transport jurors to the time and place of the disputed event, to recreate the disputed event, or at least to explain that event with maximum accuracy. A trial falls short of this goal, however, because it presents selected witnesses who recite selected portions of their respective memories concerning selected observations of the disputed event.

These multiple selections are referred to as the abstraction process. Limitations in both perception and memory are responsible for the fact that the remembered event contains only a fraction of the detail present during the actual event, and the delay between observation and recitation causes witnesses' memories to lose even more of the original perceptions. During the course of a trial, a witness's recitation of the now-abstracted events may reflect selected disclosure based on his or her attitudes and motivations surrounding that testimony. Furthermore, the incidents reported are dependent on the lines of inquiry established by the attorneys involved. Accordingly, the recited data are a fraction of the remembered data, which are a fraction of the observed data, which are a fraction of the total data for the event.

After the event that led to the trial has been abstracted by participants in the trial, jurors are expected to resolve factual issues. Some of the jurors' conclusions are based on facts that were directly recited; others are found inferentially. Here another abstraction process takes place. Discussions during **deliberations** add to the collective pool of recalled evidentiary perceptions; nonetheless, the jurors' abstraction processes further **reduce** the number of characteristics traceable to the original event.

Complication can **arise from** false abstractions at each stage. Studies have shown that witnesses recall having perceived incidents that are known to be absent from a given event. Conversely, jurors can remember hearing evidence that is unaccounted for in court transcripts. Explanations for these phenomena range from bias through prior conditioning or observer expectation to faulty reportage of the event based on the constraints of language. Aberrant abstractions in perception or recollection may not be conscious or deliberate, but reliability is nevertheless diluted.

Finally, deliberate untruthfulness has always been recognized as a risk of testimonial evidence. Such intentionally false abstractions, however, are only a small part of the inaccuracies produced by the abstraction process.

1. In this passage, the author's main purpose is to
  - (A) discuss a process that jeopardizes the fairness of jury trials
  - (B) analyze a methodology that safeguards the individual's right to fair trial
  - (C) explain why jurors should view eyewitness testimony with skepticism
  - (D) defend the trial-by-jury process, despite its limitations
  - (E) point out the unavoidable abuses that have crept into the judicial process
2. The author considers all of the following obstacles to a fair trial EXCEPT
  - (A) selective perceptions
  - (B) faulty communications
  - (C) partial disclosures
  - (D) intentional falsifications
  - (E) too few abstractions
3. The author would most likely agree that the abstraction process occurs in the judicial process primarily because
  - (A) some jurors' conclusions are based on facts rather than on inferences



- (B) remembered events depend upon an individual's emotions
  - (C) human beings are the sources and users of data presented in trials
  - (D) it is difficult to distinguish between deliberate falsehood and unintentional selected disclosure
  - (E) witnesses often dispute one another's recollections of events
4. It can be inferred that the author believes the ability of juries to resolve factual issues is
- (A) limited by any individual juror's tendency to draw inferences from the facts presented during the trial
  - (B) overwhelmed by the collective pool of recalled evidentiary perceptions
  - (C) unaffected by the process of trying to reenact the event leading to the trial
  - (D) dependent upon the jury's ability to understand the influence of the abstraction process on testimony
  - (E) subject to the same limitations of perception and memory that affect witnesses
5. With which one of the following statements would the author most likely agree?
- (A) If deliberate untruthfulness were all the courts had to contend with, jury trials would be fairer than they are today.
  - (B) Lack of moral standards is more of an impediment to a fair trial than human frailty.
  - (C) The bulk of the inaccuracies produced by the abstraction process are innocently presented and rarely have any serious consequences.
  - (D) If the inaccuracies resulting from the abstraction process persist, the present trial-by-jury system is likely to become a thing of the past.
  - (E) Once intentional falsification of evidence is eliminated from trials, ensuring an accurate presentation of facts will easily follow.
6. The author's attitude toward the abstraction process that occurs when witnesses testify in a trial can best be described as
- (A) confident that witnesses can be conditioned to overcome many limitations of memory
  - (B) concerned that it may undermine witnesses ability to accurately describe the original event in dispute
  - (C) critical of witnesses' motivations when delivering testimony
  - (D) indifferent toward the effect the abstraction process has on testimony
  - (E) suspicious of witnesses' efforts to describe remembered events truthfully
7. Given the information in the passage, the actual event that is disputed in a jury trial is most like
- (A) a group of job applicants that is narrowed down to a few finalists
  - (B) a subject that is photographed from varied and increasingly distant vantage

points

- (C) scraps of fabric that are sewn together to make an intricately designed quilt
- (D) a puzzle that is unsystematically assembled through trial and error
- (E) a lie that is compounded by additional lies in order to be maintained

A medical article once pointed with great alarm to an increase in cancer among milk drinkers. Cancer, it seems, was becoming increasingly frequent in New England, Minnesota, Wisconsin, and Switzerland, where a lot of milk is produced and consumed, while remaining rare in Ceylon, where milk is scarce. For further evidence it was pointed out that cancer was less frequent in some states of the southern United States where less milk was consumed. Also, it was pointed out, milk-drinking English women get some kinds of cancer eighteen times as frequently as Japanese women who seldom drink milk.

A little digging might uncover quite a number of ways to account for these figures, but one factor is enough by itself to show them up. Cancer is predominantly a disease that strikes in middle life or after. Switzerland and the states of the United States mentioned first are alike in having populations with relatively long spans of life. English women at the time the study was made were living an average of twelve years longer than Japanese women.

Professor Helen M. Walker has worked out an amusing illustration of the folly in assuming there must be cause and effect whenever two things vary together. In investigating the relationship between age and some physical characteristics of women, begin by measuring the angle of the feet in walking. You will find that the angle tends to be greater among older women. You might first consider whether this indicates that women grow older because they toe out, and you can see immediately that this is ridiculous. So it appears that age increases the angle between the feet, and most women must come to toe out more as they grow older.

Any such conclusion is probably false and certainly unwarranted. You could only reach it legitimately by studying the same women—or possibly equivalent groups—over a period of time. That would eliminate the factor responsible here, which is that the older women grew up at a time when a young lady was taught to toe out in walking, while the members of the younger group were learning posture in a day when that was discouraged.

When you find somebody—usually an interested party—making a fuss about a correlation, look **first of all** to see if it is not one of this type, produced by the stream of events, the trend of the times. In our time it is easy to show a positive correlation between any pair of things like these: number of students in college, number of inmates in mental institutions, consumption of cigarettes, incidence of heart disease, use of X-ray machines, production of false teeth, salaries of California school teachers, profits of Nevada gambling halls. To call some one of these the cause of some other is manifestly silly. But it is done every day.

8. The author's conclusion about the relationship between age and the ways women walk indicates he believes that
- (A) toeing out is associated with aging
  - (B) toeing out is fashionable with the younger generation
  - (C) toeing out was fashionable for an older generation
  - (D) studying equivalent groups proves that toeing out increases with age

- (E) studying the same women over a period of time proves that toeing out increases with age
9. The author describes the posited relationship between toeing out and age (lines 29-40) in order to
- (A) illustrate a folly
  - (B) show how social attitudes toward posture change
  - (C) explain the effects of aging
  - (D) illustrate a medical problem
  - (E) offer a method to determine a woman's age from her footprints
10. Given the author's statements in the passage, his advice for evaluating statistics that show a high positive correlation between two conditions could include all the following statements EXCEPT
- (A) look for an explanation in the stream of events
  - (B) consider some trend of the times as the possible cause of both conditions
  - (C) account for the correlations in some way other than causality
  - (D) determine which of the two conditions is the cause and which is the effect
  - (E) decide whether the conclusions have been reached legitimately and the appropriate groupings have been made
11. Assume that there is a high statistical correlation between college attendance and individual earnings. Given this, the author would most probably agree with which one of the following statements about the cause-effect relationship between college attendance and income?
- (A) Someone's potential earnings may be affected by other variables, like wealth or intelligence, that are also associated with college attendance.
  - (B) Someone who attends graduate school will be rich.
  - (C) Someone who attends graduate school will earn more money than someone who does not.
  - (D) Someone who attends college will earn more money than someone who does not attend college.
  - (E) Someone who attends college will earn more money only because she does attend college.
12. According to the author, Professor Walker believes that
- (A) women who toe out age more rapidly than women who do not
  - (B) most women toe out as they grow older because age increases the angle between the feet
  - (C) older women tend to walk with a greater angle between the feet
  - (D) toeing out is the reason why women grow old
  - (E) a causal relationship must exist whenever two things vary together

13. The author would reject all the following statements about cause-effect relationships as explanations for the statistics that show an increase in cancer rates EXCEPT that the
- (A) Ceylonese drink more milk than the English
  - (B) Swiss produce and consume large quantities of dairy products
  - (C) Women of New England drink more milk than the women who live in some states of the southern United States
  - (D) People of Wisconsin have relatively high life expectancies
  - (E) People who live in some states of the southern United States have relatively high life expectancies
14. How would the author be most likely to explain the correlation between the “salaries of California school teachers [and the] profits of Nevada gambling halls” (Lines 63-64)?
- (A) There is a positive correlation that is probably due to California teachers’ working in Las Vegas on weekends to increase both their salaries and increase both their salaries and Nevada’s gambling profits.
  - (B) There is a positive correlation that is probably linked to general economic trends, but no direct causal relationship exists.
  - (C) There is a negative correlation that is probably linked to general economic trends, but no direct causal relationship exists.
  - (D) There is a negative correlation because the element that controls Las Vegas gambling probably has agents in the California school system.
  - (E) The author would deny the existence of any correlation whatsoever.

In most developed countries, men have higher salaries, on average, than women. Much of the salary differential results from the tendency of women to be in lower-paying occupations. The question of whether this occupational employment pattern can be attributed to sex discrimination is a complex one. In fact, wage differentials among occupations are the norm rather than the exception. Successful athletes commonly earn more than Nobel Prize-winning academics; gifted artists often cannot earn enough to survive, while mediocre investment bankers prosper. Given such differences, the question naturally arises: talent and ability being equal, why does anyone—man or woman—enter a low-paying occupation? One obvious answer is personal choice. An individual may prefer, for example, to teach math at a modest salary rather than to become a more highly paid electrical engineer.

Some people argue that personal choice also explains sex-related wage differentials. According to this explanation, many women, because they place a high priority on parenting and performing household services, choose certain careers in which they are free to enter and leave the work force with minimum penalty. They may choose to acquire skills, such as typing and salesclerking, that do not depreciate rapidly with temporary absences from the work force. They may avoid occupational specialties that require extensive training periods, long and unpredictable hours, and willingness to relocate, all of which make specialization in domestic activities problematic. By choosing to invest less in developing their career potential and to

expend less effort outside the home, women must, according to this explanation, pay a price in the form of lower salaries. But women cannot be considered the victims of discrimination because they prefer the lower-paying occupations to higher-paying ones.

An alternative explanation for sex-related wage differentials is that women do not voluntarily choose lower-paying occupations but are forced into them by employers and social prejudices. According to proponents of this view, employers who discriminate may refuse to hire qualified women for relatively high-paying occupations. More generally, subtle society-wide prejudices may induce women to avoid certain occupations in favor of others that are considered more suitable. Indeed, the "choice" of women to specialize in parenting and performing household services may itself result from these subtle prejudices. Whether the discrimination is by employers in a particular occupation or by society as a whole is irrelevant; the effect will be the same. Further, if such discrimination does occur, women excluded from certain occupations will flood others, and this increase in supply will have a depressing effect on wages in occupations dominated by women.

15. Which one of the following is the best title for the passage?
- (A) Wage Differentials Between Men and Women
  - (B) Women in Low-Paying Occupations: Do They Have a Choice?
  - (C) Sex Discrimination in the Workplace
  - (D) The Role of Social Prejudice in Women's Careers
  - (E) Home vs. Office: how Does the Modern Woman Choose?
16. In stating that "Successful athletes commonly earn more than Nobel Prize-winning academics" (lines 10-11), the author's primary purpose is to
- (A) demonstrate that education has little to do with making money
  - (B) suggest that people with talent and ability should not enter low-paying occupations
  - (C) show that highly paid occupations generally require long hours and extensive training
  - (D) imply that a person can be successful and still not make much money
  - (E) give an example of how certain occupations are better paid than others regardless of inherent worth or talent required
17. Which one of the following cases is least likely to involve sex discrimination, as it is described in the passage?
- (A) An employer hires a man rather than an equally qualified woman.
  - (B) A woman chooses to enter a high-paying occupation that uses her talent and ability.
  - (C) A woman chooses an occupation that is already dominated by women.
  - (D) A woman chooses a low-paying job that allows her to devote more time to her family.
  - (E) A woman chooses to avoid the pressure of being in an occupation not considered "suitable" for women.

18. Proponents of the “alternative explanation” (line 46) argue that
- (A) employers have difficulty persuading qualified women to enter relatively high-paying occupations
  - (B) women choose undemanding jobs because they wish to keep their career options open
  - (C) women will flood domestic occupations
  - (D) salaries in female-dominated occupations will decrease as more women are forced into those occupations by their exclusion from others
  - (E) women’s choice of occupation is irrelevant since they have always made less money than men and are likely to continue to do so
19. Which one of the following statements is the best completion of the last paragraph of the passage?
- (A) Wage differentials will become more exaggerated and economic parity between men and women less and less possible.
  - (B) Finally, women will be automatically placed in the same salary range as unskilled laborers.
  - (C) The question is: how long will women allow themselves to be excluded from male-dominated occupations?
  - (D) In the last analysis, women may need to ask themselves if they can really afford to allow sex discrimination to continue.
  - (E) Unless society changes its views, women may never escape the confines of the few occupations designated “For Women Only.”
20. The author’s attitude toward sex discrimination as an explanation for wage differentials can best be characterized as
- (A) critical of society’s acceptance of discrimination
  - (B) skeptical that discrimination is a factor
  - (C) convinced that the problem will get worse
  - (D) neutral with respect to its validity
  - (E) frustrated by the intractability of the problem

The **starting point** for any analysis of insurance classification is an obvious but fundamental fact: insurance is only one of a number of ways of satisfying the demand for protection against risk. With few exceptions, insurance need not be purchased; people can forgo it if insurance is too expensive. Indeed, as the price of coverage rises, the amount purchased and the number of people purchasing will decline. Instead of buying insurance, people will self-insure by accumulating saving to serve as a cushion **in the event of** loss, self-protect by spending more on loss protection, or simply use the money not spent on insurance to purchase other goods and services. An insurer must compete against these alternatives, even **in the absence of** competition from other insurers.

One method of competing for protection dollars is to classify potential purchasers into groups according to their probability of loss and the potential magnitude of losses if they occur.



Different risk classes may then be charged different premiums, depending on this expected loss. Were it not for the need to compete for protection dollars, an insurer could simply charge each individual a premium based on the average *expected* loss of all its insureds (plus a margin for profit and expenses), without incurring classification costs. In constructing risk classes, the insurer's goal is to calculate the expected loss of each insured, and to place insureds with similar expected losses into the same class, in order to charge each the same rate.

An insurer can capture protection dollars by classifying because, through classification, it can offer low-risk individuals lower prices. Classification, however, involves two costs. First, the process of classification is costly. Insurers must gather data and perform statistical operations on it; marketing may also be more costly when prices are not uniform. Second, classification necessarily raises premiums for poor risks, who purchase less coverage as a result. In the aggregate, classification is thus worthwhile to an insurer only when the gains produced from extra sales and fewer pay-outs outweigh classification costs plus the costs of lost sales. Even in the absence of competition from other insurers, an insurer who engages in at least some classification is likely to capture more protection dollars than it loses.

When there is not only competition for available protection dollars, but competition among insurers for premium dollars, the value of risk classification to insurers becomes even clearer. The more refined (and accurate) an insurer's risk classifications, the more capable it is of "skimming" good risks away from insurers whose classifications are less refined. If other insurers do not respond, either by refining their own classifications or by raising prices and catering mainly to high risks, their "book" of risks will contain a higher mixture of poor risks who are still being charged premiums calculated for average risks. These insurers will attract additional poor risks, and this resulting adverse selection will further disadvantage their competitive positions.

21. Which one of the following best identifies the main topic of the passage?
  - (A) reduction of competition in the insurance business
  - (B) classification of potential insurance purchasers
  - (C) risk avoidance in insurance sales
  - (D) insurance protection and premiums
  - (E) methods of insurance classifying
22. The passage mentions all of the following as possible or certain costs of classifying EXCEPT the cost of
  - (A) collecting facts
  - (B) conducting statistical analyses
  - (C) selling insurance at different prices
  - (D) a decrease in purchases by poor risks
  - (E) larger, albeit fewer, claims
23. Which one of the following is closest to the author's expressed position on competition in the insurance business?
  - (A) It has a significant influence on most aspects of the insurance industry.

- (B) It is a relevant factor, but it has little practical consequence.
- (C) It is a basic but not very apparent element of the insurance business.
- (D) It provides a strong incentive for insurers to classify potential customers.
- (E) It is influential in insurance marketing practices.
24. The passage suggests that if all insurers classified risk, who among the following would be adversely affected?
- (A) all insurance purchasers
- (B) insurance purchasers who would be classified as poor risks
- (C) individuals who self-insured or self protected
- (D) insurers who had a high proportion of good risks in their “book” of risks
- (E) insurers with the most refined risk classifications
25. Given the discussion in the first paragraph, what is the distinction, if any, between “insurance” and “self-protection”?
- (A) There is very little or no distinction between the two terms.
- (B) Insurance is a kind of self-protection.
- (C) Self-protection is a kind of insurance.
- (D) Insurance and self-protection are two of several alternative means to a specific end.
- (E) Insurance and self-protection are the only two alternative means to a specific end.
26. Which one of the following is most closely analogous to the process of classification in insurance, as it is described in the passage?
- (A) devising a profile of successful employees and hiring on the basis of the profile
- (B) investigating the fuel efficiency of a make of automobile and deciding whether or not to buy on that basis
- (C) assessing an investor’s willingness to take risks before suggesting a specific investment
- (D) making price comparisons on potential major purchases and then seeking discounts from competing dealers
- (E) comparing prices for numerous minor items and the selecting one store for future purchases

**LSAT 19 SECTION IV****Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and*

*blacken the corresponding space on your answer sheet.*

Three kinds of study have been performed on Byron. There is the biographical study—the very valuable examination of Byron’s psychology and the events in his life. Escarpit’s 1958 work is an example of this kind of study and biographers **to this day** continue to speculate about Byron’s life. Equally valuable is the study of Byron as a figure important in the history of ideas; Russell and Praz have written studies of this kind. Finally, there are studies that primarily consider Byron’s poetry. Such literary studies are valuable, however, only when they avoid concentrating solely on analyzing the verbal shadings of Byron’s poetry **to the exclusion of** any discussion of biographical considerations. A study with such a concentration would be of questionable value because Byron’s poetry, **for the most part**, is simply not a poetry of subtle verbal meanings. Rather, on the whole, Byron’s poems record the emotional pressure of certain moments in his life. I believe we cannot often read a poem of Byron’s we often can one of Shakespeare’s without wondering what events or circumstances in his life prompted him to write it.

No doubt the fact that most of Byron’s poems cannot be convincingly read as subtle verbal creations indicates that Byron is not a “great” poet. It must be admitted too that Byron’s literary craftsmanship is irregular and often his temperament disrupts even his lax literary method (although the result, an absence of method, has a significant purpose: it functions as a rebuke to a cosmos that Byron feels he cannot understand). If Byron is not a “great” poet, his poetry is nonetheless of extraordinary interest to us because of the pleasure it gives us. Our main pleasure in reading Byron’s poetry is the contact with a singular personality. Reading his work gives us illumination—self-understanding—after we have seen our weaknesses and aspirations mirrored in the personality we usually find in the poems. Anyone who thinks that this kind of illumination is not a genuine reason for reading a poet should think carefully about why we read Donne’s sonnets.

It is Byron and Byron’s idea of himself that hold his work together (and that enthralled early nineteenth-century Europe). Different characters speak in his poems, but finally it is usually he himself who is speaking: a **far cry** from the impersonal poet Keats. Byron’s poetry alludes to Greek and Roman myth in the context of contemporary affairs, but his work remains generally of a piece because of his close presence in the poetry. In sum, the poetry is a shrewd personal performance, and to **shut out** Byron the man is to fabricate a work of pseudocriticism.

1. Which one of the following titles best expresses the main idea of the passage?
  - (A) An Absence of Method. Why Byron Is Not a “Great” Poet
  - (B) Byron: The Recurring Presence in Byron’s Poetry
  - (C) Personality and Poetry: The Biographical Dimension of Nineteenth-Century Poetry
  - (D) Byron’s Poetry: Its Influence on the imagination of Early-Nineteenth-Century Europe
  - (E) Verbal Shadings: The Fatal Flaw of Twentieth-Century Literary Criticism
2. The author’s mention of Russell and Praz serves primarily to
  - (A) differentiate them from one another

- (B) contrast their conclusions about Byron with those of Escarpit
  - (C) point out the writers whose studies suggest a new direction for Byron scholarship
  - (D) provide examples of writers who have written one kind of study of Byron
  - (E) give credit to the writers who have composed the best studies of Byron
3. Which one of the following would the author most likely consider to be a valuable study of Byron?
- (A) a study that compared Byron's poetic style with Keats' poetic style
  - (B) a study that argued that Byron's thought ought not to be analyzed in terms of its importance in the history of ideas
  - (C) a study that sought to identify the emotions felt by Byron at a particular time in his life
  - (D) a study in which a literary critic argues that the language of Byron's poetry was more subtle than that of Keats' poetry
  - (E) a study in which a literary critic drew on experiences from his or her own life
4. Which one of the following statements best describes the organization of first paragraph of the passage?
- (A) A generalization is made and then gradually refuted.
  - (B) A number of theories are discussed and then the author chooses the most convincing one.
  - (C) Several categories are mentioned and then one category is discussed in some detail.
  - (D) A historical trend is delineated and then a prediction about the future of the trend is offered.
  - (E) A classification is made and then a rival classification is substituted in its place.
5. The author mentions that "Byron's literary craftsmanship is irregular" (lines 27-28) most probably in order to
- (A) contrast Byron's poetic skill with that of Shakespeare
  - (B) dismiss craftsmanship as a standard by which to judge poets
  - (C) offer another reason why Byron is not a "great" poet
  - (D) point out a negative consequence of Byron's belief that the cosmos is incomprehensible
  - (E) indicate the most-often-cited explanation of why Byron's poetry lacks subtle verbal nuances
6. According to the author Shakespeare's poems differ from Byron's in that Shakespeare's poems
- (A) have elicited a wider variety of responses from both literary critics and biographers

- (B) are on the whole less susceptible to being read as subtle verbal creations
  - (C) do not grow out of or are not motivated by actual events or circumstances in the poet's life
  - (D) provide the attentive reader with a greater degree of illumination concerning his or her own weaknesses and aspirations
  - (E) can often be read without the reader's being curious about what biographical factors motivated the poet to write them
7. The author indicates which one of the following about biographers' speculation concerning Byron's life?
- (A) Such speculation began in earnest with Escarpit's study
  - (B) Such speculation continues today
  - (C) Such speculation is less important than consideration of Byron's poetry
  - (D) Such speculation has not given us a satisfactory sense of Byron's life
  - (E) Such speculation has been carried out despite the objections of literary critics
8. The passage supplies specific information that provides a definitive answer to which one of the following questions?
- (A) What does the author consider to be the primary enjoyment derived from reading Byron?
  - (B) Who among literary critics has primarily studied Byron's poems?
  - (C) Which moments in Byron's life exerted the greatest pressure on his poetry?
  - (D) Has Byron ever been considered to be a "great" poet?
  - (E) Did Byron exert an influence on Europeans in the latter part of the nineteenth century?

The United States Supreme Court has not always resolved legal issues of concern to Native Americans in a manner that has pleased the Indian nations. Many of the Court's decisions have been products of political compromise that looked more to the temper of the times than to enduring principles of law. But accommodation is part of the judicial system in the United States, and judicial decisions must be assessed with this fact in mind.

Despite the "accommodating" nature of the judicial system, it is worth noting that the power of the Supreme Court has been exercised in a manner that has usually been beneficial to Native Americans, at least on minor issues and has not been wholly detrimental on the larger, more important issues. Certainly there have been decisions that cast doubt on the validity of this assertion. Some critics point to the patronizing tone of many Court opinions and the apparent rejection of Native American values as important points to consider when reviewing a case. However, the validity of the assertion can be illustrated by reference to two important contributions that have resulted from the exercise of judicial power.

First the Court has created rules of judicial construction that in general favor the rights of Native American litigants. The Court's attitude has been conditioned by recognition of the distinct disadvantages Native Americans faced when dealing with settlers in the past. Treaties were inevitably written in English for the benefit of their authors, whereas tribal leaders were

accustomed to making treaties without any written account, **on the strength of** mutual promises **sealed** by religious commitment and individual integrity. The written treaties were often broken and Native Americans were confronted with fraud and political and military aggression. The Court recognizes that past unfairness to Native Americans cannot be sanctioned by the force of law. Therefore, ambiguities in treaties are to be interpreted in favor of the Native American claimants, treaties are to be interpreted as the Native Americans would have understood them and, under the reserved rights doctrine, treaties reserve to Native Americans all rights that have not been specifically granted away in other treaties.

A second achievement of the judicial system is the protection that has been provided against encroachment by the states into tribal affairs. Federal judges are not inclined to view favorably efforts to extend states powers and jurisdictions because of the direct threat that such expansion poses to the exercise of federal powers. In the absence of a federal statute directly and clearly allocating a function to the states, federal judges are inclined to reserve for the federal government—and the tribal governments under its charge—all those powers and rights they can be said to have possessed historically.

9. According to the passage, one reason why the United States Supreme Court “has not always resolved legal issues of concern to Native Americans in a manner that has pleased the Indian nations” (lines 1-4) is that
- (A) Native Americans have been prevented from presenting their concerns persuasively
  - (B) the Court has failed to recognize that the Indian nations’ concerns are different from those of other groups or from those of the federal government
  - (C) the Court has been reluctant to curtail the powers of the federal government
  - (D) Native Americans faced distinct disadvantages in dealing with settlers in the past
  - (E) the Court has made political compromises in deciding some cases
10. It can be inferred that the objections raised by the critics mentioned in line 18 would be most clearly **answered** by a United States Supreme Court decision that
- (A) demonstrated respect for Native Americans and the principles and qualities they consider important
  - (B) protected the rights of the states in conflicts with the federal government
  - (C) demonstrated recognition of the unfair treatment Native Americans received in the past
  - (D) reflected consideration of the hardships suffered by Native Americans because of unfair treaties
  - (E) prevented repetition of inequities experienced by Native Americans in the past
11. It can be inferred that the author calls the judicial system of the United States “accommodating” (line 10) primarily in order to
- (A) suggest that the decisions of the United States Supreme Court have been less



- favorable to Native Americans than most people believe
- (B) suggest that the United States Supreme Court should be more supportive of the goals of Native Americans
- (C) suggest a reason why the decisions of the United States Supreme Court have not always favored Native Americans
- (D) indicate that the United States Supreme Court has made creditable efforts to recognize the values of Native Americans
- (E) indicate that the United States Supreme Court attempts to be fair to all parties to a case
12. The author's attitude toward the United States Supreme Court's resolution of legal issues of concern to Native Americans can best be described as one of
- (A) wholehearted endorsement
- (B) restrained appreciation
- (C) detached objectivity
- (D) cautious opposition
- (E) suppressed exasperation
13. It can be inferred that the author believes that the extension of the states' powers and jurisdictions with respect to Native American affairs would be
- (A) possible only with the consent of the Indian nations
- (B) favorably viewed by the United States Supreme Court
- (C) in the best interests of both state and federal governments
- (D) detrimental to the interests of Native Americans
- (E) discouraged by most federal judges in spite of legal precedents supporting the extension
14. The author's primary purpose is to
- (A) contrast opposing views
- (B) reevaluate traditional beliefs
- (C) reconcile divergent opinions
- (D) assess the claims made by disputants
- (E) provide evidence to support a contention
15. It can be inferred that the author believes the United States Supreme Court's treatment of Native Americans to have been
- (A) irreproachable on legal grounds
- (B) reasonably supportive in most situations
- (C) guided by enduring principles of law
- (D) misguided but generally harmless
- (E) harmful only in a few minor cases

When catastrophe strikes, analysts typically blame some combination of powerful mechanisms. An earthquake is traced to an immense instability along a fault line; a stock market crash is blamed on the destabilizing effect of computer trading. These explanations may well be correct. But systems as large and complicated as the Earth's crust or the stock market can break down not only under the force of a mighty blow but also at the drop of a pin. In a large interactive system, a minor event can start a chain reaction that leads to a catastrophe.

Traditionally, investigators have analyzed large interactive systems **in the same way** they analyze small orderly systems, mainly because the methods developed for small systems have proved so successful. They believed they could predict the behavior of a large interactive system by studying its elements separately and by analyzing its component mechanisms individually. For lack of a better theory, they assumed that in large interactive systems the response to a disturbance **is proportional to** that disturbance.

During the past few decades, however, it has become increasingly apparent that many large complicated systems do not yield to traditional analysis. Consequently, theorists have proposed a "theory of self-organized criticality": many large interactive systems evolve naturally to a critical state in which a minor event starts a chain reaction that can affect any number of elements in the system. Although such systems produce more minor events than catastrophes, the mechanism that leads to minor events is the same one that leads to major events.

A deceptively simple system serves as a paradigm for self-organized criticality: a pile of sand. As sand is poured one grain at a time onto a flat disk, the grains at first stay close to the position where they land. Soon they rest on top of one another, creating a pile that has a gentle slope. **Now and then**, when the slope becomes too steep, the grains slide down, causing a small avalanche. The system reaches its critical state when the amount of sand added is balanced, on average, by the amount falling off the edge of the disk.

Now when a grain of sand is added, it can start an avalanche of any size, including a "catastrophic" event. Most of the time the grain will fall so that no avalanche occurs. By studying a specific area of the pile, one can even predict whether avalanches will occur there in the near future. To such a local observer, however, large avalanches would remain unpredictable because they are a consequence of the total history of the entire pile. No matter what the local dynamics are, catastrophic avalanches would persist at a relative frequency that cannot be altered: Criticality is a global property of the sandpile.

16. The passage provides support for all of the following generalizations about large interactive systems EXCEPT:
- (A) They can evolve to a critical state.
  - (B) They do not always yield to traditional analysis.
  - (C) They make it impossible for observers to make any predictions about them.
  - (D) They are subject to the effects of chain reactions.
  - (E) They are subject to more minor events than major events.
17. According to the passage, the criticality of a sandpile is determined by the
- (A) size of the grains of sand added to the sandpile

- (B) number of grains of sand the sandpile contains
  - (C) rate at which sand is added to the sandpile
  - (D) shape of the surface on which the sandpile rests
  - (E) balance between the amount of sand added to and the amount lost from the sandpile
18. It can be inferred from the passage that the theory employed by the investigators mentioned in the second paragraph would lead one to predict that which one of the following would result from the addition of a grain of sand to a sandpile?
- (A) The grain of sand would never cause anything more than a minor disturbance.
  - (B) The grain of sand would usually cause a minor disturbance, but would occasionally cause a small avalanche.
  - (C) The grain of sand would usually cause either minor disturbance or a small avalanche, but would occasionally cause a catastrophic event.
  - (D) The grain of sand would usually cause a catastrophic event, but would occasionally cause only a small avalanche or an event more minor disturbance.
  - (E) The grain of sand would invariably cause a catastrophic event.
19. Which one of the following best describes the organization of the passage?
- (A) A traditional procedure is described and its application to common situations is endorsed; its shortcomings in certain rare but critical circumstances are then revealed.
  - (B) A common misconception is elaborated and its consequences are described a detailed example of one of these consequences is then given.
  - (C) A general principle is stated and supported by several examples; an exception to the rule is then considered and its importance evaluated.
  - (D) A number of seemingly unrelated events are categorized; the underlying processes that connect them are then detailed.
  - (E) A traditional method of analysis is discussed and the reasons for its adoption are explained; an alternative is then described and clarified by means of an example.
20. Which one of the following is most analogous to the method of analysis employed by the investigators mentioned in the second paragraph?
- (A) A pollster gathers a sample of voter preferences and on the basis of this information makes a prediction about the outcome of an election.
  - (B) A historian examines the surviving documents detailing the history of a movement and from these documents reconstructs a chronology of the events that initiated the movement.
  - (C) A meteorologist measures the rainfall over a certain period of the year and from this data calculates the total annual rainfall for the region.

- (D) A biologist observes the behavior of one species of insect and from these observations generalizes about the behavior of insects as a class.
- (E) An engineer analyzes the stability of each structural element of a bridge and from these analyses draws a conclusion about the structural soundness of the bridge.

21. In the passage, the author is primarily concerned with

- (A) arguing against the abandonment of a traditional approach
- (B) describing the evolution of a radical theory
- (C) reconciling conflicting points of view
- (D) illustrating the superiority of a new theoretical approach
- (E) advocating the reconsideration of an unfashionable explanation

Historians have long accepted the notion that women of English descent who lived in the English colonies of North America during the seventeenth and eighteenth centuries were better off than either the contemporary women in England or the colonists' own nineteenth-century daughters and granddaughters. The "golden age" theory originated in the 1920s with the work of Elizabeth Dexter, who argued that there were relatively few women among the colonists, and that all hands—male and female—were needed to sustain the growing settlements. Rigid sex-role distinctions could not exist under such circumstances; female colonists could accordingly engage in whatever occupations they wished, encountering few legal or social constraints if they sought employment outside the home. The surplus of male colonists also gave women crucial bargaining power in the marriage market since women's contributions were vital to the survival of colonial households.

Dexter's portrait of female colonists living under conditions of rough equality with their male counterparts was eventually incorporated into studies of nineteenth-century middle-class women. The contrast between the self-sufficient colonial woman and the oppressed nineteenth-century woman, confined to her home by stultifying ideologies of domesticity and by the fact that industrialization eliminated employment opportunities for middle-class women, gained an extraordinarily tenacious hold on historians. Even scholars who have questioned the "golden age" view of colonial women's status have continued to accept the paradigm of a nineteenth-century decline from a more desirable past. For example, Joan Hoff-Wilson asserted that there was no "golden age" and yet emphasized that the nineteenth century brought "increased loss of function and authentic status for" middle-class women.

Recent publications about colonial women have exposed the concept of a decline in status as simplistic and unsophisticated, a theory that based its assessment of colonial women's status solely on one factor (their economic function in society) and assumed all too readily that a relatively simple social system automatically brought higher standing to colonial women. The new scholarship presents a far more complicated picture, one in which definitions of gender roles, the colonial economy, demographic patterns, religion, the law, and household organization all contributed to defining the circumstances of colonial women's lives. Indeed, the primary concern of modern scholarship is not to generalize about women's status but to identify the specific changes and continuities in women's lives during the colonial period. For example, whereas earlier historians suggested that there was little change for colonial women before

1800, the new scholarship suggests that a three-part chronological division more accurately reflects colonial women's experiences. First was the initial period of English colonization (from the 1620s to about 1660); then a period during which patterns of family and community were challenged and reshaped (roughly from 1660 to 1750); and finally the era of revolution (approximately 1750 to 1815), which brought other changes to women's lives.

22. Which one of the following best expresses the main idea of the passage?
- (A) An earlier theory about the status of middle-class women in the nineteenth century has been supported by recent scholarship.
  - (B) Recent studies of middle-class nineteenth-century women have altered an earlier theory about the status of colonial women.
  - (C) Recent scholarship has exposed an earlier theory about the status of colonial women as too narrowly based and oversimplified.
  - (D) An earlier theory about colonial women has greatly influenced recent studies on middle-class women in the nineteenth century.
  - (E) An earlier study of middle-class women was based on insufficient research on the status of women in the nineteenth century.
23. The author discusses Hoff-Wilson primarily in order to
- (A) describe how Dexter's theory was refuted by historians of nineteenth-century North America
  - (B) describe how the theory of middle-class women's nineteenth-century decline in status was developed
  - (C) describe an important influence on recent scholarship about the colonial period
  - (D) demonstrate the persistent influence of the "golden age" theory
  - (E) provide an example of current research on the colonial period
24. It can be inferred from the passage that the author would be most likely to describe the views of the scholars mentioned in line 32 as
- (A) unassailable
  - (B) innovative
  - (C) paradoxical
  - (D) overly sophisticated
  - (E) without merit
25. It can be inferred from the passage that in proposing the "three-part chronological division" (lines 60-61), scholars recognized which one of the following?
- (A) The circumstances of colonial women's lives were defined by a broad variety of social and economic factors.
  - (B) Women's lives in the English colonies of North America were similar to women's lives in seventeenth- and eighteenth-century England.
  - (C) Colonial women's status was adversely affected when patterns of family and

- community were established in the late seventeenth century.
- (D) Colonial women's status should be assessed primarily on the basis of their economic function in society.
- (E) Colonial women's status was low when the colonies were settled but changed significantly during the era of revolution.
26. According to the author, the publications about colonial women mentioned in the third paragraph had which one of the following effects?
- (A) They undermined Dexter's argument on the status of women colonists during the colonial period.
- (B) They revealed the tenacity of the "golden age" theory in American history.
- (C) They provided support for historians, such as Hoff-Wilson. Who study the nineteenth century.
- (D) They established that women's status did not change significantly from the colonial period to the nineteenth century.
- (E) They provided support for earlier theories about women colonists in the English colonies of North America.
27. Practitioners of the new scholarship discussed in the last paragraph would be most likely to agree with which one of the following statements about Dexter's argument?
- (A) It makes the assumption that women's status is determined primarily by their political power in society.
- (B) It makes the assumption that a less complex social system necessarily confers higher status on women.
- (C) It is based on inadequate research on women's economic role in the colonies.
- (D) It places too much emphasis on the way definitions of gender roles affected women colonists in the colonial period.
- (E) It accurately describes the way women's status declined in the nineteenth century.

**LSAT 20 SECTION IV****Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Musicologists concerned with the "London Pianoforte school," the group of composers, pedagogues, pianists, publishers, and builders who contributed to the development of the piano in London at the turn of the nineteenth century, have long encountered a formidable



obstacle in the general unavailability of music of this “school” in modern scholarly editions. Indeed, much of this repertory has more or less vanished from our historical consciousness. Granted, the sonatas and *Gradus ad Parnassum* of Muzio Clementi and the nocturnes of John Field have remained familiar enough (though **more often than not** in editions lacking scholarly rigor), but the work of other leading representatives, like Johann Baptist Cramer and Jan Ladislav Dussek, has eluded serious attempts at revival.

Nicholas Temperley’s ambitious new anthology decisively overcomes this deficiency. What underscores the intrinsic value of Temperley’s editions is that the anthology reproduces nearly all of the original music in **facsimile**. Making available this **cross section** of English musical life—some 800 works by 49 composers—should encourage new critical perspectives about how piano music evolved in England, an issue of considerable relevance to our understanding of how piano music developed on the European continent, and of how, finally, the instrument was transformed from the fortepiano to what we know today as the piano.

**To be sure**, the London Pianoforte school itself calls for **review**. “School” may well be too strong a word for what was arguably a group unified not so much by stylistic principles or aesthetic creed as by the geographical circumstance that they worked at various times in London and produced pianos and piano music for English pianos and English markets. Indeed, Temperley concedes that their “variety may be so great as to cast doubt on the notion of a ‘school.’”

The notion of a school was first propounded by Alexander Ringer, who argued that laws of artistic survival forced the young, progressive Beethoven to turn outside Austria for creative models, and that he found inspiration in a group of pianists connected with Clementi in London. Ringer’s proposed London Pianoforte school did suggest a circumscribed and fairly unified group—**for want of** a better term, a school—of musicians whose influence was felt primarily in the decades just before and after 1800. After all, Beethoven did respond to the advances of the Broadwood piano—its **reinforced frame**, extended compass, triple stringing, and pedals, for example—and it is reasonable to suppose that London pianists who composed music for such an instrument during the critical phase of its development exercised no small degree of influence on Continental musicians. Nevertheless, perhaps the most sensible approach to this issue is to define the school by the period (**c.** 1766-1873) during which it flourished, as Temperley has done in the anthology.

1. Which one of the following most accurately states the author’s main point?
  - (A) Temperley has recently called into question the designation of a group of composers, pedagogues, pianists, publishers, and builders as the London Pianoforte school.
  - (B) Temperley’s anthology of the music of the London Pianoforte school contributes significantly to an understanding of an influential period in the history of music.
  - (C) The music of the London Pianoforte school has been revived by the publication of Temperley’s new anthology.
  - (D) Primary sources for musical manuscripts provide the most reliable basis for musicological research.

- (E) The development of the modern piano in England influenced composers and other musicians throughout Europe.
2. It can be inferred that which one of the following is true of the piano music of the London Pianoforte school?
- (A) The nocturnes of John Field typify the London Pianoforte school style.
- (B) The *Gradus ad Parnassum* of Muzio Clementi is the best-known work of these composers.
- (C) No original scores for this music are extant.
- (D) Prior to Temperley's edition, no attempts to issue new editions of this music had been made.
- (E) In modern times much of the music of this school has been little known even to musicians.
3. The author mentions the sonatas of Muzio Clementi and the nocturnes of John Field as examples of which one of the following?
- (A) works by composers of the London Pianoforte school that have been preserved in rigorous scholarly editions
- (B) works that are no longer remembered by most people
- (C) works acclaimed by the leaders of the London Pianoforte school
- (D) works by composers of the London Pianoforte school that are relatively well known
- (E) works by composers of the London Pianoforte school that have been revived by Temperley in his anthology
4. Which one of the following, if true, would most clearly undermine a portion of Ringer's argument as the argument is described in the passage?
- (A) Musicians in Austria composed innovative music for the Broadwood piano as soon as the instrument became available.
- (B) Clementi and his followers produced most of their compositions between 1790 and 1810.
- (C) The influence of Continental musicians is apparent in some of the works of Beethoven.
- (D) The pianist-composers of the London Pianoforte school shared many of the same stylistic principles.
- (E) Most composers of the London Pianoforte school were born on the Continent and were drawn to London by the work of Clementi and his followers.
5. It can be inferred that the author uses the word "advances" (line 49) to refer to
- (A) enticements offered musicians by instrument manufacturers
- (B) improvements in the structure of a particular instrument
- (C) innovations in the forms of music produced for a particular instrument
- (D) stylistic elaborations made possible by changes in a particular instrument

- (E) changes in musicians' opinions about a particular instrument
6. It can be inferred from the passage as a whole that the author's purpose in the third paragraph is primarily to
- (A) cast doubt on the usefulness of Temperley's study of the London Pianoforte school
  - (B) introduce a discussion of the coherency of the London Pianoforte school
  - (C) summarize Ringer's argument about the London Pianoforte school
  - (D) emphasize the complex nature of the musicological elements shared by members of the London Pianoforte school
  - (E) identify the unique contributions made to music by the London Pianoforte school
7. The author of the passage is primarily concerned with
- (A) explaining the influence of the development of the pianoforte on the music of Beethoven
  - (B) describing Temperley's view of the contrast between the development of piano music in England and the development of piano music elsewhere in Europe
  - (C) presenting Temperley's evaluation of the impact of changes in piano construction on styles and forms of music composed in the era of the London Pianoforte school
  - (D) considering an alternative theory to that proposed by Ringer concerning the London Pianoforte school
  - (E) discussing the contribution of Temperley's anthology to what is known of the history of the London Pianoforte school
8. It can be inferred that Temperley's anthology treats the London Pianoforte school as
- (A) a group of pianist-composers who shared certain stylistic principles and artistic creeds
  - (B) a group of people who contributed to the development of piano music between 1766 and 1873
  - (C) a group of composers who influenced the music of Beethoven in the decades just before and just after 1800
  - (D) a series of compositions for the pianoforte published in the decades just before and just after 1800
  - (E) a series of compositions that had a significant influence on the music of the Continent in the eighteenth and nineteenth centuries

What is "law"? By what processes do judges arrive at opinions, those documents that justify their belief that the "law" dictates a conclusion one way or the other? These are among the oldest questions in jurisprudence, debate about which has traditionally been dominated by representatives of two schools of thought: proponents of natural law, who see law as

intertwined with a moral order independent of society's rules and mores, and legal positivists, who see law solely as embodying the commands of a society's ruling authority.

Since the early 1970s, these familiar questions have received some new and surprising answers in the legal academy. This novelty is in part a consequence of the increasing influence there of academic disciplines and intellectual traditions previously unconnected with the study of law. Perhaps the most influential have been the answers given by the Law and Economics school. According to these legal economists, law consists and ought to consist of those rules that maximize a society's material wealth and that abet the efficient operation of markets designed to generate wealth. More controversial have been the various answers provided by members of the Critical Legal Studies movement, according to whom law is one among several cultural mechanisms by which holders of power seek to legitimate their domination. Drawing on related arguments developed in anthropology, sociology, and history, the critical legal scholars contend that law is an expression of power, but not, as held by the positivists, the power of the legitimate sovereign government. Rather, it is an expression of the power of elites who may have no legitimate authority, but who are intent on preserving the privileges of their race, class, or gender.

In the mid-1970s, James Boyd White began to articulate yet another interdisciplinary response to the traditional questions, and in so doing spawned what is now known as the Law and Literature movement. White has insisted that law, particularly as it is interpreted in judicial opinions, should be understood as an essentially literary activity. Judicial opinions should be read and evaluated not primarily as political acts or as attempts to maximize society's wealth through efficient rules, but rather as artistic performances. And like all such performances, White argues, each judicial opinion attempts in its own way to promote a particular political or ethical value.

In the recent *Justice as Translation*, White argues that opinion-writing should be regarded as an act of "translation," and judges as "translators." As such, judges find themselves mediating between the authoritative legal text and the pressing legal problem that demands resolution. A judge must essentially "re-constitute" that text by fashioning a new one, which is faithful to the old text but also responsive to and informed by the conditions, constraints, and aspirations of the world in which the new legal problem has arisen.

9. Which one of the following best states the main idea of the passage?
- (A) Within the last few decades, a number of novel approaches to jurisprudence have defined the nature of the law in diverse ways.
  - (B) Within the last few decades, changes in society and in the number and type of cases brought to court have necessitated new methods of interpreting the law.
  - (C) Of the many interdisciplinary approaches to jurisprudence that have surfaced in the last tow decades, the Law and Literature movement is the most intellectually coherent.
  - (D) The Law and Literature movement, first articulated by James Boyd White in the mid-1970s, represents a synthesis of the many theories of jurisprudence inspired by the social sciences.

- (E) Such traditional legal scholars as legal positivists and natural lawyers are increasingly on the defensive against attacks from younger, more progressive theorists.
10. According to the passage, judicial opinions have been described as each of the following EXCEPT:
- (A) political statements
  - (B) arcane statements
  - (C) economic statements
  - (D) artistic performances
  - (E) acts of translation
11. Which one of the following statements is most compatible with the principles of the Critical Legal Studies movement as that movement is described in the passage?
- (A) Laws governing the succession of power at the death of a head of state represent a synthesis of legal precedents, specific situations, and the values of lawmakers.
  - (B) Laws allowing income tax deductions for charitable contributions, though ostensibly passed by lawmakers, were devised by and are perpetuated by the rich.
  - (C) Laws governing the tariffs placed on imported goods must favor the continuation of mutually beneficial trade arrangements, even at the expense of long-standing legal precedent.
  - (D) Laws governing the treatment of the disadvantaged and powerless members of a given society are an accurate indication of that society's moral state.
  - (E) Laws controlling the electoral processes of a representative democracy have been devised by lawmakers to ensure the continuation of that governmental system.
12. Which one of the following does the passage mention as a similarity between the Critical Legal Studies movement and the Law and Literature movement?
- (A) Both offer explanations of how elites maintain their hold on power.
  - (B) Both are logical extensions of either natural law or legal positivism.
  - (C) Both see economic and political primacy as the basis of all legitimate power.
  - (D) Both rely on disciplines not traditionally connected with the study of law.
  - (E) Both see the practice of opinion-writing as a mediating activity.
13. Which one of the following can be inferred from the passage about the academic study of jurisprudence before the 1970s?
- (A) It was concerned primarily with codifying and maintaining the privileges of elites.
  - (B) It rejected theories that interpreted law as an expression of a group's power.

- (C) It seldom focused on how and by what authority judges arrived at opinions.
- (D) It was concerned primarily with the study of law as an economic and moral agent.
- (E) It was not concerned with such disciplines as anthropology and sociology.
14. Proponents of the Law and Literature movement would most likely agree with which one of the following statements concerning the relationship between the law and judges' written opinions?
- (A) The once-stable relationship between law and opinion-writing has been undermined by new and radical theoretical developments.
- (B) Only the most politically conservative of judges continue to base their opinions on natural law or on legal positivism.
- (C) The occurrence of different legal situations requires a judge to adopt diverse theoretical approaches to opinion-writing.
- (D) Different judges will not necessarily write the same sorts of opinions when confronted with the same legal situation.
- (E) Judges who subscribe to divergent theories of jurisprudence will necessarily render divergent opinions.
15. Which one of the following phrases best describes the meaning of "re-constitute" as that word is used in line 54 of the passage?
- (A) categorize and rephrase
- (B) investigate and summarize
- (C) interpret and refashion
- (D) paraphrase and announce
- (E) negotiate and synthesize
16. The primary purpose of the passage is to
- (A) identify differing approaches
- (B) discount a novel trend
- (C) advocate traditional methods
- (D) correct misinterpretations
- (E) reconcile seeming inconsistencies

Since the early 1920s, most petroleum geologists have favored a biogenic theory for the formation of oil. According to this theory, organic matter became buried in sediments, and subsequent conditions of temperature and pressure over time transformed it into oil.

Since 1979 an opposing abiogenic theory about the origin of oil has been **promulgated**. According to this theory, what is now oil began as hydrocarbon compounds within the earth's mantle (the region between the core and the crust) during the formation of the earth. Oil was created when gasses rich in methane, the lightest of the hydrocarbons, rose from the mantle through fractures and faults in the crust, carrying a significant amount of heavier hydrocarbons with them. As the gases encountered intermittent drops in pressure, the heavier hydrocarbons



condensed, forming oil, and were deposited in reservoirs throughout the crust. Rock regions deformed by motions of the crustal plates provided the conduits and fractures necessary for the gases to rise through the crust.

Opponents of the abiogenic theory charge that hydrocarbons could not exist in the mantle, because high temperatures would destroy or break them down. Advocates of the theory, however, point out that other types of carbon exist in the mantle: unoxidized carbon must exist there, because diamonds are formed within the mantle before being brought to the surface by eruptive processes. Proponents of the abiogenic theory also point to recent experimental work that suggests that the higher pressures within the mantle tend to offset the higher temperatures, allowing hydrocarbons, like unoxidized carbon, to continue to exist in the mantle.

If the abiogenic theory is correct, vast undiscovered reservoirs of oil and gas—undiscovered because the biogenic model precludes their existence—may in actuality exist. One company owned by the Swedish government has found the abiogenic theory so persuasive that it has started exploratory drilling for gas or oil in a granite formation called the Siljan Ring—not the best place to look for gas or oil if one believes they are derived from organic compounds, because granite forms from magma (molten rock) and contains no organic sediments. The ring was formed about 360 million years ago when a large meteorite hit the 600-million-year-old granite that forms the base of the continental crust. The impact fractured the granite, and the Swedes believe that if oil comes from the mantle, it could have risen with methane gas through this now permeable rock. Fueling their optimism further is the fact that prior to the start of drilling, methane gas had been detected rising through the granite.

17. Which one of the following statements best expresses the main idea of the passage?
- (A) Although the new abiogenic theory about the origin of oil is derived from the conventional biogenic theory, it suggests new types of locations for oil drilling.
  - (B) The small number of drilling companies that have responded to the new abiogenic theory about the origin of oil reflects the minimal level of acceptance the theory has met with in the scientific community.
  - (C) Although the new abiogenic theory about the origin of oil fails to explain several enigmas about oil reservoirs, it is superior to the conventional biogenic theory.
  - (D) Although it has yet to receive either support or refutation by data gathered from a drilling project, the new abiogenic theory about the origin of oil offers a plausible alternative to the conventional biogenic theory.
  - (E) Having answered objections about higher pressures in the earth's core, proponents of the new abiogenic theory have gained broad acceptance for their theory in the scientific community.
18. Which one of the following best describes the function of the third paragraph?
- (A) It presents a view opposed to a theory and points out an internal contradiction in that opposing view.

- (B) It describes a criticism of a theory and provides countervailing evidence to the criticism.
- (C) It identifies a conflict between two views of a theory and revises both views.
- (D) It explains an argument against a theory and shows it to be a valid criticism.
- (E) It points out the correspondence between an argument against one theory and arguments against similar theories.
19. The passage suggests that the opponents of the abiogenic theory mentioned in the third paragraph would most probably agree with which one of the following statements?
- (A) The formation of oil does not involve the condensation of hydrocarbons released from the earth's mantle.
- (B) Large oil reserves are often found in locations that contain small amounts of organic matter.
- (C) The eruptive processes by which diamonds are brought to the earth's surface are similar to those that aid in the formation of oil.
- (D) Motions of the crustal plates often create the pressure necessary to transform organic matter into oil.
- (E) The largest known oil reserves may have resulted from organic matter combining with heavier hydrocarbons carried by methane gas.
20. Which one of the following is most analogous to the situation described in the final paragraph?
- (A) A new theory about the annual cycles of breeding and migration of the monarch butterfly has led scientists to look for similar patterns in other butterfly species.
- (B) A new theory about the stage at which a star collapses into a black hole has led astronomers to search for evidence of black holes in parts of the universe where they had not previously searched.
- (C) A new theory about how the emission of sulfur dioxide during coal-burning can be reduced has led several companies to develop desulfurization systems.
- (D) A new theory about photosynthesis has convinced a research team to explore in new ways the various functions of the cell membrane in plant cells.
- (E) A new theory about the distribution of metals in rock formations has convinced a silver-mining company to keep different types of records of its operations.
21. According to the passage all of the following are true of the Siljan Ring EXCEPT:
- (A) It was formed from magma.
- (B) It does not contain organic sediments.
- (C) Its ring shape existed 500 million years ago.

(D) Methane gas has been detected rising through it.

(E) It was shaped from the granite that makes up the base of the continental crust.

Most studies of recent Southeast Asian immigrants to the United States have focused on their adjustment to life in their adopted country and on the effects of leaving their homelands. James Tollefson's *Alien Winds* examines the resettlement process from a different perspective by investigating the educational programs offered in immigrant processing centers. Based on interviews, transcripts from classes, essays by immigrants, personal visits to a teacher-training unit, and official government documents, Tollefson relies on an impressive amount and variety of documentation in making his arguments about processing centers' educational programs.

Tollefson's main contention is that the emphasis placed on immediate employment and on teaching the values, attitudes, and behaviors that the training personnel think will help the immigrants adjust more easily to life in the United States is often counterproductive and demoralizing. Because of concerns that the immigrants be self-supporting as soon as possible, they are trained almost exclusively for low-level jobs that do not require English proficiency. In this respect, Tollefson claims, the processing centers suit the needs of employers more than they suit the long-term needs of the immigrant community. Tollefson also detects a fundamental flaw in the attempts by program educators to instill in the immigrants the traditionally Western principles of self-sufficiency and individual success. These efforts often have the effect of undermining the immigrants' sense of community and, in doing so, sometimes isolate them from the moral support and even from business opportunities afforded by the immigrant community. The programs also encourage the immigrants to shed their cultural traditions and ethnic identity and adopt the lifestyles, beliefs, and characteristics of their adopted country if they wish to enter fully into the national life.

Tollefson notes that the ideological nature of these educational programs has roots in the turn-of-the-century educational programs designed to assimilate European immigrants into United States society. Tollefson provides a concise history of the assimilationist movement in immigrant education, in which European immigrants were encouraged to leave behind the ways of the Old World and to adopt instead the principles and practices of the New World.

Tollefson ably shows that the issues demanding real attention in the educational programs for Southeast Asian immigrants are not merely employment rates and government funding, but also the assumptions underpinning the educational values in the programs. He recommends many improvements for the programs, including giving the immigrants a stronger voice in determining their needs and how to meet them, redesigning the curricula, and emphasizing long-term language education and job training over immediate employment and the avoiding of public assistance. Unfortunately, though, Tollefson does not offer enough concrete solutions as to how these reforms could be carried out, despite his own descriptions of the complicated bureaucratic nature of the programs.

22. Which one of the following statements best expresses the main idea of the passage?

(A) Tollefson's focus on the economic and cultural factors involved in adjusting to a new country offers a significant departure from most studies of Southeast Asian immigration.

- (B) In his analysis of educational programs for Southeast Asian immigrants, Tollefson fails to acknowledge many of the positive effects the programs have had on immigrants' lives.
- (C) Tollefson convincingly blames the philosophy underlying immigrant educational programs for some of the adjustment problems afflicting Southeast Asian immigrants.
- (D) Tollefson's most significant contribution is his analysis of how Southeast Asian immigrants overcome the obstacles they encounter in immigrant educational programs.
- (E) Tollefson traces a gradual yet significant change in the attitudes held by processing center educators toward Southeast Asian immigrants.
23. With which one of the following statements concerning the educational programs of the immigration centers would Tollefson most probably agree?
- (A) Although the programs offer adequate job training, they offer inadequate English training.
- (B) Some of the programs' attempts to improve the earning power of the immigrants cut them off from potential sources of income.
- (C) Inclusion of the history of immigration in the United States in the programs' curricula facilitates adjustment for the immigrants.
- (D) Immigrants would benefit if instructors in the programs were better prepared to teach the curricula developed in the teacher-training courses.
- (E) The programs' curricula should be redesigned to include greater emphasis on the shared values, beliefs, and practices in the United States.
24. Which one of the following best describes the opinion of the author of the passage with respect to Tollefson's work?
- (A) thorough but misguided
- (B) innovative but incomplete
- (C) novel but contradictory
- (D) illuminating but unappreciated
- (E) well documented but unoriginal
25. The passage suggests that which one of the following is an assumption underlying the educational approach in immigrant processing centers?
- (A) There is a set of values and behaviors that if adopted by immigrants, facilitate adjustment to United States society.
- (B) When recent immigrants are self-supporting rather than supported by public assistance, they tend to gain English proficiency more quickly.
- (C) Immediate employment tends to undermine the immigrants sense of community with each other.
- (D) Long-term success for immigrants is best achieved by encouraging the

- immigrants to maintain a strong sense of community.
- (E) The principles of self-sufficiency and individual success are central to Southeast Asian culture and ethnicity.
26. Which one of the following best describes the function of the first paragraph of the passage?
- (A) It provides the scholarly context for Tollefson's study and a description of his methodology.
- (B) It compares Tollefson's study to other works and presents the main argument of his study.
- (C) It compares the types of documents Tollefson uses to those used in other studies.
- (D) It presents the accepted theory on Tollefson's topic and the method by which Tollefson challenges it.
- (E) It argues for the analytical and technical superiority of Tollefson's study over other works on the topic.
27. The author of the passage refers to Tollefson's descriptions of the bureaucratic nature of the immigrant educational programs in the fourth paragraph most probably in order to
- (A) criticize Tollefson's decision to combine a description of the bureaucracies with suggestions for improvement
- (B) emphasize the author's disappointment in Tollefson's overly general recommendations for improvements to the programs
- (C) point out the irony of Tollefson concluding his study with suggestions for drastic changes in the programs
- (D) support a contention that Tollefson's recommendations for improvements do not focus on the real sources of the programs' problems
- (E) suggest a parallel between the complexity of the bureaucracies and the complexity of Tollefson's arguments

**LSAT 21 SECTION I****Time 35 minutes 26 Questions**

**Directions:** Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.

To many developers of technologies that affect public health or the environment, "risk communication" means persuading the public that the potential risks of such technologies are small and should be ignored. Those who communicate risks in this way seem to believe that lay people do not understand the actual nature of technological risk, and they can cite studies asserting that although people apparently ignore mundane hazards that pose significant danger,



they get upset about exotic hazards that pose little chance of death or injury. Because some risk communicators take this persuasive stance, many lay people see “risk communication” as a euphemism for **brainwashing** done by experts.

Since, however, the goal of risk communication should be to enable people to make informed decisions about technological risks, a clear understanding about how the public perceives risk is needed. Lay people’s definitions of “risk” are more likely to reflect subjective ethical concerns than are experts’ definitions. Lay people, for example, tend to perceive a small risk to children as more significant than a large risk to consenting adults who benefit from the risk-creating technology. However, if asked to rank hazards by the number of annual fatalities, **without reference to** ethical judgments, lay people provide quite reasonable estimates, demonstrating that they have substantial knowledge about many risks. Although some studies claim to demonstrate that lay people have inappropriate concerns about exotic hazards, these studies often use questionable methods, such as asking lay people to rank risks that are hard to compare. In contrast, a recent study showed that when lay people were given the necessary facts and time, they understood the specific risks of electromagnetic fields produced by high-voltage power transmission well enough to make informed decisions.

Risk communication should therefore be based on the principle that people process new information in the context of their existing beliefs. If people know nothing about a topic, they will find messages about that topic incomprehensible. If they have erroneous beliefs, they are likely to misconstrue the messages. Thus, communicators need to know the nature and extent of recipients’ knowledge and beliefs in order to design messages that will not be dismissed or misinterpreted. This need was demonstrated in a research project concerning the public’s level of knowledge about risks posed by the presence of radon in the home. Researchers used **open-ended** interviews and questionnaires to determine what information should be included in their brochure on radon. Subjects who read the researchers’ brochure performed significantly better in understanding radon risks than did a control group who read a brochure that was written using a different approach by a government agency. Thus, careful preparation can help risk communicators to produce balanced material that tells people what they need to know to make decisions about technological risks.

1. Which one of the following best expresses the main point of the passage?
  - (A) Risk communicators are effectively addressing the proliferation of complex technologies that have increasing impact on public health and safety.
  - (B) Risk communicators should assess lay people’s understanding of technologies in order to be able to give them the information they need to make reasonable decisions.
  - (C) Experts who want to communicate to the public about the possible risks of complex technologies must simplify their message to ensure that it is understandable.
  - (D) Risk communication can be perceived as the task of persuading lay people to accept the impact of a particular technology on their lives.
  - (E) Lay people can be unduly influenced by subjective concerns when making decisions about technological risks.



2. The authors of the passage would be most likely to agree that the primary purpose of risk communication should be to
- (A) explain rather than to persuade
  - (B) promote rather than to justify
  - (C) influence experts rather than to influence lay people
  - (D) allay people's fears about mundane hazards rather than about exotic hazards
  - (E) foster public acceptance of new technologies rather than to acknowledge people's ethical concerns
3. According to the passage, it is probable that which one of the following will occur when risk communicators attempt to communicate with lay people who have mistaken ideas about a particular technology?
- (A) The lay people perceiving that the risk communicators have provided more-reliable information, will discard their mistaken notion.
  - (B) The lay people will only partially revise their ideas on the basis of the new information.
  - (C) The lay people fitting the new information into their existing framework will interpret the communication differently than the risk communicators had intended.
  - (D) The lay people misunderstanding the new information will further distort the information when they communicate it to other lay people.
  - (E) The lay people will ignore any communication about a technology they consider potentially dangerous.
4. Which one of the following is most clearly an example of the kind of risk perception discussed in the "studies" mentioned in line 8?
- (A) A skydiver checks the lines on her parachute several times before a jump because tangled lines often keep the parachutes from opening properly
  - (B) A person decides to quit smoking in order to lesson the probability of lung damage to himself and his family
  - (C) A homeowner who decides to have her house tested for radon also decides not to allow anyone to smoke in her house
  - (D) A person who often weaves in and out of traffic while driving his car at excessive speeds worries about meteorites hitting his house
  - (E) A group of townspeople opposes the building of a nuclear waste dump outside their town and proposes that the dump be placed in another town
5. It can be inferred that the authors of the passage would be more likely than would the risk communicators discussed in the first paragraph to emphasize which one of the following?
- (A) lay people's tendency to become alarmed about technologies that they find new or strange

- (B) lay people's tendency to compare risks that experts would not consider comparable
  - (C) the need for lay people to adopt scientists' advice about technological risk
  - (D) the inability of lay people to rank hazards by the number of fatalities caused annually
  - (E) the impact of lay people's value systems on their perceptions of risk
6. According to the passage many lay people believe which one of the following about risk communication?
- (A) It focuses excessively on mundane hazards.
  - (B) It is a tool used to manipulate the public.
  - (C) It is a major cause of inaccuracies in public knowledge about science.
  - (D) It most often functions to help people make informed decisions.
  - (E) Its level of effectiveness depends on the level of knowledge its audience already has.

In April 1990 representatives of the Pico Korea Union of electronics workers in Buchon city, south Korea, traveled to the United States in order to demand just settlement of their claims from the parent company of their employers, who upon the formation of the union had shut down operations without paying the workers. From the beginning, the union cause was championed by an unprecedented coalition of Korean American groups and deeply affected the Korean American community on several levels.

First, it served as a rallying focus for a diverse community often divided by generation, class and political ideologies. Most notably, the Pico cause mobilized many young second-generation Korean Americans, many of whom had never been part of a political campaign before, let alone one involving Korean issues. Members of this generation, unlike first-generation Korean Americans, generally fall within the more privileged sectors of the Korean American community and often feel alienated from their Korean roots. In addition to raising the political consciousness of young Korean Americans, the Pico struggle sparked among them new interest in their cultural identity. The Pico workers also suggested new roles that can be played by recent immigrants, particularly working-class immigrants. These immigrants' knowledge of working conditions overseas can help to globalize the perspective of their communities and can help to establish international ties on a more personal level, as witnessed in the especially warm exchange between the Pico workers and recent working-class immigrants from China. In addition to broadening the political base within the Korean American community, the Pico struggle also led to new alliances between the Korean American community and progressive labor and social justice groups within the larger society—as evidenced in the support received from the Coalition of Labor Union Women and leading African American unionists.

The reasons for these effects lie in the nature of the cause. The issues raised by the Pico unionists had such a strong human component that differences within the community became secondary to larger concerns for social justice and workers' rights. The workers' demands for compensation and respect were unencumbered with strong ideological trappings. The economic exploitation faced by the Pico workers underscored the common interests of Korean

workers, Korean Americans, the working class more inclusively, and a broad spectrum of community leaders.

The Pico workers' campaign thus offers an important lesson. It demonstrates that ethnic communities need more than just a knowledge of history and culture as artifacts of the past in order to strengthen their ethnic identity. It shows that perhaps the most effective means of empowerment for many ethnic communities of immigrant derivation may be an identification with and participation in current struggles for economic and social justice in their countries of origin.

7. Which one of the following best describes the main topic of the passage?
- (A) the contribution of the Korean American community to improving the working conditions of Koreans employed by United States companies
  - (B) the change brought about in the Korean American community by contacts with Koreans visiting the United States
  - (C) the contribution of recent immigrants from Korea to strengthening ethnic identity in the Korean American community
  - (D) the effects on the Korean American community of a dispute between Korean union workers and a United States company
  - (E) the effect of the politicization of second-generation Korean Americans on the Korean American community as a whole
8. The passage suggests that which one of the following was a significant factor in the decision to shut down the Pico plant in Buchon City?
- (A) the decreasing profitability of maintaining operations in Korea
  - (B) the failure to resolve long-standing disputes between the Pico workers and management
  - (C) the creation of a union by the Pico workers
  - (D) the withholding of workers' wages by the parent company
  - (E) the finding of an alternate site for operations
9. Which one of the following is NOT mentioned in the passage as a recent development in the Korean American community?
- (A) Young second-generation Korean Americans have begun to take an interest in their Korean heritage.
  - (B) Recent Korean American immigrants of working-class backgrounds have begun to enter the more privileged sectors of the Korean American community.
  - (C) Korean Americans have developed closer ties with activist groups from other sectors of the population.
  - (D) Previously nonpolitical members of the Korean American community have become more politically active.
  - (E) The Korean American community has been able to set aside political and generational disparities in order to support a common cause.

10. It can be inferred that the author of the passage would most likely agree with which one of the following statements about ethnic communities of immigrant derivation?
- (A) Such communities can derive important benefits from maintaining ties with their countries of origin.
  - (B) Such communities should focus primarily on promoting study of the history and culture of their people in order to strengthen their ethnic identity.
  - (C) Such communities can most successfully mobilize and politicize their young people by addressing the problems of young people of all backgrounds.
  - (D) The more privileged sectors of such communities are most likely to maintain a sense of closeness to their cultural roots.
  - (E) The politicization of such a community is unlikely to affect relations with other groups within the larger society.
11. In the second paragraph, the author refers to immigrants from China most probably in order to do which one of the following?
- (A) highlight the contrast between working conditions in the United States and in Korea
  - (B) demonstrate the uniqueness of the problem faced by the Pico workers
  - (C) offer an example of the type of role that can be played by recent working-class immigrants
  - (D) provide an analogy for the type of activism displayed by the Korean American community
  - (E) compare the disparate responses of two immigrant communities to similar problems
12. The primary purpose of the passage is to
- (A) describe recent developments in the Korean American community that have strongly affected other ethnic communities of immigrant derivation
  - (B) describe a situation in the Korean American community that presents a model for the empowerment of ethnic communities of immigrant derivation
  - (C) detail the problems faced by the Korean American community in order to illustrate the need for the empowerment of ethnic communities of immigrant derivation
  - (D) argue against economic and social injustice in the countries of origin of ethnic communities of immigrant derivation
  - (E) assess the impact of the unionization movement on ethnic communities of immigrant derivation
13. Which one of the following most accurately states the function of the third paragraph?
- (A) It explains why the Pico workers brought their cause to the United States.

- (B) It explains how the Pico cause differed from other causes that had previously mobilized the Korean American community.
- (C) It explains why the Pico workers were accorded such broad support.
- (D) It explains how other ethnic groups of immigrant derivation in the United States have profited from the example of the Pico workers.
- (E) It explains why different generations of Korean Americans reacted in different ways to the Pico cause.

In recent years, scholars have begun to use social science tools to analyze court opinions. These scholars have justifiably criticized traditional legal research for its focus on a few cases that may not be representative and its fascination with arcane matters that do not affect real people with real legal problems. Zirkel and Schoenfeld, for example, have championed the application of social science tools to the analysis of case law surrounding discrimination against women in higher education employment. Their studies have demonstrated how these social science tools may be used to serve the interests of scholars, lawyers and prospective plaintiffs as well. However, their enthusiasm for the “outcomes analysis” technique seems misguided.

Of fundamental concern is the outcomes analysts’ assumption that simply counting the number of successful and unsuccessful plaintiffs will be useful to prospective plaintiffs. Although the odds are clearly against the plaintiff in sex discrimination cases, plaintiffs who believe that their cause is just and that they will prevail are not swayed by such evidence. In addition, because lawsuits are so different in the details of the case, in the quality of the evidence the plaintiff presents, and in the attitude of the judge toward academic plaintiffs, giving prospective plaintiffs statistics about overall outcomes without analyzing the reason for these outcomes is of marginal assistance. Outcomes analysis, for example, ignores the fact that in certain academic sex discrimination cases—those involving serious procedural violations or incriminating evidence in the form of written admissions of discriminatory practices—plaintiffs are much more likely to prevail.

Two different approaches offer more useful applications of social science tools in analyzing sex discrimination cases. One is a process called “policy capturing,” in which the researcher reads each opinion, identifies variables discussed in the opinion, such as the regularity of employer evaluations of the plaintiff performance, training of evaluators, and the kind of evaluation instrument used, and then uses multivariate analysis to determine whether these variables predict the outcome of the lawsuit. The advantage of policy capturing research is that it attempts to explain the reason for the outcome, rather than simply reporting the outcome, and identifies factors that contribute to a plaintiff’s success or failure. Taking a slightly different approach, other scholars have adopted a technique that requires reading complete transcripts of all sex discrimination cases litigated during a certain time period to identify variables such as the nature of the allegedly illegal conduct, the consequences for employers, and the nature of the remedy, as well as the factors that contributed to the verdict and the kind of evidence necessary for the plaintiff to prevail. While the findings of these studies are limited to the period covered, they assist potential plaintiffs and defendants in assessing their cases.

14. Which one of the following best expresses the main idea of the passage?

- (A) The analysis of a limited number of atypical discrimination suits is of little

- value to potential plaintiffs.
- (B) When the number of factors analyzed in a sex discrimination suit is increased, the validity of the conclusions drawn becomes suspect.
- (C) Scholars who are critical of traditional legal research frequently offer alternative approaches that are also seriously flawed.
- (D) Outcomes analysis has less predictive value in sex discrimination cases than do certain other social science techniques.
- (E) Given adequate information, it is possible to predict with considerable certainty whether a plaintiff will be successful in a discrimination suit.
15. It can be inferred from the author's discussion of traditional legal research that the author is
- (A) frustrated because traditional legal research has not achieved its full potential
- (B) critical because traditional legal research has little relevance to those actually involved in cases
- (C) appreciative of the role traditional legal research played in developing later more efficient approaches
- (D) derisive because traditional legal research has outlasted its previously significant role
- (E) grateful for the ability of traditional legal research to develop unique types of evidence
16. Which one of the following statements about Zirkel and Schoenfeld can be inferred from the passage?
- (A) They were the first scholars to use social science tools in analyzing legal cases.
- (B) They confined their studies to the outcomes analysis technique.
- (C) They saw no value in the analysis provided by traditional legal research.
- (D) They rejected policy capturing as being too limited in scope.
- (E) They believed that the information generated by outcomes analysis would be relevant for plaintiffs.
17. The author's characterization of traditional legal research in the first paragraph is intended to
- (A) provide background information for the subsequent discussion
- (B) summarize an opponent's position
- (C) argue against the use of social science tools in the analysis of sex discrimination cases
- (D) emphasize the fact that legal researchers act to the detriment of potential plaintiffs
- (E) reconcile traditional legal researchers to the use of social science tools
18. The information in the passage suggests that plaintiffs who pursue sex



discrimination cases despite the statistics provided by outcomes analysis can best be **likened** to

- (A) athletes who continue to employ training techniques despite their knowledge of statistical evidence indicating that these techniques are unlikely to be effective
  - (B) lawyers who handle lawsuits for a large number of clients in the hope that some percentage will be successful
  - (C) candidates for public office who are more interested in making a political statement than in winning an election
  - (D) supporters of a cause who recruit individuals sympathetic to it in the belief that large numbers of supporters will lend the cause legitimacy
  - (E) purchasers of a charity's raffle tickets who consider the purchase a contribution because the likelihood of winning is remote
19. The policy-capturing approach differs from the approach described in lines 48-59 in that the latter approach
- (A) makes use of detailed information on a greater number of cases
  - (B) focuses more directly on issues of concern to litigants
  - (C) analyzes information that is more recent and therefore reflects current trends
  - (D) allows assessment of aspects of a case that are not specifically mentioned in a judge's opinion
  - (E) eliminates any distortion due to personal bias on the part of the researcher
20. Which one of the following best describes the organization of the passage?
- (A) A technique is introduced, its shortcomings are summarized, and alternatives are described.
  - (B) A debate is introduced, evidence is presented, and a compromise is reached.
  - (C) A theory is presented, clarification is provided, and a plan of further evaluation is suggested.
  - (D) Standards are established, hypothetical examples are analyzed, and the criteria are amended.
  - (E) A position is challenged, its shortcomings are categorized, and the challenge is revised.

A fake can be defined as an artwork intended to deceive. The motives of its creator are decisive, and the merit of the object itself is a separate issue. The question mark in the title of Mark Jones's *Fake? The Act of Deception* reveals the study's broader concerns. Indeed, it might equally be entitled *Original?*, and the text begins by noting a variety of possibilities somewhere between the two extremes. These include works by an artist's followers in the style of the master, deliberate archaism, copying for pedagogical purposes, and the production of commercial **facsimiles**.

The greater part of *Fake?* is devoted to a Chronological survey suggesting that faking **feeds on** the many different motives people have for collecting art, and that, on the whole, the faking

of art flourishes whenever art collecting flourishes. In imperial Rome there was a widespread interest in collecting earlier Greek art, and therefore in faking it. No doubt many of the sculptures now exhibited as "Roman copies" were originally **passed off** as Greek. In medieval Europe, because art was celebrated more for its devotional uses than for its provenance or the ingenuity of its creators, the faking of art was virtually nonexistent. The modern age of faking began in the Italian Renaissance, with two linked developments: a passionate identification with the world of antiquity and a growing sense of individual artistic identity. A patron of the young Michelangelo **prevailed upon** the artist to make his Sculpture *Sleeping Cupid* look as though it had been buried in the earth so that "it will be taken for antique, and you will sell it much better." Within a few years, however, beginning with his first masterpiece, the *Bacchus*, Michelangelo had shown his contemporaries that great art can assimilate and transcend what came before, resulting in a wholly original work. Soon his genius made him the **object** of imitators.

*Fake?* also reminds us that in certain cultures authenticity is a **foreign** concept. This is true of much African art, when the authenticity of an object is considered by collectors to depend on its function. As an illustration, the study compares two versions of a *chi wara* mask made by the **Bambara** people of Mali. One has pegs allowing it to be attached to a cap for its intended ceremonial purpose. The second, otherwise identical, lacks the pegs and is a replica made for sale. African carving is notoriously difficult to **date**, but even if the ritual mask is recent, made perhaps to replace a damaged predecessor, and the replica much older, only the ritual mask should be seen as authentic, for it is tied to the form's original function. That, at least, is the consensus of the so-called experts. One wonders whether the Bambaran artists would agree.

21. The passage can best be described as doing which one of the following?
- (A) reconciling varied points of view
  - (B) chronicling the evolution of a phenomenon
  - (C) exploring a complex question
  - (D) advocating a new approach
  - (E) rejecting an inadequate explanation
22. Which one of the following best expresses the author's main point? (the text begins by noting a variety of possibilities somewhere between the two extremes. These include works by an artist's followers in the style of the master, deliberate archaism, copying for pedagogical purposes, and the production of commercial facsimiles)
- (A) The faking of art has occurred throughout history and in virtually every culture.
  - (B) Whether a work of art is fake or not is less important than whether it has artistic merit.
  - (C) It is possible to show that a work of art is fake, but the authenticity of a work cannot be proved conclusively.
  - (D) A variety of circumstances make it difficult to determine whether a work of art can appropriately be called a fake.

- (E) Without an international market to support it, the faking of art would cease.
23. According to the passage an artwork can be definitively classified as a fake if the person who created it
- (A) consciously adopted the artistic style of an influential mentor
  - (B) deliberately imitated a famous work of art as a learning exercise
  - (C) wanted other people to be fooled by its appearance
  - (D) made multiple, identical copies of the work available for sale
  - (E) made the work resemble the art of an earlier era
24. The author provides at least one example of each of the following EXCEPT:
- (A) categories of art that are neither wholly fake nor wholly original
  - (B) cultures in which the faking of art flourished
  - (C) qualities that art collectors have prized in their acquisitions
  - (D) cultures in which the categories “fake” and “original” do not apply
  - (E) contemporary artists whose works have inspired fakes
25. The author implies which one of the following about the artistic merits of fakes?
- (A) Because of the circumstances of its production, a fake cannot be said to have true artistic merit.
  - (B) A fake can be said to have artistic merit only if the attempted deception is successful.
  - (C) A fake may or may not have artistic merit in its own right, regardless of the circumstances of its production.
  - (D) Whether a fake has artistic merit depends on whether its creator is accomplished as an artist.
  - (E) The artistic merit of a fake depends on the merit of the original work that inspired the fake.
26. By the standard described in the last paragraph of the passage, which one of the following would be considered authentic?
- (A) an ancient Roman copy of an ancient Greek sculpture
  - (B) a painting begun by Renaissance master and finished by his assistants after his death
  - (C) a print of a painting signed by the artist who painted the original
  - (D) a faithful replica of a ceremonial crown that preserves all the details of and is indistinguishable from the original
  - (E) a modern reconstruction of a medieval altarpiece designed to serve its traditional role in a service of worship
27. Which one of the following best describes how the last paragraph functions in the context of the passage?
- (A) It offers a tentative answer to a question posed by the author in the opening

paragraph.

- (B) It summarizes an account provided in detail in the preceding paragraph.
- (C) It provides additional support for an argument advanced by the author in the preceding paragraph.
- (D) It examines another facet of a distinction developed in the preceding paragraphs.
- (E) It affirms the general principle enunciated at the beginning of the passage.

### **LSAT 22 SECTION IV**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Many literary scholars believe that Zora Neale Hurston's *Their Eyes Were Watching God* (1937) has been the primary influence on some of the most accomplished Black women writing in the United States today. Indeed, Alice Walker, the author of the prize-winning novel *The Color Purple*, has said of *Their Eyes*, "There is no book more important to me than this one." Thus, it seems necessary to ask why *Their Eyes*, a work now viewed by a multitude of readers as remarkably successful in its complex depiction of a Black woman's search for self and community, was ever relegated to the margins of the literary canon.

The details of the novel's initial reception help answer this question. Unlike the recently rediscovered and reexamined work of Harriet Wilson, *Their Eyes* was not totally ignored by book reviewers upon its publication. In fact, it received a mixture of positive and negative reviews both from White book reviewers working for prominent periodicals and from important figures within Black literary circles. In the *Saturday Review of Literature*, George Stevens wrote that "the narration is exactly right, because most of it is dialogue and the dialogue gives us a constant sense of character in action." The negative criticism was partially a result of Hurston's ideological differences with other members of the Black Americans in literature. Black writers of the 1940s believed that the Black artist's primary responsibility was to create protest fiction that explored the negative effects of racism in the United States. For example, Richard Wright, the author of the much acclaimed *Native Son* (1940), wrote that *Their Eyes* had "no theme" and "no message". Most critics' and readers' expectations of Black literature rendered them unable to appreciate Hurston's subtle delineation of the life of an ordinary Black woman in a Black community and the novel went quietly out of print.

Recent acclaim for *Their Eyes* results from the emergence of feminist literary criticism and the development of standards of evaluation specific to the work of Black writers; these kinds of criticism changed readers' expectations of art and enabled them to appreciate Hurston's novel. The emergence of feminist criticism was crucial because such criticism brought new attention to neglected works such as Hurston's and alerted readers to Hurston's exploration of women's issues in her fiction. The Afrocentric standards of evaluation were equally important to the rediscovery of *Their Eyes*, for such standards provided readers with the tools to recognize and

appreciate the Black folklore and oral storytelling traditions Hurston incorporated within her work. In one of the most illuminating discussions of the novel to date, Henry Louis Gates Jr., states that "Hurston's strategy seems to concern itself with the possibilities of representation of the speaking Black voice in writing."

1. The passage suggests which one of the following about Harriet Wilson's novel?
  - (A) It was written at the same time as *Their Eyes Were Watching God*, but it did not receive as much critical attention.
  - (B) It greatly influenced Black women writing after the 1940s.
  - (C) It was widely read when it was published but it has not received attention from literary critics until recently.
  - (D) It was not formally published, and the manuscript has only recently been discovered by literary critics.
  - (E) It did not receive critical attention when it was published, but it has recently become the subject of critical study.
2. The passage offers support for which one of the following statements about literary reviewers and *Their Eyes Were Watching God*?
  - (A) *Their Eyes* was widely acclaimed by reviewers upon its publication, even though it eventually went out of print.
  - (B) The eventual obscurity of *Their Eyes* was not the result of complete neglect by reviewers.
  - (C) Some early reviewers of *Their Eyes* interpreted the novel from a point of view that later became known as Afrocentric.
  - (D) *Their Eyes* was more typical of the protest fiction of the 1940s than reviewers realized.
  - (E) Most early reviewers of *Their Eyes* did not respond positively to the book.
3. Which one of the following best states the main idea of the passage?
  - (A) Hurston's *Their Eyes Were Watching God* had little in common with novels written by Black authors during the 1940s.
  - (B) Feminist critics and authors such as Alice Walker were instrumental in establishing Hurston's *Their Eyes Were Watching God* as an important part of the American literary canon.
  - (C) Critics and readers were unable to appreciate fully Hurston's *Their Eyes Were Watching God* until critics applied new standards of evaluation to the novel.
  - (D) Hurston's *Their Eyes Were Watching God* was an important influence on the protest fiction written by Black writers in the mid-twentieth century.
  - (E) Afrocentric strategies of analysis have brought attention to the use of oral storytelling traditions in novels written by Black Americans such as Hurston's *Their Eyes Were Watching God*.
4. According to the passage which one of the following is true of Black folklore



- traditions as used in literature written in the United States?
- (A) They are an aspect of Black American literature first recognized and written about by Henry Louis Gates, Jr.
  - (B) They were not widely incorporated into novels written by Black Americans until after the 1940s.
  - (C) They were first used by a novelist in Zora Neale Hurston's *Their Eyes Were Watching God*.
  - (D) They were not incorporated into novels published by Black Americans in the 1940s.
  - (E) They are an aspect of Black literature that some readers did not fully appreciate until relatively recently.
5. The passage suggests that *Native Son* differs from *Their Eyes Were Watching God* in which one of the following ways?
- (A) It received fewer positive reviews at the time of its publication than did *Their Eyes*.
  - (B) It is less typical of literature written by Black Americans during the 1940s than is *Their Eyes*.
  - (C) It is less focused on an ordinary individual's search for self within a Black community than is *Their Eyes*.
  - (D) It denies more aspects of Black American folklore than does *Their Eyes*.
  - (E) It has received more attention from feminist and Afrocentric literary critics than *Their Eyes*.
6. Which one of the following provides the clearest example of the kind of fiction that many Black writers of the 1940s, as their views are described in the passage, believed should be written?
- (A) a novel that focuses on the interrelationships among four generations of Black women
  - (B) a historical novel that re-creates actual events that occurred as Black people suffered from oppression and racial injustice in a small town
  - (C) a novel, based on biographical stories orally relayed to the author as a child, that describes the development of traditions in a Black family
  - (D) a novel that explores the psychological aspects of a relationship between a White man and a Black man as they work together to organize protests against unjust working conditions
  - (E) a novel that examines the different ways in which three Black children experience their first day of school in a rural community
7. The author would be most likely to agree with which one of the following statements about the relationship between art and literary criticism?
- (A) The long-term reputation of a work of art is less dependent on the response of literary critics than on the response of readers and authors.



- (B) Experimental works of fiction are usually poorly received and misunderstood by literary critics when they are first published.
  - (C) The response of literary critics to a work of art can be determined by certain ideological perspectives and assumptions about the purpose of art.
  - (D) Literary critics do not significantly affect the way most people interpret and appreciate literature.
  - (E) The ideological bases of a work of art are the first consideration of most literary critics.
8. The primary purpose of the passage is to
- (A) correct a misconception
  - (B) explain a reassessment
  - (C) reconcile two points of view
  - (D) criticize a conventional approach
  - (E) announce a new discovery

Legal cases can be termed “hard” cases if they raise issues that are highly controversial, issues about which people with legal training disagree. The ongoing debate over the completeness of the law usually concerns the extent to which such hard cases are legally determinate, or decidable according to existing law.

H. L. A. Hart’s *The Concept of Law* is still the clearest and most persuasive statement of both the standard theory of hard cases and the standard theory of law on which it rests. For Hart the law consists of legal rules formulated in general terms; these terms he calls “open textured” which means that they contain a “core” of settled meaning and a “penumbra” or “periphery” where their meaning is not determinate. For example, suppose an ordinance prohibits the use of vehicles in a park. “Vehicle” has a core of meaning which includes cars and motorcycles. But, Hart claims, other vehicles, such as bicycles, fall within the peripheral meaning of “vehicle,” so that the law does not establish whether they are prohibited. There will always be cases not covered by the core meaning of legal terms within existing laws. Hart considers these cases to be legally indeterminate. Since courts cannot decide such cases on legal grounds, they must consider nonlegal (for example, moral and political) grounds, and thereby exercise judicial discretion to make, rather than apply law.

In Ronald Dworkin’s view the law is richer than Hart would grant: he denies that the law consists solely of explicit rules. The law also includes principles that do not depend for their legal status on any prior official recognition or enactment. Dworkin claims that many cases illustrate the existence of legal principles that are different from legal rules and that Hart’s model of rules cannot accommodate. For Dworkin, legal rules apply in an all-or-nothing fashion, whereas legal principles do not; they provide the rationale for applying legal rules. Thus, because Dworkin thinks there is law in addition to legal rules, he thinks that legal indeterminacy and the need for judicial discretion do not follow from the existence of open texture in legal rules.

It would be a mistake, though, to dispute Hart’s theory of hard cases on this basis alone. If Hart’s claim about the “open texture” of general terms is true, then we should expect to find

legal indeterminacies even if the law consists of principles in addition to rules. Legal principles as well as legal rules contain general terms that have open texture. And it would be absurd to suppose that wherever the meaning of a legal rule is unclear, there is a legal principle with a clear meaning. Most interesting and controversial cases will occur in the penumbra of both rules and principles.

9. Which one of the following best expresses the main idea of the passage?
- (A) The law will never be complete because new situations will always arise which will require new laws to resolve them.
  - (B) The most difficult legal cases are those concerning controversial issues about which trained legal minds have differing opinions.
  - (C) The concept of legal principles does not diminish the usefulness of the concept of the open texture of general terms in deciding whether hard cases are legally determinate.
  - (D) The concept of legal principles is a deleterious addition to the theory of law since any flaws exhibited by legal rules could also be shared by legal principles.
  - (E) The inherent inconsistency of terms used in laws provides a continuing opportunity for judges to exercise their discretion to correct defect and gaps in the law.
10. According to the passage the term “legal principles” as used by Dworkin refers to
- (A) a comprehensive code of ethics that governs the behavior of professionals in the legal system
  - (B) explicit analyses of the terms used in legal rules indicating what meanings the terms do and do not cover
  - (C) legal doctrines that underlie and guide the use of accepted legal rules
  - (D) legal rules that have not yet passed through the entire legislative procedure necessary for them to become law
  - (E) the body of legal decisions regarding cases that required judicial discretion for their resolution
11. Which one of the following expresses a view that the author of the passage would most probably hold concerning legal principles and legal rules?
- (A) Legal rules are applied more often than legal principles when a case involves issues about which legal professionals disagree.
  - (B) Both legal rules and legal principles are officially recognized as valid parts of the law.
  - (C) Hart’s “model of rules” has been superseded by a “model of principles” that sheds light on legal determinacy.
  - (D) Legal principles are just as likely as legal rules to have terms that have both core and peripheral meanings.
  - (E) Legal principles eliminate the need for judicial discretion in resolving the

problems generated by the open texture of legal rules.

12. In the passage, the author uses the example of the word “vehicle” to
- (A) illustrate a legal rule that necessarily has exceptions
  - (B) show how legal principles are applied in the construction of legal rules
  - (C) represent the core of settled meaning of a legal term
  - (D) serve as an example of a legal term with both a core and a periphery of meaning
  - (E) provide a counterexample to Hart’s concept of the open texture of legal terms
13. It can be inferred that the author of the passage regards Hart’s theory of hard cases and the theory of standard law as
- (A) exhaustive
  - (B) worthy of respect
  - (C) interesting but impractical
  - (D) plausible but unwieldy
  - (E) hopelessly outmoded
14. Which one of the following is true of the term “legally determinate” (line 6) as it is used in the passage?
- (A) It represents the idea that every crime should have a fixed penalty rather than a range of penalties within which a judge can make an arbitrary choice.
  - (B) It refers to a legal case that can be definitively resolved in favor of one side or the other according to the law in effect at the time.
  - (C) It describes a legal rule that requires judges to limit their actions to applying written law when deciding cases over which people with legal training disagree.
  - (D) It refers to any legal case that involves terms with imprecise meanings and thus relies for its resolution only on the determination of judges.
  - (E) It refers to procedures for determining the legal outcome of complex issues in difficult cases.
15. In the passage, the author is primarily concerned with
- (A) outlining the problems that might be faced by a legislature attempting to create a complete body of law that would prevent judges from making rather than applying the law
  - (B) justifying the idea that “hard” cases will always exist in the practice of law, no matter what laws are written or how they are applied
  - (C) presenting evidence to support Dworkin’s idea that legal rules apply in an all-or-nothing fashion whereas legal principles apply in more sophisticated ways
  - (D) critiquing the concept of the open texture of legal terms as a conceptual flaw in Hart’s otherwise well-regarded book

- (E) demonstrating that Dworkin's concept of legal principles does not form the basis for a successful attack on Hart's theory of legally indeterminate cases

One way governments can decrease air pollution is to impose a tax on industrial carbon dioxide emissions. But why should governments consider a carbon tax when they could control emissions by establishing energy efficiency and conservation standards, by legislating against coal use, or by increasing investment in nuclear? The great virtue of such a tax is that it would provide incentives for industry to achieve emission reductions. Because oil emits more carbon dioxide per unit of energy generated than does natural gas, and coal more than oil, a carbon tax would vary with the type of fuel. Such a tax would induce industry to substitute less-polluting fuels for those carrying a higher tax and also to reduce the total use of energy

However, it is not clear how high such a tax should be or what its economic and environmental implications would be. At first glance, it is not difficult to estimate roughly the size of the tax needed to effect a given level of emission reduction. One writer estimates, for example, that a tax of 41 percent on the price of coal, 33 percent on oil, and 25 percent on gas would reduce the United Kingdom's emissions by 20 percent (using 1988 as the base year) by the year 2005, the target recommended by the 1988 Toronto Conference. It should be noted, however, that these numbers ignore the effect of the tax on economic growth, and hence on emissions, and assume that past responses to a price rise will be replicated in the future. These numbers are also based on the assumption that all countries will behave cooperatively in imposing a carbon tax.

There are very strong reasons to believe that cooperation would be difficult to win. If most countries cooperated, then any country that chose not to cooperate would be advantaged: it would have no abatement costs, and the effect on the environment of its defection would be relatively small. Because of this "free rider" effect, cooperation on a scale needed to reduce carbon dioxide emissions might prove elusive.

Should countries act unilaterally to curb emissions? If a country were to act unilaterally, the benefits would be spread across the globe, whereas the costs would fall solely on the country taking the action. The action would reduce emissions globally, and the effect of this would be to reduce the benefit other countries would receive if they reduced emissions. As a consequence, other countries would have less incentive to reduce emissions and would probably emit more carbon dioxide than they would have if the unilateral action had not been taken. The entire effect of the emission reduction may not be lost, but it would surely be diminished by this free-riding behavior.

16. According to the passage, the size of the carbon tax levied on a given fuel would vary with the
- (A) amount of that fuel used by a particular industry
  - (B) amount of pollution caused by the fuel being taxed
  - (C) size of the industries using the fuel being taxed
  - (D) effect that the tax would have on a country's economy
  - (E) number of users of a particular fuel at a particular time
17. The author mentions the estimates of "One writer" (line 22) primarily in order to

- (A) indicate in a general way the size that a carbon tax must be for it to be effective
  - (B) provide the most accurate information available about the most practical size for a carbon tax
  - (C) suggest that the target recommended by the 1988 Toronto Conference is an unrealistic one
  - (D) undermine the argument that a carbon tax would provide incentives for user's to achieve emissions reductions
  - (E) show how the size of an effective carbon tax can be calculated
18. Which one of the following circumstances would most seriously undermine the conclusion "Such a tax would induce industry to substitute less-polluting fuels for those carrying a higher tax" (lines 13-15)
- (A) The fuel taxed at the highest rate costs considerably less to buy than fuels taxed at lower rates.
  - (B) The goal set by the Toronto Conference cannot be reached unless each fuel is taxed at a much higher rate.
  - (C) The tax on coal represents a much greater cost increase than does the tax on oil or gas.
  - (D) It is discovered that gas produces even less carbon dioxide per unit of energy generated than was previously thought.
  - (E) It is discovered that coal produces even more carbon dioxide per unit of energy generated than are previously thought.
19. The passage is primarily intended to answer which one of the following questions?
- (A) How high a tax should a country's government impose on carbon dioxide emissions?
  - (B) What issues should a country's government consider before deciding whether to impose a tax on carbon dioxide emissions?
  - (C) What assumptions underlie a country's decision to impose a tax on carbon dioxide emissions?
  - (D) How can the effects of industrial pollution on the Earth's atmosphere be decreased?
  - (E) What can be done to increase the effectiveness of any tax that a country imposes on carbon dioxide emissions?
20. In response to the question. "Should countries act unilaterally to curb emissions?" (lines 44-45) the author would be most likely to contend that a country should
- (A) not act unilaterally because, although that country would receive some benefits from such action, other countries would most likely be harmed by it
  - (B) not act unilaterally because unilateral action would have no benefits for other countries

- (C) not act unilaterally because the cost to that country would not be justified by the limited effect that such action would have on industrial pollution worldwide
  - (D) act unilaterally because that country's economy would benefit from the resulting reduction in industrial emissions worldwide
  - (E) act unilaterally because other countries might well be inspired to follow that country's example
21. Which one of the following is most parallel to the "free rider" effect mentioned in line 41?
- (A) An industry agrees to base itself in a city where there has been little industrial development only if the city will rezone the specific property the industry desires.
  - (B) Because fares for public transportation are rising, a commuter decides to bicycle to work rather than to use public transportation in a city where auto emissions are a problem.
  - (C) An apartment dweller begins to recycle newspapers even though no one else in the building does so and recycling is not required by law.
  - (D) In an area where groundwater has become polluted, a homeowner continues to buy bottled water rather than contribute to a neighborhood fund to combat pollution.
  - (E) In an area where overgrazing is a severe problem, a shepherd allows his sheep to continue grazing common field even though his neighbors have agreed to buy feed for their animals until regrowth occurs.

Some meteorologists have insisted that the severity of the drought in sub-Saharan West Africa and its long duration (nearly 40 years to date) must be a sign of a long term alteration in climate. Among the theories proposed to explain this change, one hypothesis that has gained widespread attention attributes the drought to a cooling of the Northern Hemisphere. This hypothesis is based on the fact that between 1945 and the early 1970s, the average annual air temperatures over the landmasses of the Northern Hemisphere decreased by about half a degree Fahrenheit (approximately one quarter of a degree Celsius—a small but significant amount). Several meteorologists have suggested that this cooling was caused by an increase in atmospheric dust emanating from volcanic eruptions and from urban and industrial pollution: the dust reflected incoming sunlight, causing the ground to receive less solar radiation and to transfer less heat to the atmosphere. The cooling seemed to be more pronounced in the middle and high latitudes than in the tropics, an observation that is consistent with the fact that the Sun's rays enter the atmosphere at a greater angle farther north and so have to pass through more dust-laden atmosphere **on the way** to the Earth.

Since winds are set **in motion** by differences in **air pressure** caused by unequal heating of the atmosphere, supporters of the cooling hypothesis have argued that a growing temperature differential between the unusually cool middle and high latitudes and the warm tropical latitudes is causing a southward expansion of the circumpolar vortex—the high-altitude westerly winds that circle the Northern Hemisphere at middle latitudes. According to this



hypothesis, as the circumpolar vortex expands, it forces south other components of large-scale atmospheric circulation and in effect displaces the northward-moving monsoon that ordinarily brings sub-Saharan rain. Proponents have further argued that this change in atmospheric circulation might be long-term since cooling in the Northern Hemisphere could be perpetuated by increases in ice and snow coverage there, which would lead to reflection of more sunlight away from the Earth, to further cooling, and, indirectly, to further drought in sub-Saharan West Africa.

Despite these are predictions and even though the current African drought has lasted longer than any other in this century, the notion that the drought is caused by cooling of the Northern Hemisphere is, in fact, not well supported. Contrary to the predictions of the cooling hypothesis, during one period of rapid Northern Hemisphere cooling in the early 1950s, the sub-Sahara was unusually rainy. Moreover, in the early 1980s, when the drought was particularly severe, Northern Hemisphere lands actually warmed slightly. And further doubt has been cast on the hypothesis by recent analyses suggesting that, when surface temperatures of water as well as land are taken into account, the Northern Hemisphere may not have cooled at all.

22. Which one of the following best expresses the main idea of the passage?
- (A) There is strong evidence to support the theory that an increase in atmospheric dust has contributed to the severity of the drought in sub-Saharan West Africa.
  - (B) The suggestion that Northern Hemisphere cooling is contributing to a decline of rainfall in sub-Saharan West Africa is open to question.
  - (C) The expansion of the circumpolar vortex has caused a dramatic shift in the atmospheric circulation patterns above sub-Saharan West Africa.
  - (D) The drought in sub-Saharan West Africa represents a long-term permanent alteration in global climate patterns.
  - (E) Meteorologists cannot determine when the drought in sub-Saharan West Africa is likely to end.
23. The author's attitude toward the cooling hypothesis is best described as one of
- (A) vehement opposition
  - (B) cautious skepticism
  - (C) growing ambivalence
  - (D) guarded enthusiasm
  - (E) strong support
24. According to the passage proponents of the cooling hypothesis suggested that the circumpolar vortex is likely to expand when which one of the following occurs?
- (A) The average annual atmospheric temperature of the tropics is significantly higher than normal for an extended period of time.
  - (B) The average annual snowfall in the Northern Hemisphere is lower than normal for an extended period of time.

- (C) The average annual surface temperature of Northern Hemisphere waters is higher than the average annual surface temperature of Northern Hemisphere landmasses.
- (D) There is a significant increase in the difference between the average annual atmospheric temperature of the tropics and that of the more northern latitudes.
- (E) There is a significant increase in the difference between the average annual atmospheric temperatures of the middle and the high latitudes in the Northern Hemisphere.
25. Which one of the following can be inferred from the passage about the average annual temperature of the air over Northern Hemisphere landmasses before 1945?
- (A) It was higher than it was between 1945 and the early 1970s.
- (B) It was lower than it was during the early 1980s.
- (C) It was the same as it was between 1945 and the early 1970s.
- (D) It was the same as the annual average surface temperature of Northern Hemisphere landmasses and bodies of water between 1945 and the early 1970s.
- (E) It was higher than the annual average surface temperature of Northern Hemisphere landmasses and bodies of water between 1945 and the early 1970s.
26. Which one of the following best describes the organization of the passage?
- (A) Opposing points of view are presented, evidence supporting each point of view is discussed, and then one point of view is developed into a formal hypothesis.
- (B) A theory is discussed and different points of view about the theory are discussed, supported and then reconciled.
- (C) A hypothesis is proposed, contradictory evidence is discussed and then the hypothesis is amended.
- (D) A theory explaining a phenomenon is proposed, supporting evidence is considered and then the theory is disputed.
- (E) A point of view is presented, a theory supporting the view is proposed, contradictory evidence is presented and then a different theory is proposed.
27. A proponent of the cooling hypothesis would most likely argue that the return of the monsoon rains to sub-Saharan West Africa would indicate that which one of the following has also occurred?
- (A) The amount of ice and snow coverage over the landmasses of the Northern Hemisphere has increased.
- (B) The average annual temperature of the atmosphere over the middle and high latitudes of the Northern Hemisphere has decreased.
- (C) The average annual temperature of the atmosphere over the tropics in the

Northern Hemisphere has increased.

- (D) Other components of large-scale atmospheric circulation besides the circumpolar vortex have expanded and moved southward.
- (E) The atmospheric circulation pattern of the high-altitude westerly winds has resumed its normal pattern.

**LSAT 23 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Wherever the crime novels of P. D. James are discussed by critics, there is a tendency on the one hand to exaggerate her merits and on the other to castigate her as a genre writer who is **getting above herself**. Perhaps underlying the debate is that familiar, false opposition set up between different kinds of fiction, according to which enjoyable novels are held to be somehow slightly lowbrow, and a novel is not considered true literature unless it is a tiny bit dull.

Those commentators who would elevate James' books to the status of high literature point to her painstakingly constructed characters, her elaborate settings, her sense of place, and her love of abstractions: notions about morality, duty, pain, and pleasure are never far from the lips of her police officers and murderers. Others find her pretentious and tiresome; an inverted snobbery accuses her of abandoning the time-honored conventions of the detective genre in favor of a highbrow literary style. The critic Harriet Waugh wants P. D. James to **get on with** "the more **taxing** business of laying a tricky trail and then fooling the reader"; Philip Oakes in *The Literary Review* groans, "Could we please **proceed with** the business of clapping the handcuffs on the killer?"

James is certainly capable of strikingly good writing. She takes immense trouble to provide her characters with convincing histories and passions. Her descriptive digressions are part of the pleasure of her books and give them dignity and weight. But it is equally true that they frequently interfere with the story; the patinas and aromas of a country kitchen receive more loving attention than does the plot itself. Her devices to advance the story can be **shameless** and **thin**, and it is often impossible to see how her detective arrives at the truth; one is left to conclude that the detective solves crimes through intuition. At this stage in her career P. D. James seems to be less interested in the specifics of detection than in her characters' vulnerabilities and perplexities.

However, once the rules of a chosen genre **cramp** creative thought, there is no reason why an able and interesting writer should accept them. In her latest book, there are signs that James is beginning to feel constrained by the crime-novel genre, here her determination to **leave** areas of ambiguity in the solution of the crime and to distribute guilt among the murderer, victim, and bystanders points to conscious rebellion against the traditional neatness of detective fiction. It is fashionable, though reprehensible, for one writer to prescribe to another.

But perhaps the time has come for P. D. James to slide out of her handcuffs and stride into the territory of the mainstream novel.

1. Which one the following best states the author's main conclusion?
  - (A) Because P. D. James's potential as a writer is stifled by her chosen genre, she should turn her talents toward writing mainstream novels.
  - (B) Because the requirements of the popular novel are incompatible with true creative expression, P. D. James's promise as a serious author has been diminished.
  - (C) The dichotomy between popular and sophisticated literature is well illustrated in the crime novels of P. D. James.
  - (D) The critics who have condemned P. D. James's lack of attention to the specifics of detection fail to take into account her carefully constructed plots.
  - (E) Although her plots are not always neatly resolved, the beauty of her descriptive passages justifies P. D. James's decision to write in the crime-novel genre.
2. The author refers to the "patinas and aromas of a county kitchen" (line 32) most probably in order to
  - (A) illustrate James's gift for innovative phrasing
  - (B) highlight James's interest in rural society
  - (C) allow the reader to experience the pleasure of James's books
  - (D) explain how James typically constructs her plots
  - (E) exemplify James's preoccupation with descriptive writing
3. The second paragraph serves primarily to
  - (A) propose an alternative to two extreme opinions described earlier
  - (B) present previously mentioned positions in greater detail
  - (C) contradict an assertion cited previously
  - (D) introduce a controversial interpretation
  - (E) analyze a dilemma in greater depth
4. The passage supports which one of the following statements about detective fiction?
  - (A) There are as many different detective-novel conventions as there are writers of crime novels.
  - (B) Detective fiction has been characterized by extremely high literary quality.
  - (C) Detective fiction has been largely ignored by literary critics.
  - (D) There is very little agreement among critics about the basic elements of typical detective novel.
  - (E) Writers of detective fiction have customarily followed certain conventions in constructing their novels.

5. The passage suggests that both Waugh and Oakes consider James's novels to have
- (A) too much material that is extraneous to the solution of the crime
  - (B) too little characterization to enable the reader to solve the crime
  - (C) too few suspects to generate suspense
  - (D) too simple a plot to hold the attention of the reader
  - (E) too convoluted a plot for the reader to understand
6. It can be inferred from the passage that, in the author's view, traditional detective fiction is characterized by
- (A) concern for the weaknesses and doubts of the characters
  - (B) transparent devices to advance the plot
  - (C) the attribution of intuition to the detective
  - (D) the straightforward assignment of culpability for the crime
  - (E) attention to the concepts of morality and responsibility
7. The author characterizes the position of some critics as "inverted snobbery" (line 17) because they hold which one of the following views?
- (A) Critics of literature must acknowledge that they are less talented than creators of literature.
  - (B) Critics should hesitate to disparage popular authors.
  - (C) P. D. James's novels should focus less on characters from the English landed gentry.
  - (D) Detective fiction should be content to remain an unambiguous literary genre.
  - (E) P. D. James should be less fastidious about portraying violence.
8. Which one of the following quotations about literature best exemplifies the "familiar" attitude mentioned in lines 5-9?
- (A) "The fantasy and whimsy characteristic of this writer's novels qualify them as truly great works of literature."
  - (B) "The greatest work of early English literature happens to be a highly humorous collection of tales."
  - (C) "A truly great work of literature should place demand upon its readers, rather than divert them."
  - (D) "Although many critics are condescending about best-selling novels, I would not wish to challenge the opinion of millions of readers."
  - (E) "A novel need only satisfy the requirements of its particular genre to be considered a true work of literature."

Many Native Americans view the archaeological excavation and museum display of ancestral skeletal remains and items buried with them as a spiritual desecration. A number of legal remedies that either prohibit or regulate such activities may be available to Native American communities, if they can establish **standing** in such cases. In disinterment cases, courts have traditionally affirmed the standing of three classes of plaintiffs: the deceased's heirs,

the owner of the property on which the grave is located, and parties, including organizations or distant relatives of the deceased, that have a clear interest in the preservation of a particular grave. If an archaeologically discovered grave is of recent historical origin and associated with an identifiable Native American community, Native Americans are likely to establish standing in a suit to prevent disinterment of the remains, but in cases where the grave is ancient and located in an area where the community of Native Americans associated with the grave has not recently lived, they are less likely to be successful **in this regard**. Indeed, in most cases involving ancient graves, to recognize that Native Americans have standing would represent a significant expansion of common law. In cases where standing can be achieved, however, **common law** may provide a basis for some Native American claims against archaeologists and museums.

Property law, for example, can be useful in establishing Native American claims to artifacts that are retrieved in the excavation of ancient graves and can be considered the communal property of Native American tribes or communities. In *Charrier v. Bell*, a United States **appellate** court ruled that the common law doctrine of abandonment, which allows the finder of abandoned property to claim ownership, does not apply to objects buried with the deceased. The court ruled that the practice of burying items with the body of the deceased "is not intended as a means of relinquishing ownership to a stranger" and that to interpret it as such "could render a grave subject to despoliation either immediately after interment or...after removal of the descendants of the deceased from the neighborhood of the cemetery." This ruling suggests that artifacts excavated from Native American ancestral graves should be returned to representatives of tribal groups who can establish standing in such cases.

More generally, United States courts have upheld the distinction between individual and communal property, holding that an individual Native American does not have title to communal property owned and held for common use by his or her tribe. As a result, museums cannot assume that they have valid title to cultural property merely because they purchased in good faith an item that was originally sold **in good faith** by an individual member of a Native American community.

9. The primary purpose of the passage is to provide an answer to which one of the following questions?
- (A) How should the legal protection of Native American burial grounds be enhanced?
  - (B) What characteristics of Native American burial grounds enhance their chances for protection by the law?
  - (C) In what ways does the law protect the rights of Native Americans in regards to the contents of ancestral graves?
  - (D) Why are the courts concerned with protecting Native American burial grounds from desecration?
  - (E) By what means can Native Americans establish their rights to land on which their ancestors are buried?
10. It can be inferred that a court would be most likely to deny standing in a disinterment case to which one of the following Native American plaintiffs?
- (A) one who seeks, as one of several beneficiaries of his father's estate, to protect



- the father's burial site
- (B) one who seeks to prevent tenants on her land from taking artifacts from a grave located on the property
  - (C) one who represents a tribe whose members hope to prevent the disinterment of remains from a distant location from which the tribe recently moved
  - (D) one who seeks to have artifacts that have been removed from a grave determined to be that of her **second cousin** returned to the grave
  - (E) one who seeks the return of artifacts taken from the ancient burial grounds of disparate tribes and now displayed in a museum
11. According to the passage, which one of the following is true of cases involving ancient graves?
- (A) Once a plaintiff's standing has been established, such cases are usually more difficult to resolve than are cases involving more recent graves.
  - (B) The distinction between individual and communal property is usually an issue in such cases.
  - (C) Even when a plaintiff's standing has been established, property law cannot be used as a basis for the claims of Native Americans in most such cases.
  - (D) In most such cases, common law does not currently provide a clear basis for establishing that Native Americans have standing.
  - (E) Common law is rarely used as a basis for the claims of Native Americans who have established standing in such cases.
12. The passage suggests that in making the ruling in *Charrier v. Bell* the court is most likely to have considered the answer to which one of the following questions?
- (A) Are the descendants of the deceased still alive?
  - (B) What was the reason for burying the objects in question?
  - (C) How long after interment had buried objects been claimed by stranger?
  - (D) Did the descendants of the deceased remain in the neighborhood of the cemetery?
  - (E) Could the property on which buried objects were found be legally considered to be abandoned property?
13. The author uses the second paragraph to
- (A) illustrate the contention that common law may support the claims of Native Americans to the contents of ancestral graves
  - (B) exemplify the difficulties that Native Americans are likely to encounter in claiming ancestral remains
  - (C) introduce a discussion of the distinction between individual and communal property
  - (D) confirm the contention that cases involving ancient graves present unresolved

legal problems

(E) suggest that property law is applicable in most disinterment cases

14. Which one of the following best expresses the main idea of the passage?

- (A) Prior to an appellate court's ruling in *Charrier v. Bell*, Native Americans had no legal grounds for demanding the return of artifacts excavated from ancient graves.
- (B) Property law offers the most promising remedies to Native Americans seeking to recover communally owned artifacts that were sold to museums without tribal authorization.
- (C) The older the grave, the more difficult it is for Native Americans to establish standing in cases concerning the disposition of archaeologically excavated ancestral remains.
- (D) In cases in which Native Americans can establish standing, common law can be useful in protecting ancestral remains and the artifacts buried with them.
- (E) Native Americans are unlikely to make significant progress in the recovery of cultural property until common law is significantly expanded to provide them with standing in cases involving the excavation of ancient graves.

When the same habitat types (forests, oceans, grasslands etc.) in regions of different latitudes are compared, it becomes apparent that the overall number of species increases from pole to equator. This latitudinal gradient is probably even more pronounced than current records indicate, since researchers believe that most undiscovered species live in the tropics.

One hypothesis to explain this phenomenon, the "time theory" holds that diverse species adapted to today's climatic conditions have had more time to emerge in the tropical regions, which, unlike the temperate and arctic zones, have been unaffected by a succession of ice ages. However, ice ages have caused less disruption in some temperate regions than in others and have not interrupted arctic conditions.

Alternatively, the species-energy hypothesis proposes the following positive correlations: incoming energy from the Sun correlated with rates of growth and reproduction; rates of growth and reproduction with the amount of living matter (biomass) at a given moment; and the amount of biomass with number of species. However, since organisms may die rapidly, high production rates can exist with low biomass. And high biomass can exist with few species. Moreover, the mechanism proposed—greater energy influx leading to bigger populations, thereby lowering the probability of local extinction—remains untested.

A third hypothesis centers on the tropics' climatic stability, which provides a more reliable supply of resources. Species can thus survive even with few types of food, and competing species can tolerate greater overlap between their respective niches. Both capabilities enable more species to exist on the same resources. However, the ecology of local communities cannot account for the origin of the latitudinal gradient. Localized ecological processes such as competition do not generate regional pools of species, and it is the total number of species available regionally for colonizing any particular area that makes the difference between, for example, a forest at the equator and one at higher latitude.

A fourth and most plausible hypothesis focuses on regional speciation, and in particular on rates of speciation and extinction. According to this hypothesis, if speciation rates become higher toward the tropics, and are not negated by extinction rates, then the latitudinal gradient would result—and become increasingly steep.

The mechanism for this rate-of-speciation hypothesis is that most new animal species, and perhaps plant species, arise because a population subgroup becomes isolated. This subgroup evolves differently and eventually cannot interbreed with members of the original population. The uneven spread of a species over a large geographic area promotes this mechanism: at the edges, small populations spread out and form isolated groups. Since subgroups in an arctic environment are more likely to face extinction than those in the tropics, the latter are more likely to survive long enough to adapt to local conditions and ultimately become new species.

15. Which one of the following most accurately expressed the main idea of the passage?
- (A) At present, no single hypothesis explaining the latitudinal gradient in numbers of species is more widely accepted than any other.
  - (B) The tropical climate is more conducive to promoting species diversity than are arctic or temperate climates.
  - (C) Several explanations have been suggested for global patterns in species distribution, but a hypothesis involving rates of speciation seems most promising.
  - (D) Despite their differences, the various hypotheses regarding a latitudinal gradient in species diversity concur in prediction that the gradient can be expected to increase.
  - (E) In distinguishing among the current hypotheses for distribution of species, the most important criterion is whether a hypothesis proposes a mechanism that can be tested and validated.
16. Which one of the following situations is most consistent with the species-energy hypothesis as described in the passage?
- (A) The many plants in a large agricultural tract represent a limited range of species.
  - (B) An animal species experiences a death rate almost as rapid as its rate of growth and reproduction.
  - (C) Within the small number of living organisms in a desert habitat, many different species are represented.
  - (D) In a tropical rain forest, a species with a large population is found to exhibit instances of local extinction.
  - (E) In an arctic tundra, the plants and animals exhibit a slow rate of growth and reproduction.
17. As presented in the passage, the principles of the time theory most strongly support which one of the following predictions?

- (A) In the absence of additional ice ages, the number of species at high latitudes could eventually increase significantly.
  - (B) No future ice ages are likely to change the climatic conditions that currently characterize temperate regions.
  - (C) If no further ice ages occur, climatic conditions at high latitudes might eventually resemble those at today's tropical latitudes.
  - (D) Researchers will continue to find many more new species in the tropics than in the arctic and temperate zones.
  - (E) Future ice ages are likely to interrupt the climatic conditions that now characterize high-latitude regions.
18. Which one of the following, if true, most clearly weakens the rate-of-speciation hypothesis as it is described in the passage?
- (A) A remote subgroup of a tropical species is reunited with the original population and proves unable to interbreed with members of this original population.
  - (B) Investigation of a small area of a tropical rain forest reveals that many competing species are able to coexist on the same range of resources.
  - (C) A correlation between higher energy influx, larger populations and lower probability of local extinction is definitively established.
  - (D) Researchers find more undiscovered species during an investigation of an arctic region than they had anticipated.
  - (E) Most of the isolated subgroups of mammalian life within a tropical zone are found to experience rapid extinction.
19. Which one of the following inferences about the biological characteristics of a temperate-zone grassland is most strongly supported by the passage?
- (A) It has more different species than does a tropical-zone forest.
  - (B) Its climatic conditions have been severely interrupted in the past by succession of ice ages.
  - (C) If it has a large amount of biomass, it also has a large number of different species.
  - (D) It has a larger regional pool of species than does an arctic grassland.
  - (E) If population groups become isolated at its edges, they are likely to adapt to local conditions and become new species.
20. With which one of the following statements concerning possible explanations for the latitudinal gradient in number of species would the author be most likely to agree?
- (A) The time theory is the least plausible of proposed hypotheses, since it does not correctly assess the impact of ice ages upon tropical conditions.
  - (B) The rate-of-speciation hypothesis addresses a principal objection to the climatic-stability hypothesis.

- (C) The major objection to the time theory is that it does not accurately reflect the degree to which the latitudinal gradient exists, especially when undiscovered species are taken into account.
- (D) Despite the claims of the species-energy hypothesis, a high rate of biological growth and reproduction is more likely to exist with low biomass than with high biomass.
- (E) An important advantage of the rate-of-speciation theory is that it considers species competition in a regional rather than local context.

Two impressive studies have reexamined Eric Williams' conclusion that Britain's abolition of the slave trade in 1807 and its emancipation of slavers in its colonies in 1834 were driven primarily by economic rather than humanitarian motives. Blighted by depleted soil, indebtedness, and the inefficiency of coerced labor, these colonies, according to Williams, had by 1807 become an impediment to British economic progress.

Seymour Drescher provides a more balanced view. Rejecting interpretations based either on economic interest or the moral vision of abolitionists, Drescher has reconstructed the populist characteristics of British abolitionism, which appears to have cut across lines of class, party, and religion. Noting that between 1780 and 1830 antislavery petitions outnumbered those on any other issue, including parliamentary reform, Drescher concludes that such support cannot be explained by economic interest alone, especially when much of it came from the unenfranchised masses. Yet, aside from demonstrating that such support must have resulted at least in part from widespread literacy and a tradition of political activism, Drescher does not finally explain how England, a nation deeply divided by class struggles, could mobilize popular support for antislavery measures proposed by otherwise conservative politicians in the House of Lords and approved there with little dissent.

David Eltis' answer to that question actually supports some of Williams' insights. Eschewing Drescher's idealization of British traditions of liberty, Eltis points to continuing use of low wages and Draconian vagrancy laws in the seventeenth and eighteenth centuries to ensure the industriousness of British workers. Indeed, certain notables even called for the enslavement of unemployed laborers who roamed the British countryside—an acceptance of coerced labor that Eltis attributes to a preindustrial desire to keep labor costs low and exports competitive. By the late eighteenth century, however, a growing home market began to alert capitalists to the importance of "want creation" and to incentives such as higher wages as a means of increasing both worker productivity and the number of consumers.

Significantly, it was products grown by slaves, such as sugar, coffee, and tobacco, that stimulated new wants at all levels of British society and were the forerunners of products intended in modern capitalist societies to satisfy what Eltis describes as "nonsubsistence or psychological needs." Eltis concludes that in economy that had begun to rely on voluntary labor to satisfy such needs, forced labor necessarily began to appear both inappropriate and counterproductive to employers. Eltis thus concludes that, while Williams may well have underestimated the economic viability of the British colonies employing forced labor in the early 1800s, his insight into the economic motives for abolition was partly accurate. British leaders became committed to colonial labor reform only when they became convinced, for reasons other than those cited by Williams, that free labor was more beneficial to the imperial economy.

21. Which one of the following best describes the main idea of the passage?
- (A) Although they disagree about the degree to which economic motives influenced Britain's abolition of slavery, Drescher and Eltis both concede that moral persuasion by abolitionists was a significant factor.
  - (B) Although both Drescher and Eltis have questioned Williams' analysis of the motivation behind Britain's abolition of slavery, there is support for part of Williams' conclusion.
  - (C) Because he has taken into account the populist characteristics of British abolitionism, Drescher's explanation of what motivated Britain's abolition of slavery is finally more persuasive than that of Eltis.
  - (D) Neither Eltis nor Drescher has succeeded in explaining why support for Britain's abolition of slavery appears to have cut across lines of party, class, and religion.
  - (E) Although flawed in certain respects, Williams's conclusions regarding the economic condition of British slave colonies early in the nineteenth century have been largely vindicated.
22. It can be inferred that Eltis cites the views of "certain notables" (line 35) in order to
- (A) support the claim that British traditions of liberty were not as strong as Drescher believed them to be
  - (B) support the contention that a strong labor force was important to Britain's economy
  - (C) emphasize the importance of slavery as an institution in preindustrial Britain
  - (D) indicate that the laboring classes provided little support for the abolition of slavery
  - (E) establish that laborers in preindustrial Britain had few civil rights
23. Which one of the following best states Williams' view of the primary reason for Britain's abolition of the slave trade and the emancipation of slaves in its colonies?
- (A) British populism appealed to people of varied classes, parties, and religions.
  - (B) Both capitalists and workers in Britain accepted the moral precepts of abolitionists.
  - (C) Forced labor in the colonies could not produce enough goods to satisfy British consumers.
  - (D) The operation of colonies based on forced labor was no longer economically advantageous.
  - (E) British workers became convinced that forced labor in the colonies prevented paid workers from receiving higher wages.
24. According to Eltis, low wages and Draconian vagrancy laws in Britain in the seventeenth and eighteenth centuries were intended to



- (A) protect laborers against unscrupulous employment practices
  - (B) counter the move to enslave unemployed laborers
  - (C) ensure a cheap and productive work force
  - (D) ensure that the work force experienced no unemployment
  - (E) ensure that products produced in British colonies employing forced labor could compete effectively with those produced in Britain
25. It can be inferred that the author of the passage views Drescher's presentation of British traditions concerning liberty as
- (A) accurately stated
  - (B) somewhat unrealistic
  - (C) carefully researched
  - (D) unnecessarily tentative
  - (E) superficially convincing
26. The information in the passage suggests that Eltis and Drescher agree that
- (A) people of all classes in Britain supported the abolition of slavery
  - (B) the motives behind Britain's abolition of slavery were primarily economic
  - (C) the moral vision of abolitionists played a vital part in Britain's abolition of slavery
  - (D) British traditions of liberty have been idealized by historians
  - (E) Britain's tradition of political activism was primarily responsible for Britain's abolition of slavery
27. According to the passage, Eltis argues against which one of the following contentions?
- (A) Popular support for antislavery measures existed in Britain in the early nineteenth century.
  - (B) In the early nineteenth century, colonies that employed forced labor were still economically viable.
  - (C) British views concerning personal liberty motivated nineteenth-century British opposition to slavery.
  - (D) Widespread literacy in Britain contributed to public opposition to slavery in the early nineteenth century.
  - (E) Antislavery measures proposed by conservative politicians in the early nineteenth century met with little opposition.

**LSAT 24 SECTION II****Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best*

*answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The career of trumpeter Miles Davis was one of the most astonishingly productive that jazz music has ever seen. Yet his genius has never received its due. The impatience and artistic restlessness that characterized his work spawned one stylistic turn after another and made Davis anathema to many critics, who deplored his abandonment first of bebop and then of “cool” acoustic jazz for ever more innovative sounds.

Having begun his career studying bebop, Davis pulled the first of many stylistic surprises when, in 1948, he became a member of an impromptu musical think tank that gathered in a New York City apartment. The work of this group not only slowed down tempos and featured ensemble playing as much as or even more than solos—in direct reaction to bebop—it also became the seedbed for the “West Coast cool” jazz style.

In what would become a characteristic zigzag, Davis didn’t follow up on these innovations himself. Instead, in the late 1950s he formed a new band that broke free from jazz’s restrictive pattern of chord changes. Soloists could determine the shapes of their melodies without referring back to the same unvarying repetition of chords. In this period, Davis attempted to join jazz phrasings, harmonies, and tonal qualities with a unified and integrated sound similar to that of a classical orchestral piece: in his recordings the rhythms, no matter how jazzlike, are always understated, and the instrumental voicings seem muted.

Davis’s recordings from the late 1960s signal that, once again, his direction was changing. On *Filles de Kilimanjaro*, Davis’s request that keyboardist Herbie Hancock play electric rather than acoustic piano caused consternation among jazz purists of the time. Other albums featured rock-style beats, heavily electronic instrumentation, a loose improvisational attack and a growing use of studio editing to create jagged soundscapes. By 1969 Davis’s typical studio procedure was to have musicians improvise from a base script of material and then to build finished pieces out of tape, like a movie director. Rock groups had pioneered the process; to jazz lovers, raised on the ideal of live improvisation, that approach was a violation of the premise that recordings should simply document the musicians’ thought processes in real time. Davis again became the target of fierce polemics by purist jazz critics, who have continued to belittle his contributions to jazz.

What probably underlies the intensity of the reactions against Davis is fear of the broadening of possibilities that he exemplified. Ironically, he was simply doing what jazz explorers have always done: reaching for something new that was his own. But because his career endured, because he didn’t die young or record only sporadically, and because he refused to dwell in whatever niche he had previously carved out, critics find it difficult to definitively rank Davis in the aesthetic hierarchy to which they cling.

1. Which one of the following best states the main point the passage?
  - (A) Because the career of Miles Davis was characterized by frequent shifts in styles, he never fulfilled his musical potential.
  - (B) Because the career of Miles Davis does not fit neatly into their preconceptions about the life and music of jazz musicians, jazz critics have

- not accorded him the appreciation he deserves.
- (C) Because the career of Miles Davis was unusually long and productive, he never received the popular acclaim generally reserved for artists with more tragic life histories.
- (D) The long and productive career of Miles Davis spawned most of the major stylistic changes affecting twentieth-century jazz.
- (E) Miles Davis' versatility and openness have inspired the admiration of most jazz critics.
2. According to the passage, which one of the following true of the "West Coast cool" jazz style?
- (A) It was popularized by Miles Davis.
- (B) It was characterized by a unified and integrated sound.
- (C) It was played primarily by large ensembles.
- (D) It introduced a wide variety of chord change patterns.
- (E) It grew out of innovations developed in New York City.
3. The passage suggests which one of the following about the kind of jazz played by Miles Davis prior to 1948?
- (A) It was characterized by rapid tempos and an emphasis on solo playing.
- (B) It equally balanced ensemble and solo playing.
- (C) It was a reaction against more restrictive jazz styles.
- (D) It is regarded by purist jazz critics as the only authentic jazz style.
- (E) It was played primarily in New York City jazz clubs.
4. Which one of the following best describes the author's attitude toward Miles Davis' music?
- (A) uneasy ambivalence
- (B) cautious neutrality
- (C) grudging respect
- (D) moderate commendation
- (E) appreciative advocacy
5. Which one of the following creative processes is most similar to Miles Davis' typical studio procedure of the late 1960s, as described in the fourth paragraph of the passage?
- (A) The producer of a television comedy show suggests a setting and general topic for a comedy sketch and then lets the comedians write their own script.
- (B) An actor digresses from the written script and improvises during a monologue in order to introduce a feeling of spontaneity to the performance.
- (C) A conductor rehearses each section of the orchestra separately before assembling them to rehearse the entire piece together.

- (D) An artist has several photographers take pictures pertaining to a certain assigned theme and then assembles them into a pictorial collage.
- (E) A teacher has each student in a writing class write an essay on an assigned topic and then submits the best essays to be considered for publication in a journal.
6. Which one of the following, if true, would most undermine the author's explanation for the way Miles Davis is regarded by jazz critics?
- (A) Many jazz musicians who specialize in improvisational playing are greatly admired by jazz critics.
- (B) Many jazz musicians whose careers have been characterized by several radical changes in style are greatly admired by jazz critics.
- (C) Several jazz musicians who perform exclusively on electronic instruments are very highly regarded by jazz critics.
- (D) The jazz innovators who are held in the highest regard by jazz critics had brief yet brilliant careers.
- (E) Jazz critics are known to have a higher regard for musicality than for mere technical virtuosity.

By the mid-fourteenth century, professional associations of canon lawyers (legal **advocates** in Christian ecclesiastical courts, which dealt with cases involving marriage, inheritance, and other issues) had appeared in most of Western Europe, and a body of professional standards had been defined for them. One might expect that the professional associations would play a prominent role in enforcing these standards of conduct, as other guilds often did, and as modern professional associations do, but that seems not to have happened. Advocates' professional organizations showed little fervor for disciplining their erring members. Some even attempted to **hobble** efforts at enforcement. The Florentine guild of lawyers, for example, forbade its members to play any role in disciplinary proceedings against other guild members. In the few recorded episodes of disciplinary enforcement, the initiative for disciplinary action apparently came from a dissatisfied client, not from fellow lawyers.

At first glance, there seem to be two possible explanations for the rarity of disciplinary proceedings. Medieval canon lawyers may have generally observed the standards of professional conduct scrupulously. Alternatively, it is possible that deviations from the established standards of behavior were not uncommon, but that canonical disciplinary mechanisms were so inefficient that most delinquents escaped detection and punishment.

Two considerations make it clear that the second of these explanations is more plausible. First, the English **civil law** courts, whose ethical standards were similar to those of ecclesiastical courts, show many more examples of disciplinary actions against legal practitioners than do the records of church courts. This discrepancy could well indicate that the disciplinary mechanisms of the civil courts functioned more efficiently than those of the church courts. The alternative inference, namely, that ecclesiastical advocates were less prone to ethical lapses than their counterparts in the civil courts, seems inherently weak, especially since there was some overlap of personnel between the civil **bar** and the ecclesiastical bar.

Second, church authorities themselves complained about the failure of advocates to

measure up to ethical standards and deplored the shortcomings of the disciplinary system. Thus the Council of Basel declared that canon lawyers failed to adhere to the ethical prescriptions laid down in numerous papal constitutions and directed Cardinal Cesarian to address the problem. In England, where medieval church records are extraordinarily rich, similar complaints about the failure of the disciplinary system to reform unethical practices were very common.

Such criticisms seem to have had a paradoxical result, for they apparently reinforced the professional solidarity of lawyers at the expense of the enforcement of ethical standards. Thus the profession's critics may actually have induced advocates to organize professional associations for self-defense. The critics' attacks may also have persuaded lawyers to assign a higher priority to defending themselves against attacks by nonprofessionals than to disciplining wayward members within their own ranks.

7. Which one of the following best states the main conclusion of the passage?
- (A) Professional organizations of medieval canon lawyers probably only enforced ethical standards among their own members when provoked to do so by outside criticisms.
  - (B) Professional organizations of medieval civil lawyers seem to have maintained stricter ethical standards for their own members than did professional organizations of medieval canon lawyers.
  - (C) Professional organizations of medieval canon lawyers apparently served to defend their members against critics' attacks rather than to enforce ethical standards.
  - (D) The ethical standards maintained by professional associations of medieval canon lawyers were chiefly laid down in papal constitutions.
  - (E) Ethical standards for medieval canon lawyers were not laid down until professional organizations for these lawyers had been formed.
8. According to the passage, which one of the following statements about law courts in medieval England is true?
- (A) Some English lawyers who practiced in civil courts also practiced in church courts, but others served exclusively in one court or the other.
  - (B) English canon lawyers were more likely to initiate disciplinary proceedings against their colleagues than were English civil lawyers.
  - (C) English civil lawyers maintained more stringent ethical standards than did civil lawyers in the rest of Europe.
  - (D) English ecclesiastical courts had originally been modeled upon English civil courts.
  - (E) English ecclesiastical courts kept richer and more thorough records than did English civil courts.
9. The author refers to the Florentine guild of lawyers in the first paragraph most probably in order to

- (A) introduce a theory about to be promoted
  - (B) illustrate the type of action referred to in the previous sentence
  - (C) underline the universality of a method discussed throughout the paragraph
  - (D) point out a flaw in an argument presented earlier in the paragraph
  - (E) rebut an anticipated objection to a thesis just proposed
10. The author refers to the Council of Basel (line 47) primarily in order to
- (A) provide an example of the type of action needed to establish professional standards for canon lawyers
  - (B) contrast the reactions of English church authorities with the reactions of other bodies to violations of professional standards by canon lawyers
  - (C) bolster the argument that violations of professional standards by canon lawyers did take place
  - (D) explain how rules of conduct for canon lawyers were established
  - (E) describe the development of a disciplinary system to enforce professional standards among canon lawyers
11. According to the information in the passage, for which one of the following ethical violations would documentation of disciplinary action against a canon lawyer be most likely to exist?
- (A) betraying a client's secrets to the opposing party
  - (B) bribing the judge to rule in favor of a client
  - (C) misrepresenting credentials in order to gain admission to the lawyers' guild
  - (D) spreading rumors in order to discredit an opposing lawyer
  - (E) knowingly helping a client to misrepresent the truth
12. Which one of the following is most analogous to the "professional solidarity" referred to in lines 56-57?
- (A) Members of a teachers' union go on strike when they believe one of their colleagues to be falsely accused of using an inappropriate textbook.
  - (B) In order to protect the reputation of the press in the face of a largely hostile public, a journalist conceals distortions in a colleague's news article.
  - (C) Several dozen recording artists agree to participate in a concert to benefit an endangered environmental habitat.
  - (D) In order to expedite governmental approval of a drug, a government official is persuaded to look the other way when a pharmaceutical manufacturer conceals evidence that the drug may have minor side effects.
  - (E) A popular politician agrees to campaign for another, less popular politician belonging to the same political party.
13. The passage suggests that which one of the following is most likely to have been true of medieval guilds?



- (A) Few guilds of any importance existed before the mid-fourteenth century.
  - (B) Many medieval guilds exercised influence over the actions of their members.
  - (C) Most medieval guilds maintained more exacting ethical standards than did the associations of canon lawyers.
  - (D) Medieval guilds found it difficult to enforce discipline among their members.
  - (E) The ethical standards of medieval guilds varied from one city to another.
14. The author would be most likely to agree with which one of the following regarding the hypothesis that medieval canon lawyers observed standards of professional conduct scrupulously?
- (A) It is untrue because it is contradicted by documents obtained from the ecclesiastical courts.
  - (B) It is unlikely because it describes behavior markedly different from behavior observed in the same situation in modern society.
  - (C) It is unlikely because it describes behavior markedly different from behavior observed in a similar area of medieval society.
  - (D) It is impossible to assess intelligently because of the dearth of civil and ecclesiastical documents.
  - (E) It is directly supported by documents obtained from civil and ecclesiastical courts.

Many birds that form flocks compete through aggressive **interaction** for priority of access to resources such as food and shelter. The result of repeated interactions between flock members is that each bird gains a particular social status related to its fighting ability, with priority of access to resources increasing with higher status. As the number and intensity of interactions between birds increase, however, so increase the costs to each bird in terms of energy expenditure, time, and risk of injury. Thus, birds possessing attributes that reduce the number of costly interactions in which they must be involved, without leading to a reduction in status, are **at an advantage**. An **external signal**, such as a plumage type, announcing fighting ability and thereby obviating the actual need to fight, could be one such attribute.

The zoologist Rohwer asserted that plumage variations in "**Harris** sparrows" support the status signaling hypothesis (SSH). He reported that almost without exception birds with darker throats win conflicts with individuals having lighter plumage. He claimed that even among birds of the same age and sex the amount of dark plumage predicts relative dominance status.

However, Rohwer's data do not support his assertions: in one of his studies darker birds won only 57 out of 75 conflicts; within another, focusing on conflicts between birds of the same age group or sex, darker birds won 63 and lost 62. There are indications that plumage probably does signal broad age-related differences in status among Harris sparrows: adults, usually dark throated, have higher status than juveniles, who are usually light throated; moreover, juveniles dyed to resemble adults are dominant over undyed juveniles. However, the Harris sparrows' age-related plumage differences do not signal the status of individual birds within an age class, and thus cannot properly be included under the term "status signaling."

The best evidence for status signaling is from the greater titmouse. Experiments show a

strong correlation between the width of the black breast-plumage stripe and status as measured by success in aggressive interactions. An analysis of factors likely to be associated with breast-stripe width (sex, age, wing length, body weight) has demonstrated social status to be the only variable that correlates with stripe width when the other variables are held constant.

An ingenious experiment provided further evidence for status signaling in the greater titmouse. One of three stuffed titmouse dummies was mounted on a feeding tray. When a live bird approached, the dummy was turned by radio control to face the bird and present its breast stripe in "display". When presented with a dummy having a narrower breast stripe than their own, birds approached closely and behaved aggressively. However, when presented with a dummy having a broader breast stripe than their own, live birds acted submissive and did not approach.

15. According to the passage, the status signaling hypothesis holds that the ability to display a recognizable external signal would have the effect on an individual bird of
  - (A) enabling it to attract a mate of high status
  - (B) allowing it to avoid costly aggressive interactions
  - (C) decreasing its access to limited resources
  - (D) making it less attractive to predatory species
  - (E) increasing its fighting ability
16. The author refers to the fact that adult Harris sparrows are usually dark throated (lines 31-32), in order to do which one of the following?
  - (A) support the conclusion that plumage variation among Harris sparrows probably does not signal individual status
  - (B) argue that plumage variation among Harris sparrows helps to confirm the status signaling hypothesis
  - (C) indicate that in light of plumage variation patterns among Harris sparrows, the status signaling hypothesis should probably be modified
  - (D) demonstrate that Harris sparrows are the most appropriate subjects for the study of status signaling among birds
  - (E) suggest that the signaling of age-related differences in status is widespread among birds that form flocks
17. Which one of the following, if true, would most seriously undermine the validity of the results of the experiment discussed in the last paragraph?
  - (A) The live birds all came from different titmouse flocks.
  - (B) The physical characteristics of the stuffed dummies varied in ways other than just breast-stripe width.
  - (C) No live juvenile birds were included in the experiment.
  - (D) The food placed in the feeding tray was not the kind of food normally eaten by titmice in the wild.

- (E) Even the live birds that acted aggressively did not actually physically attack the stuffed dummies.
18. Which one of the following best describes the organization of the passage?
- (A) A hypothesis is introduced and studies relevant to the hypothesis are discussed and evaluated.
- (B) A natural phenomenon is presented and several explanations for the phenomenon are examined in detail.
- (C) Behavior is described, possible underlying causes for the behavior are reported, and the likelihood of each cause is assessed.
- (D) A scientific conundrum is explained and the history of the issue is recounted.
- (E) A scientific theory is outlined and opinions for and against its validity as well as experiments supporting each side are compared.
19. According to the passage, which one of the following true of Rohwer's relationship to the status signaling hypothesis (SSH)?
- (A) Although his research was designed to test the SSH, his data proved to be more relevant to other issues.
- (B) He set out to confirm the SSH, but ended up revising it.
- (C) He set out to disprove the SSH, but ended up accepting it.
- (D) He altered the SSH by expanding it to encompass various types of signals.
- (E) He advocated the SSH, but his research data failed to confirm it.
20. The passage suggests that among birds that form flocks, a bird of high status is most likely to have which one of the following?
- (A) dark throat plumage
- (B) greater-than-average body weight
- (C) offspring of high status
- (D) strong fighting ability
- (E) frequent injuries
21. Which one of the following can be inferred about Harris sparrows from the passage?
- (A) Among Harris sparrows, plumage differences signal individual status only within age groups.
- (B) Among Harris sparrows, adults have priority of access to food over juveniles.
- (C) Among Harris sparrows, juveniles with relatively dark plumage have status equal to that of adults with relatively light plumage.
- (D) Juvenile Harris sparrows engage in aggressive interaction more frequently than do adult Harris sparrows.
- (E) Harris sparrows engage in aggressive interaction less frequently than do greater titmice.

In *The Dynamics of Apocalypse*, John Lowe attempts to solve the mystery of the collapse of the Classic Mayan civilization. Lowe bases his study on a detailed examination of the known archaeological record. Like previous investigators, Lowe relies on dated monuments to construct a step-by-step account of the actual collapse. Using the erection of new monuments as a means to determine a site's occupation span, Lowe assumes that once new monuments ceased to be built, a site had been abandoned. Lowe's analysis of the evidence suggests that construction of new monuments continued to increase between A. D. 672 and 751, but that the civilization stopped expanding geographically; new construction took place almost exclusively in established settlements. The first signs of trouble followed. Monument inscriptions indicate that between 751 and 790, long-standing alliances started to break down. Evidence also indicates that between 790 and 830, the death rate in Classic Mayan cities outstripped the birthrate. After approximately 830, construction stopped throughout the area, and within a hundred years, the Classic Mayan civilization **all but** vanished.

Having established this chronology, Lowe **sets forth** a plausible explanation of the collapse that **accommodates** the available archaeological evidence. He theorizes that Classic Mayan civilization was **brought down** by the interaction of several factors, **set in motion** by population growth. An increase in population, particularly within the elite segment of society, necessitated ever more intense farming. Agricultural intensification exerted stress on the soil and led to a decline in productivity (the amount of food produced through each unit of labor invested). At the same time, the growth of the elite class created increasing demands for ceremonial monuments and luxuries, diverting needed labor from the fields. The theory holds that these stresses were communicated—and amplified—throughout the area as Mayan states engaged in warfare to acquire laborers and food, and refugees fled impoverished areas. The most vulnerable states thus began to **break down**, and each downfall triggered others, until the entire civilization collapsed.

If there is a central flaw in Lowe's explanation, it is that the entire edifice rests on the assumption that the available evidence paints a true picture of how the collapse proceeded. However, it is difficult to know how accurately the archaeological record reflects historic activity, especially of a complex civilization such as the Mayans', and a hypothesis can be tested only against the best available data. It is quite possible that our understanding of the collapse might be radically altered by better data. For example, Lowe's assumption about monument construction and the occupation span of a site might well be disproved if further investigations of Classic Mayan sites established that some remained heavily settled long after the custom of carving dynastic monuments had ceased.

22. Which one of the following best describes the organization of the passage?
- (A) A method used to analyze evidence is described, an explanation of the evidence is suggested, and then a conclusion is drawn from the evidence.
  - (B) A hypothesis is presented, evidence supporting the hypothesis is provided, and then the hypothesis is affirmed.
  - (C) An analysis of a study is presented, contradictory evidence is examined, and then a direction for future studies is suggested.
  - (D) The basis of a study is described, a theory that explains the available evidence is presented, and a possible flaw in the study is pointed out.

- (E) An observation is made, evidence supporting the observation is presented, and then contradictions in the evidence are discussed.
23. Which one of the following best expresses the main idea of the passage?
- (A) In *The Dynamics of Apocalypse*, John Lowe successfully proves that the collapse of Classic Mayan civilization was set in motion by increasing population and decreasing productivity.
- (B) In *The Dynamics of Apocalypse*, John Lowe breaks new ground in solving the mystery of the collapse of Classic Mayan civilization through his use of dated monuments to create a step-by-step account of the collapse.
- (C) In *The Dynamics of Apocalypse*, John Lowe successfully uses existing data to document the reduction and then cessation of new construction throughout Classic Mayan civilization.
- (D) Although John Lowe's study is based on a careful examination of the historical record, it does not accurately reflect the circumstances surrounding the collapse of Classic Mayan civilization.
- (E) While John Lowe's theory about the collapse of Classic Mayan civilization appears credible, it is based on an assumption that cannot be verified using the archaeological record.
24. Which one of the following is most closely analogous to the assumption Lowe makes about the relationship between monument construction and Classic Mayan cities?
- (A) A person assumes that the shortage of fresh produce on the shelves of a grocery store is due to the effects of poor weather conditions during the growing season.
- (B) A person assumes that a movie theater only shows foreign films because the titles of the films shown there are not familiar to the person.
- (C) A person assumes that a restaurant is under new ownership because the restaurant's menu has changed drastically since the last time the person ate there.
- (D) A person assumes that a corporation has been sold because there is a new name for the corporation on the sign outside the building where the company is located.
- (E) A person assumes a friend has sold her stamp collection because the friend has stopped purchasing new stamps.
25. It can be inferred from the passage that the author would describe the method Lowe used to construct a step-by-step chronology of the actual collapse of Classic Mayan civilization as
- (A) daringly innovative but flawed
- (B) generally accepted but questionable
- (C) very reliable but outdated



- (D) unscientific but effective
- (E) unconventional but brilliant
26. The author of the passage would most likely agree with which one of the following statements about the use of the archaeological record to reconstruct historic activity?
- (A) With careful analysis, archaeological evidence can be used to reconstruct accurately the historic activity of a past civilization.
- (B) Archaeological evidence is more useful for reconstructing the day-to-day activities of a culture than its long-term trends.
- (C) The accuracy of the archaeological record for reconstructing historic activity is dependent on the duration of the particular civilization.
- (D) The archaeological record is not an appropriate source of data for reconstructing historic activity.
- (E) Historic activity can be reconstructed from archaeological evidence, but it is ultimately impossible to confirm the accuracy of the reconstruction.

### **LSAT 25 SECTION I**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Painter Frida Kahlo (1910-1954) often used harrowing images derived from her Mexican heritage to express suffering caused by a disabling accident and a **stormy** marriage. Suggesting much personal and emotional content, her works—many of them self-portraits—have been exhaustively psychoanalyzed, while their political content has been less studied. Yet Kahlo was an ardent political activist who in her art sought not only to explore her own roots, but also to **champion** Mexico's struggle for an independent political and cultural **identity**.

Kahlo was influenced by Marxism, which appealed to many intellectuals in the 1920s and 1930s, and by Mexican nationalism. Interest in Mexico's culture and history had revived in the nineteenth century, and by the early 1900s, Mexican *indigenista* tendencies ranged from a violently anti-Spanish idealization of Aztec Mexico to an emphasis on contemporary Mexican Indians as the key to authentic Mexican culture. Mexican nationalism, reacting against contemporary United States political intervention in labor disputes as well as against past domination by Spain, identified the Aztecs as the last independent rulers of an indigenous political unit. Kahlo's form of *Mexicanidad*, a romantic nationalism that focused upon traditional art uniting all *indigenistas*, revered the Aztecs as a powerful pre-Columbian society that had united a large area of the Middle Americas and that was thought to have been based on communal labor, the Marxist ideal.

In her paintings, Kahlo repeatedly employed **Aztec** symbols, such as skeletons or bleeding hearts that were traditionally related to the emanation of life from death and light from



darkness. These images of destruction coupled with creation speak not only to Kahlo's personal battle for life, but also to the Mexican struggle to emerge as a nation—by implication, to emerge with the political and cultural strength admired in the Aztec civilization. *Self-portrait on the Border between Mexico and the United States* (1932), for example, shows Kahlo wearing a bone necklace, holding a Mexican flag, and standing between a highly industrialized United States and an agricultural, preindustrial Mexico. On the United States side are mechanistic and modern images such as smokestacks, light bulbs, and robots. In contrast, the organic and ancient symbols on the Mexican side—a blood-drenched Sun, lush vegetation, an Aztec sculpture, a pre-Columbian temple, and a skull alluding to those that lined the walls of Aztec temples—emphasize the interrelation of life, death, the earth, and the cosmos.

Kahlo portrayed Aztec images in the folkloric style of traditional Mexican paintings, thereby heightening the clash between modern materialism and indigenous tradition; similarly, she favored planned economic development, but not at the expense of cultural identity. Her use of familiar symbols in a readily accessible style also served her goal of being popularly understood; in turn, Kahlo is viewed by some Mexicans as a mythic figure representative of nationalism itself.

1. Which one of the following best expresses the main point of the passage?
  - (A) The doctrines of Marxist ideology and Mexican nationalism heavily influenced Mexican painters of Kahlo's generation.
  - (B) Kahlo's paintings contain numerous references to the Aztecs as an indigenous Mexican people predating European influence.
  - (C) An important element of Kahlo's work is conveyed by symbols that reflect her advocacy of indigenous Mexican culture and Mexican political autonomy.
  - (D) The use of Aztec images and symbols in Kahlo's art can be traced to the late nineteenth-century revival of interest in Mexican history and culture.
  - (E) Kahlo used Aztec imagery in her paintings primarily in order to foster contemporary appreciation for the authentic art of traditional Mexican culture.
2. With which one of the following statements concerning psychoanalytic and political interpretations of Kahlo's work would the author be most likely to agree?
  - (A) The psychoanalytic interpretations of Kahlo's work tend to challenge the political interpretations.
  - (B) Political and psychoanalytic interpretations are complementary approaches to Kahlo's work.
  - (C) Recent political interpretations of Kahlo's work are causing psychoanalytic critics to revise their own interpretations.
  - (D) Unlike the political interpretations, the psychoanalytic interpretations make use of biographical facts of Kahlo's life.
  - (E) Kahlo's mythic status among the audience Kahlo most wanted to reach is

based upon the psychoanalytic rather than the political content of her work.

3. Which one of the following stances toward the United States does the passage mention as characterizing Mexican nationalists in the early twentieth century?
  - (A) opposition to United States involvement in internal Mexican affairs
  - (B) desire to decrease emigration of the Mexican labor force to the United States
  - (C) desire to improve Mexico's economic competitiveness with the United States
  - (D) reluctance to imitate the United States model of rapid industrialization
  - (E) advocacy of a government based upon that of the Marxist Soviet Union rather than that of the United States
4. In the context of the passage, which one of the following phrases could best be substituted for the word "romantic" (line 24) without substantially changing the author's meaning?
  - (A) dreamy and escapist
  - (B) nostalgic and idealistic
  - (C) fanciful and imaginative
  - (D) transcendental and impractical
  - (E) overwrought and sentimental
5. The passage mentions each of the following as an Aztec symbol or image found in Kahlo's paintings EXCEPT a
  - (A) skeleton
  - (B) sculpture
  - (C) serpent
  - (D) skull
  - (E) bleeding heart
6. Which one of the following best describes the organization of the third paragraph?
  - (A) contrast of opposing ideas
  - (B) reconciliation of conflicting concepts
  - (C) interrelation of complementary themes
  - (D) explication of a principle's implications
  - (E) support for a generalization by means of an example
7. The passage implies that Kahlo's attitude toward the economic development of Mexico was
  - (A) enthusiastic
  - (B) condemnatory
  - (C) cautious
  - (D) noncommittal

(E) uncertain

8. The main purpose of the passage is to

- (A) critique an artist's style
- (B) evaluate opposing theories
- (C) reconcile conflicting arguments
- (D) advocate an additional interpretation
- (E) reconsider an artist in light of new discoveries

In recent years, a growing belief that the way society decides what to treat as true is controlled through largely unrecognized discursive practices has led legal reformers to examine the complex interconnections between narrative and law. In many legal systems, legal judgments are based on competing stories about events. Without having witnessed these events, judges and juries must validate some stories as true and reject others as false. This procedure is rooted in objectivism, a philosophical approach that has supported most Western legal and intellectual systems for centuries. Objectivism holds that there is a single neutral description of each event that is unskewed by any particular point of view and that has a privileged position over all other accounts. The law's quest for truth, therefore, consists of locating this objective description, the one that tells what really happened, as opposed to what those involved thought happened. The serious flaw in objectivism is that there is no such thing as the neutral, objective observer. As psychologists have demonstrated, all observers bring to a situation a set of expectations, values, and beliefs that determine what the observers are able to see and hear. Two individuals listening to the same story will hear different things, because they emphasize those aspects that accord with their learned experiences and ignore those aspects that are dissonant with their view of the world. Hence there is never any escape in life or in law from selective perception or from subjective judgments based on prior experiences, values, and beliefs.

The societal harm caused by the assumption of objectivist principles in traditional legal discourse is that, historically, the stories judged to be objectively true are those told by people who are trained in legal discourse, while the stories of those who are not fluent in the language of the law are rejected as false.

Legal scholars such as Patricia Williams, Derrick Bell, and Mari Matsuda have sought empowerment for the latter group of people through the construction of alternative legal narratives. Objectivist legal discourse systematically disallows the language of emotion and experience by focusing on cognition in its narrowest sense. These legal reformers propose replacing such abstract discourse with powerful personal stories. They argue that the absorbing, nonthreatening structure and tone of personal stories may convince legal insiders for the first time to listen to those not fluent in legal language. The compelling force of personal narrative can create a sense of empathy between legal insiders and people traditionally excluded from legal discourse and, hence, from power. Such alternative narratives can shatter the complacency of the legal establishment and disturb its tranquility. Thus, the engaging power of narrative might play a crucial, positive role in the process of legal reconstruction by overcoming differences in background and training and forming a new collectivity based on emotional empathy.

9. Which one of the following best states the main idea of the passage?
- (A) Some legal scholars have sought to empower people historically excluded from traditional legal discourse by instructing them in the forms of discourse favored by legal insiders.
  - (B) Some legal scholars have begun to realize the social harm caused by the adversarial atmosphere that has pervaded many legal systems for centuries.
  - (C) Some legal scholars have proposed alleviating the harm caused by the prominence of objectivist principles within legal discourse by replacing that discourse with alternative forms of legal narrative.
  - (D) Some legal scholars have contended that those who feel excluded from objectivist legal systems would be empowered by the construction of a new legal language that better reflected objectivist principles.
  - (E) Some legal scholars have argued that the basic flaw inherent in objectivist theory can be remedied by recognizing that it is not possible to obtain a single neutral description of a particular event.
10. According to the passage, which one of the following is true about the intellectual systems mentioned in line 11?
- (A) They have long assumed the possibility of a neutral depiction of events.
  - (B) They have generally remained unskewed by particular points of view.
  - (C) Their discursive practices have yet to be analyzed by legal scholars.
  - (D) They accord a privileged position to the language of emotion and experience.
  - (E) The accuracy of their basic tenets has been confirmed by psychologists.
11. Which one of the following best describes the sense of “cognition” referred to in line 43 of the passage?
- (A) logical thinking uninfluenced by passion
  - (B) the interpretation of visual cues
  - (C) human thought that encompasses all emotion and experience
  - (D) the reasoning actually employed by judges to arrive at legal judgments
  - (E) sudden insights inspired by the power of personal stories
12. It can be inferred from the passage that Williams, Bell, And Matsuda believe which one of the following to be central component of legal reform?
- (A) incorporating into the law the latest developments in the fields of psychology and philosophy
  - (B) eradicating from legal judgments discourse with a particular point of view
  - (C) granting all participants in legal proceedings equal access to training in the forms and manipulation of legal discourse
  - (D) making the law more responsive to the discursive practices of a wider variety of people
  - (E) instilling an appreciation of legal history and methodology in all the

participants in a legal proceeding

13. Which one of the following most accurately describes the author's attitude toward proposals to introduce personal stories into legal discourse?
- (A) strongly opposed
  - (B) somewhat skeptical
  - (C) ambivalent
  - (D) strongly supportive
  - (E) unreservedly optimistic
14. The passage suggests that Williams, Bell, and Matsuda would most likely agree with which one of the following statements regarding personal stories?
- (A) Personal stories are more likely to adhere to the principles of objectivism than are other forms of discourse.
  - (B) Personal stories are more likely to de-emphasize differences in background and training than are traditional forms of legal discourse.
  - (C) Personal stories are more likely to restore tranquility to the legal establishment than are more adversarial forms of discourse.
  - (D) Personal stories are more likely to lead to the accurate reconstruction of facts than are traditional forms of legal narrative.
  - (E) Personal stories are more likely to be influenced by a person's expectations, values, and beliefs than are other forms of discourse.
15. Which one of the following statements about legal discourse in legal systems based on objectivism can be inferred from the passage?
- (A) In most Western societies the legal establishment controls access to training in legal discourse.
  - (B) Expertise in legal discourse affords power in most Western societies.
  - (C) Legal discourse has become progressively more abstract for some centuries.
  - (D) Legal discourse has traditionally denied the existence of neutral objective observers.
  - (E) Traditional legal discourse seeks to reconcile dissonant world views.
16. Those who reject objectivism would regard "the law's quest for truth" (line 15-16) as most similar to which one of the following?
- (A) a hunt for an imaginary animal
  - (B) the search for a valuable mineral among worthless stones
  - (C) the painstaking assembly of a jigsaw puzzle
  - (D) comparing an apple with an orange
  - (E) the scientific analysis of a chemical compound

Many people **complain about** corporations, but there are also those whose criticism goes further and who hold corporations morally to blame for many of the problems in Western

society. Their criticism is not **reserved** solely for fraudulent or illegal business activities, but extends to the basic corporate practice of making decisions based on what will maximize profits without regard to whether such decisions will contribute to the public good. Others, mainly economists, have responded that this criticism is flawed because it inappropriately applies ethical principles to economic relationships.

It is only by extension that we attribute the quality of morality to corporations, for corporations are not persons. Corporate responsibility is an aggregation of the responsibilities of those persons employed by the corporation when they act **in and on behalf of** the corporation. Some corporations are owner operated, but in many corporations and in most larger ones there is a syndicate of owners to whom the chief executive officer, or CEO, who runs the corporation is said to have a fiduciary obligation.

The economists argue that a CEO's sole responsibility is to the owners, whose primary interest, except in charitable institutions, is the protection of their profits. CEOs are bound, as a condition of their employment, to seek a profit for the owners. But suppose a noncharitable organization is owner operated, or, for some other reason, its CEO is not obligated to maximize profits. The economists' view is that even if such a CEO's purpose is to look to the public good and nothing else, the CEO should still work to maximize profits, because that will turn out best for the public anyway.

But the economists' position does not hold up (to continue in the same condition without failing or losing effectiveness or force "you seem to be holding up under the strain") under careful scrutiny. For one thing, although there are, no doubt, strong underlying dynamics in national and international economies that tend to make the pursuit of corporate interest contribute to the public good, there is no guarantee—either theoretically or in practice—that a given CEO will benefit the public by maximizing corporate profit. It is absurd to deny the possibility, say, of a paper mill legally maximizing its profits over a five-year period by decimating a forest for its wood or polluting a lake with its industrial waste. Furthermore, while obligations such as those of corporate CEOs to corporate owners are binding in a business or legal sense, they are not morally paramount. The CEO could make a case to the owners that certain profitable courses of action should not be taken because they are likely to detract (to diminish the importance, value, or effectiveness of something; often used with from) from the public good. The economic consequences that may befall the CEO for doing so, such as penalty or dismissal, ultimately do not excuse the individual from the responsibility for acting morally.

17. Which one of the following most accurately states the main point of the passage?
- (A) Although CEOs may be legally obligated to maximize their corporations' profits, this obligation does not free them from the moral responsibility of considering the implications of the corporations' actions for the public good.
  - (B) Although morality is not easily ascribed to nonhuman entities, corporations can be said to have an obligation to act morally in the sense that they are made up of individuals who must act morally.
  - (C) Although economists argue that maximizing a corporation's profits is likely to turn out best for the public, a CEO's true obligations is still to seek a profit for the corporation's owners.



- (D) Although some people criticize corporations for making unethical decisions, economists argue that such criticisms are unfounded because ethical considerations cannot be applied to economics.
- (E) Although critics of corporations argue that CEOs ought to consider the public good when making financial decisions, the results of such decisions in fact always benefit the public.
18. The discussion of the paper mill in lines 42-46 is intended primarily to
- (A) offer an actual case of unethical corporate behavior
- (B) refute the contention that maximization of profits necessarily benefits the public
- (C) illustrate that ethical restrictions on corporations would be difficult to enforce
- (D) demonstrate that corporations are responsible for many social ills
- (E) deny that corporations are capable of acting morally
19. With which one of the following would the economists mentioned in the passage be most likely to agree?
- (A) Even CEOs of charitable organizations are obligated to maximize profits.
- (B) CEOs of owner-operated noncharitable corporations should make decisions based primarily on maximizing profits.
- (C) Owner-operated noncharitable corporations are less likely to be profitable than other corporations.
- (D) It is highly unlikely that the actions of any particular CEO will benefit the public.
- (E) CEOs should attempt to maximize profits unless such attempts result in harm to the environment.
20. The conception of morality that underlies the author's argument in the passage is best expressed by which one of the following principles?
- (A) What makes actions morally right is their contribution to the public good.
- (B) An action is morally right if it carries the risk of personal penalty.
- (C) Actions are morally right if they are not fraudulent or illegal.
- (D) It is morally wrong to try to maximize one's personal benefit.
- (E) Actions are not morally wrong unless they harm others.
21. The primary purpose of the passage is to
- (A) illustrate a paradox
- (B) argue for legal reform
- (C) refute a claim
- (D) explain a decision
- (E) define a concept

What it means to "explain" something in science often comes down to the application of

mathematics. Some thinkers hold that mathematics is a kind of language—a systematic contrivance of signs, the criteria for the authority of **which** are internal coherence, elegance, and depth. The application of such a highly artificial system to the physical world, they claim, results in the creation of a kind of statement about the world. Accordingly, what matters in the sciences is finding a mathematical concept that attempts, as other language does, to accurately describe the functioning of some aspect of the world.

At the center of the issue of scientific knowledge can thus be found questions about the relationship between language and what it **refers to**. A discussion about the role played by language in the pursuit of knowledge has been going on among linguists for several decades. The debate centers around whether language corresponds in some essential way to objects and behaviors, making knowledge a solid and reliable **commodity**; or, on the other hand, whether the relationship between language and things is purely a matter of agreed-upon conventions, making knowledge tenuous, relative, and inexact.

Lately the latter theory has been gaining wider acceptance. According to linguists who support this theory, the way language is used varies depending upon changes in accepted practices and theories among those who work in particular discipline. These linguists argue that, in the pursuit of knowledge, a statement is true only when there are no promising alternatives that might lead one to question it. Certainly this characterization would seem to be applicable to the sciences. In science, a mathematical statement may be taken to account for every aspect of a phenomenon it is applied to, but, some would argue, there is nothing inherent in mathematical language that guarantees such a correspondence. Under this view, acceptance of a mathematical statement by the scientific community—by virtue of the statement's predictive power or methodological efficiency—transforms what is basically an analogy or metaphor into an explanation of the physical process in question, to be held as true until another, more compelling analogy takes its place.

In pursuing the implications of this theory, linguists have reached the point at which they must ask: If words or sentences do not correspond in an essential way to life or to our ideas about life, then just what are they capable of telling us about the world? In science and mathematics, then, it would seem equally necessary to ask: If models of electrolytes or  $E=mc^2$ , say, do not correspond essentially to the physical world, then just what functions do they perform in the acquisition of scientific knowledge? But this question has yet to be significantly addressed in the sciences.

22. Which one of the following statements most accurately expresses the passage's main point?
- (A) Although scientists must rely on both language and mathematics in their pursuit of scientific knowledge, each is an imperfect tool for perceiving and interpreting aspects of the physical world.
  - (B) The acquisition of scientific knowledge depends on an agreement among scientists to accept some mathematical statements as more precise than others while acknowledging that all mathematics is inexact.
  - (C) If science is truly to progress, scientists must temporarily abandon the pursuit of new knowledge in favor of a systematic analysis of how the knowledge

they already possess came to be accepted as true.

- (D) In order to better understand the acquisition of scientific knowledge, scientists must investigate mathematical statements' relationship to the world just as linguists study language's relationship to the world.
- (E) Without the debates among linguists that preceded them, it is unlikely that scientists would ever have begun to explore the essential role played by mathematics in the acquisition of scientific knowledge.
23. Which one of the following statements, if true, lends the most support to the view that language has an essential correspondence to things it describes?
- (A) The categories of physical objects employed by one language correspond remarkably to the categories employed by another language that developed independently of the first.
- (B) The categories of physical objects employed by one language correspond remarkably to the categories employed by another language that derives from the first.
- (C) The categories of physical objects employed by speakers of a language correspond remarkably to the categories employed by other speakers of the same language.
- (D) The sentence structures of languages in scientifically sophisticated societies vary little from language to language.
- (E) Native speakers of many languages believe that the categories of physical objects employed by their language correspond to natural categories of objects in the world.
24. According to the passage, mathematics can be considered a language because it
- (A) conveys meaning in the same way that metaphors do
- (B) constitutes a systematic collection of signs
- (C) corresponds exactly to aspects of physical phenomena
- (D) confers explanatory power on scientific theories
- (E) relies on previously agreed-upon conventions
25. The primary purpose of the third paragraph is to
- (A) offer support for the view of linguists who believe that language has an essential correspondence to things
- (B) elaborate the position of linguists who believe that truth is merely a matter of convention
- (C) illustrate the differences between the essentialist and conventionalist position in the linguists' debate
- (D) demonstrate the similarity of the linguists' debate to a current debate among scientists about the nature of explanation
- (E) explain the theory that mathematical statements are a kind of language

26. Based on the passage, linguists who subscribes to the theory described in lines 21-24 would hold that the statement “the ball is red” is true because
- (A) speakers of English have accepted that “the ball is red” applies to the particular physical relationship being described
  - (B) speakers of English do not accept that synonyms for “ball” and “red” express these concepts as elegantly
  - (C) “The ball is red” corresponds essentially to every aspect of the particular physical relationship being described
  - (D) “ball” and “red” actually refer to an entity and a property respectively
  - (E) “ball” and “red” are mathematical concepts that attempt to accurately describe some particular physical relationship in the world

### **LSAT 26 SECTION IV**

#### **Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

It has recently been discovered that many attributions of paintings to the seventeenth-century Dutch artist Rembrandt may be false. The contested paintings are not minor works, whose removal from the Rembrandt corpus would leave it relatively unaffected: they are at its very center. In her recent book, Svetlana Alpers uses these cases of disputed attribution as a point of departure for her provocative discussion of the radical distinctiveness of Rembrandt’s approach to painting.

Alpers argues that Rembrandt exercised an unprecedentedly firm control over his art, his students, and the distribution of his works. Despite Gary Schwartz’ brilliant documentation of Rembrandt’s complicated relations with a wide circle of patrons, Alpers takes the view that Rembrandt refused to submit to the prevailing patronage system. He preferred, she claims, to sell his works on the open market and to play the entrepreneur. At a time when Dutch artists were organizing into professional brotherhoods and academies, Rembrandt stood apart. In fact, Alpers’ portrait of Rembrandt shows virtually every aspect of his art pervaded by economic motives. Indeed, so complete was Rembrandt’s involvement with the market, she argues, that he even presented himself as commodity, viewing his studio’s products as extensions of himself, sent out into the world to earn money. Alpers asserts that Rembrandt’s enterprise is found not just in his paintings, but in his refusal to limit his enterprise to those paintings he actually painted. He marketed Rembrandt.

Although there may be some truth in the view that Rembrandt was an entrepreneur who made some aesthetic decisions on the basis of what he knew the market wanted, Alpers’ emphasis on economic factors sacrifices discussions of the aesthetic qualities that make Rembrandt’s work unique. For example, Alpers asserts that Rembrandt deliberately left his works unfinished so as to get more money for their revision and completion. She implies that

Rembrandt actually wished the Council of Amsterdam to refuse the great *Claudius Civilis*, which they had commissioned for their new town hall, and she argues that “he must have calculated that he would be able to get more money by retouching [the] painting.” Certainly the picture is painted with very broad strokes but there is no evidence that it was deliberately left unfinished. The fact is that the look of a work like *Claudius Civilis* must also be understood as the consequence of Rembrandt’s powerful and profound meditations on painting itself. Alpers make no mention of the pictorial dialectic that can be discerned between, say, the lessons Rembrandt absorbed from the Haarlem school of paintings and the styles of his native Leiden. The trouble is that while Rembrandt’s artistic enterprise may indeed not be reducible to the works he himself painted, it is not reducible to marketing practices either.

1. Which one of the following best summarizes the main conclusion of the author of the passage?
  - (A) Rembrandt differed from other artists of his time both in his aesthetic techniques and in his desire to meet the demands of the marketplace.
  - (B) The aesthetic qualities of Rembrandt’s work cannot be understood without consideration of how economic motives pervaded decisions he made about his art.
  - (C) Rembrandt was one of the first artists to develop the notion of a work of art as a commodity that could be sold in an open marketplace.
  - (D) Rembrandt’s artistic achievement cannot be understood solely in terms of decisions he made on the basis of what would sell in the marketplace.
  - (E) Rembrandt was an entrepreneur whose artistic enterprise was not limited to the paintings he actually painted himself.
2. According to the passage, Alpers and Schwartz disagree about which one of the following?
  - (A) the degree of control Rembrandt exercised over the production of his art
  - (B) the role that Rembrandt played in organizing professional brotherhoods and academies
  - (C) the kinds of relationships Rembrandt had with his students
  - (D) the degree of Rembrandt’s involvement in the patronage system
  - (E) the role of the patronage system in seventeenth-century Holland
3. In the third paragraph, the author of the passage discusses aesthetic influences on Rembrandt’s work most probably in order to
  - (A) suggest that many critics have neglected to study the influence of the Haarlem school painters on Rembrandt’s work
  - (B) suggest that *Claudius Civilis* is similar in style to many paintings from the seventeen century
  - (C) suggest that Rembrandt’s style was not affected by the aesthetic influences that Alpers points out
  - (D) argue that Rembrandt’s style can best be understood as a result of the

influences of his native Leiden

(E) indicate that Alpers has not taken into account some important aspects of Rembrandt's work

4. Which one of the following, if true, would provide the most support for Alpers' argument about *Claudius Civilis*?
- (A) Rembrandt was constantly revising his prints and paintings because he was never fully satisfied with stylistic aspects of his earlier drafts.
  - (B) The works of many seventeenth-century Dutch artists were painted with broad strokes and had an unfinished look.
  - (C) Many of Rembrandt's contemporaries eschewed the patronage system and sold their works on the open market.
  - (D) Artists were frequently able to raise the price of a painting if the buyer wanted the work revised in some way.
  - (E) Rembrandt did not allow his students to work on paintings that were commissioned by public officials.
5. It can be inferred that the author of the passage and Alpers would be most likely to agree on which one of the following?
- (A) Rembrandt made certain aesthetic decision on the basis of what he understood about the demands of the marketplace.
  - (B) The Rembrandt corpus will not be affected if attributions of paintings to Rembrandt are found to be false.
  - (C) Stylistic aspects of Rembrandt's painting can be better explained in economic terms than in historical or aesthetic terms.
  - (D) Certain aesthetic aspects of Rembrandt's art are the result of his experimentation with different painting techniques.
  - (E) Most of Rembrandt's best-known works were painted by his students, but were sold under Rembrandt's name.

Medievalists usually distinguish medieval public law from private law: the former was concerned with government and military affairs and the latter with the family, social status, and land transactions. Examination on medieval women's lives shows this distinction to be overly simplistic. Although medieval women were legally excluded from roles that categorized as public, such as soldier, justice, jury member, or professional administrative official, women's control of land—usually considered a private or domestic phenomenon—had important political implications in the feudal system of thirteenth-century England. Since land equaled wealth and wealth equaled power, certain women exercised influence by controlling land. Unlike unmarried women who were legally subject to their guardians or married women who had no legal identity separate from their husbands, women who were widows had autonomy with respect to acquiring or disposing of certain property, suing in court, incurring liability for their own debts, and making wills.

Although feudal lands were normally transferred through primogeniture (the eldest son inheriting all), when no sons survived, the surviving daughters inherited equal shares under



what was known as **partible** inheritance. In addition to controlling any such land inherited from her parents and any bridal dowry—property a woman brought to the marriage from her own family—a widow **was entitled to** use of one-third of her **late** husband's lands. Called "**dower**" in England, this grant had greater legal importance under common law than did the bridal dowry; no marriage was legal unless the groom endowed the bride with this property at the wedding ceremony. In 1215 **Magna Carta** guaranteed a widow's right to claim her dower without paying a fine; this document also strengthened widow's ability to control land by prohibiting forced remarriage. After 1272 women could also benefit from **jointure**: the groom could agree to hold part or all of his lands jointly with the bride, so that if one spouse died, the other received these lands.

Since many widows had inheritances as well as dowers, widows were frequently the financial heads of the family; even though legal theory assumed the maintenance of the principle of primogeniture, the amount of land the widow controlled could exceed that of her son or of other male heirs. Anyone who held feudal land exercised authority over the people attached to the land—knights, rental tenants, and peasants—and had to hire estate administrators, oversee accounts, receive rents, protect tenants from outside encroachment, punish tenants for not paying rents, appoint priests to local parishes, and act as guardians of tenants' children and executors of their wills. Many married women fulfilled these duties as deputies for husbands away at court or at war, but widows could act on their own behalf. Widow's legal independence is suggested by their frequent appearance in thirteenth-century English legal records. Moreover, the scope of their **sway** is indicated by the fact that some controlled not merely single estates, but multiple counties.

6. Which one of the following best expresses the main idea of the passage?
- (A) The traditional view of medieval women as legally excluded from many public offices fails to consider thirteenth-century women in England who were exempted from such restrictions.
  - (B) The economic independence of women in thirteenth-century England was primarily determined not by their marital status, but by their status as heirs to their parents' estates.
  - (C) The laws and customs of the feudal system in thirteenth-century England enabled some women to exercise a certain amount of power despite their legal exclusion from most public roles.
  - (D) During the thirteenth century in England, widows gained greater autonomy and legal rights to their property than they had had in previous centuries.
  - (E) Widows in thirteenth-century England were able to acquire and dispose of lands through a number of different legal processes.
7. With which one of the following statements about the views held by the medievalists mentioned in line 1 would the author of the passage most probably agree?
- (A) The medieval role of landowners was less affected by thirteenth-century changes in law than these medievalists customarily have recognized.
  - (B) The realm of law labeled public by these medievalists ultimately had greater

- political implications than that labeled private.
- (C) The amount of wealth controlled by medieval women was greater than these medievalists have recorded.
- (D) The distinction made by these medievalists between private law and public law fails to consider some of the actual legal cases of the period.
- (E) The distinction made by these medievalists between private and public law fails to address the political importance of control over land in the medieval era.
8. Which one of the following most accurately expresses the meaning of the word “sway” as it is used in line 60 of the passage?
- (A) vacillation
- (B) dominion
- (C) predisposition
- (D) inclination
- (E) mediation
9. Which one of the following most accurately describes the function of the second paragraph of the passage?
- (A) providing examples of specific historical events as support for the conclusion drawn in the third paragraph
- (B) narrating a sequence of events whose outcomes discussed in the third paragraph
- (C) explaining how circumstances described in the first paragraph could have occurred
- (D) describing the effects of an event mentioned in the first paragraph
- (E) evaluating the arguments of a group mentioned in the first paragraph
10. According to information in the passage, a widow in early thirteenth-century England could control more land than did her eldest son if
- (A) the widow had been granted the customary amount of dower land and the eldest son inherited the rest of the land
- (B) the widow had three daughters in addition to her eldest son
- (C) the principle of primogeniture had been applied in transferring the lands owned by the widow’s late husband
- (D) none of the lands held by the widow’s late husband had been placed in jointure
- (E) the combined amount of land the widow had acquired from her own family and from dower was greater than the amount inherited by her son
11. Which one of the following is mentioned in the passage as a reason why a married woman might have fulfilled certain duties associated with holding feudal land in thirteenth-century England?

- (A) the legal statutes set forth by Magna Carta
  - (B) the rights a woman held over her inheritance during her marriage
  - (C) the customary division of duties between husbands and wives
  - (D) the absence of the woman's husband
  - (E) the terms specified by the woman's jointure agreement
12. The phrase "in England" (line 30-31) does which one of the following?
- (A) It suggests that women in other countries also received grants of their husbands' lands.
  - (B) It identifies a particular code of law affecting women who were surviving daughters.
  - (C) It demonstrates that dower had greater legal importance in one European county than in others.
  - (D) It emphasizes that women in one European country had more means of controlling property than did women in other European countries.
  - (E) It traces a legal term back to the time at which it entered the language.
13. The primary purpose of the passage is to
- (A) explain a legal controversy of the past in light of modern theory
  - (B) evaluate the economic and legal status of a particular historical group
  - (C) resolve a scholarly debate about legal history
  - (D) trace the historical origins of a modern economic situation
  - (E) provide new evidence about a historical event

The debate over the environment crisis is not new: anxiety about industry's impact on the environment has existed for over a century. What is new is the extreme polarization of views. Mounting evidence of humanity's capacity to damage the environment irreversibly coupled with suspicions that government, industry, and even science might be impotent to prevent environmental destruction have provoked accusatory polemics on the part of environmentalists. In turn, these polemics have elicited a corresponding **backlash** from industry. The sad effect of this polarization is that it is now even more difficult for industry than it was a hundred years ago to respond appropriately to impact analyses that demand action.

Unlike today's adversaries, earlier ecological reformers shared with advocates of industrial growth a confidence in timely corrective action. George P. Marsh's pioneering conservation tract *Man and Nature* (1864) elicited wide acclaim without embittered denials. *Man and Nature* castigated Earth's despoilers for heedless greed, declaring that humanity "has brought the face of the Earth to a desolation almost as complete as that of the Moon." But no entrepreneur of industrialists sought to refute Marsh's accusations, to defend the **gutting** of forests or the slaughter of wildlife as economically essential, or to dismiss his ecological warnings as hysterical. To the contrary, they generally agreed with him.

Why? Marsh and his followers took environmental improvement and economic progress as givens: they disputed not the desirability of conquering nature but the bungling way in which the conquest was carried out. Blame was not **personalized**, Marsh denounced general greed

rather than particular entrepreneurs, and the media did not hound malefactors. Further, corrective measures seemed to entail no sacrifice, to demand no draconian remedies. Self-interest underwrote most prescribed reforms. Marsh's emphasis on future stewardship was then a widely accepted ideal (if not practice). His ecological admonitions were in keeping with the Enlightenment premise that humanity's mission was to subdue and transform nature.

Not until the 1960s did a gloomier perspective gain popular ground. Fredric Clements' equilibrium model of ecology, developed in the 1930s, seemed consistent with mounting environmental disasters. In this view, nature was most fruitful when least altered. Left undisturbed, flora and fauna gradually attained maximum diversity and stability. Despoliation thwarted the culmination or shortened the duration of this beneficent climax: technology did not improve nature but destroyed it.

The equilibrium model became an ecological mystique: environmental interference was now taboo, wilderness adored. Nature as unfinished fabric perfected by human ingenuity gave way to the image nature debased and endangered by technology. In contrast to the Enlightenment vision of nature, according to which rational managers construct an ever more improved environment, twentieth-century reformers' vision of nature calls for a reduction of human interference in order to restore environmental stability.

14. Which one of the following most accurately states the main idea of the passage?
- (A) Mounting evidence of humanity's capacity to damage the environment should motivate action to prevent further damage.
  - (B) The ecological mystique identified with Frederic Clements has become a religious conviction among ecological reformers.
  - (C) George P. Marsh's ideas about conservation and stewardship have heavily influenced the present debate over the environment.
  - (D) The views of ecologists and industrial growth advocates concerning the environment have only recently become polarized.
  - (E) General greed, rather than particular individuals or industries, should be blamed for the environmental crisis.
15. The author refers to the equilibrium model of ecology as an "ecological mystique" (lines 54-55) most likely in order to do which one of the following?
- (A) underscore the fervor with which twentieth-century reformers adhere to the equilibrium model
  - (B) point out that the equilibrium model of ecology has recently been supported by empirical scientific research
  - (C) express appreciation for how plants and animals attain maximum diversity and stability when left alone
  - (D) indicate that the idea of twentieth-century ecological reformers are often so theoretical as to be difficult to understand
  - (E) indicate how widespread support is for the equilibrium model of ecology in the scientific community

16. Which one of the following practices is most clearly an application of Frederic Clements' equilibrium model of ecology?
- (A) introducing a species into an environment to which it is not help control the spread of another species that no longer has any natural predators
  - (B) developing incentives for industries to take corrective measures to protect the environment
  - (C) using scientific methods to increase the stability of plants and animals in areas where species are in danger of becoming extinct
  - (D) using technology to develop plant and animal resources but balancing that development with stringent restrictions on technology
  - (E) setting areas of land aside to be maintained as wilderness from which the use of extraction of natural resources is prohibited
17. The passage suggests that George P. Marsh and today's ecological reformers would be most likely to agree with which one of the following statements?
- (A) Regulating industries in order to protect the environment does not conflict with the self interest of those industries.
  - (B) Solving the environmental crisis does not require drastic and costly remedies.
  - (C) Human despoliation of the Earth has caused widespread environmental damage.
  - (D) Environmental improvement and economic progress are equally important goals.
  - (E) Rather than blaming specific industries, general greed should be denounced as the cause of environmental destruction.
18. The passage is primarily concerned with which one of the following?
- (A) providing examples of possible solutions to a current crisis
  - (B) explaining how conflicting viewpoints in a current debate are equally valid
  - (C) determining which of two conflicting viewpoints in a current debate is more persuasive
  - (D) outlining the background and development of conflicting viewpoints in a current debate
  - (E) demonstrating weaknesses in the arguments made by one side in a current debate

Recently the focus of historical studies of different ethnic groups in the United States has shifted from the transformation of ethnic identity to its preservation. Whereas earlier historians argued that the ethnic identity of various immigrant groups to the United States blended to form an American **national character**, the new scholarship has focused on the transplantation of ethnic cultures to the United States. Fugita and O'Brien's *Japanese American Ethnicity* provides an example of this recent trend; it also exemplifies a problem that is common to such scholarship.

In comparing the first three generations of Japanese Americans (the Issei, Nisei, and Sansei), Fugita and O'Brien conclude that assimilation to United States culture increased among Japanese Americans over three generations, but that a sense of ethnic community endured. Although the persistence of community is stressed by the authors, their emphasis in the book could just as easily have been on the high degree of assimilation of the Japanese American population in the late twentieth century, which Fugita and O'Brien believe is demonstrated by the high levels of education, income, and occupational mobility achieved by Japanese Americans. In addition, their data reveal that the character of the ethnic community itself changed: the integration of Sanseis into new professional communities and nonethnic voluntary associations meant **at the very least** that ethnic ties had to accommodate multiple and layered identities. Fugita and O'Brien themselves acknowledge that there has been a "weakening of Japanese American ethnic community life."

Because of the social changes weakening the bonds of community, Fugita and O'Brien maintain that the community cohesion of Japanese Americans is notable not for its initial intensity but because "there remains a degree of involvement in the ethnic community surpassing that found in most other ethnic groups at similar points in their ethnic group life cycle." This comparative difference is important to Fugita and O'Brien, and they hypothesize that the Japanese American community persisted in the face of assimilation because of a particularly strong preexisting sense of "**peoplehood**". They argue that this sense of peoplehood extended beyond local and family ties.

Fugita and O'Brien have explained persistence of ethnic community by citing a preexisting sense of national consciousness that is independent of how a group adapts to United States culture. However, it is difficult to prove as Fugita and O'Brien have attempted to do that a sense of peoplehood is a distinct phenomenon. Historians should instead attempt to identify directly the factors that sustain community cohesion in generations that have adapted to United States culture and been exposed to the **pluralism** of American life.

19. Which one of the following best summarizes the main point of the author of the passage?
- (A) Fugita and O'Brien's study provides a comparison of the degree of involvement in ethnic community of different groups in the United States.
  - (B) Fugita and O'Brien's study describes the assimilation of three generations of Japanese Americans to United States culture.
  - (C) Fugita and O'Brien's study illustrates both a recent trend in historical studies of ethnic groups and a problem typical of that trend.
  - (D) Historical studies of ethnic preservation among Japanese Americans have done much to define the interpretive frameworks for studies of other ethnic groups.
  - (E) Historical studies are more concerned with the recent development of ethnic communities in the United States than with the process of adaptation to United States culture.
20. According to the passage, Fugita and O'Brien's data indicate which one of the following about the Japanese American ethnic community?



- (A) Community bonds have weakened primarily as a result of occupational mobility by Japanese Americans.
  - (B) The community is notable because it has accommodated multiple and layered identities without losing its traditional intensity.
  - (C) Community cohesion is similar in intensity to the community cohesion of other ethnic groups that have been in the United States for the same period of time.
  - (D) Community involvement weakened during the second generation, but strengthened as the third generation regained an interest in cultural traditions.
  - (E) The nature of the community has been altered by Japanese American participation in new professional communities and nonethnic voluntary associations.
21. Which one of the following provides an example of a research study that has conclusion most analogous to that argued for by the historians mentioned in line 4?
- (A) a study showing how musical forms brought from other countries have persisted in the United States
  - (B) a study showing the organization and function of ethnic associations in the United States
  - (C) a study showing how architectural styles brought from other countries have merged to form an American style
  - (D) a study showing how cultural traditions have been preserved for generations in American ethnic neighborhoods
  - (E) a study showing how different religious practices brought from other countries have been sustained in the United States
22. According to the passage, which one of the following is true about the focus of historical studies on ethnic groups in the United States?
- (A) Current studies are similar to earlier studies in claiming that a sense of peoplehood helps preserve ethnic community.
  - (B) Current studies have clearly identified factors that sustain ethnic community in generations that have been exposed to the pluralism of American life.
  - (C) Current studies examine the cultural practices that make up the American national character.
  - (D) Earlier studies focused on how ethnic identities became transformed in the United States.
  - (E) Earlier studies focused on the factors that led people to immigrate to the United States.
23. The author of the passage quotes Fugita and O'Brien in lines 36-39 most probably in order to

- (A) point out a weakness in their hypothesis about the strength of community ties among Japanese Americans
  - (B) show how they support their claim about the notability of community cohesion for Japanese Americans
  - (C) indicate how they demonstrate the high degree of adaptation of Japanese Americans to United States culture
  - (D) suggest that they have inaccurately compared Japanese Americans to other ethnic groups in the United States
  - (E) emphasize their contention that the Japanese American sense of peoplehood extended beyond local and family ties
24. The passage suggests that the author would be most likely to describe the hypothesis mentioned in line 47 as
- (A) highly persuasive
  - (B) original but poorly developed
  - (C) difficult to substantiate
  - (D) illogical and uninteresting
  - (E) too similar to earlier theories
25. The passage suggests which one of the following about the historians mentioned in line 49?
- (A) They have been unable to provide satisfactory explanations for the persistence of European ethnic communities in the United States.
  - (B) They have suggested that European cultural practices have survived although the community ties of European ethnic groups have weakened.
  - (C) They have hypothesized that European ethnic communities are based on family ties rather than on a sense of national consciousness.
  - (D) They have argued that European cultural traditions have been transformed in the United States because of the pluralism of American life.
  - (E) They have claimed that the community ties of European Americans are still as strong as they were when the immigrants first arrived.
26. As their views are discussed in the passage, Fugita and O'Brien would be most likely to agree with which one of the following?
- (A) The community cohesion of an ethnic group is not affected by the length of time it has been in the United States.
  - (B) An ethnic group in the United States can have a high degree of adaptation to United States culture and still sustain strong community ties.
  - (C) The strength of an ethnic community in the United States is primarily dependent on the strength of local and family ties.
  - (D) High levels of education and occupational mobility necessarily erode the community cohesion of an ethnic group in the United States.

- (E) It has become increasingly difficult for ethnic groups to sustain any sense of ethnic identity in the pluralism of United States life.

### **LSAT 27 SECTION I**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Most office workers assume that the messages they send to each other via electronic mail are as private as a telephone call or a face-to-face meeting. That assumption is wrong. Although it is illegal in many areas for an employer to eavesdrop on private conversations or telephone calls—even if they take place on a company-owned telephone—there are no clear rules governing electronic mail. In fact, the question of how private electronic mail transmissions should be has emerged as one of the more complicated legal issues of the electronic age.

People's opinions about the degree of privacy that electronic mail should have vary depending on whose electronic mail system is being used and who is reading the messages. Does a government office, for example, have the right to destroy electronic messages created in the course of running the government, thereby denying public access to such documents? Some hold that government offices should issue guidelines that allow their staff to delete such electronic records, and defend this practice by claiming that the messages thus deleted already exist in paper versions whose destruction is forbidden. Opponents of such practices argue that the paper versions often omit such information as who received the messages and when they received them, information commonly carried on electronic mail systems. Government officials, opponents maintain, are civil servants; the public should thus have the right to review any documents created during the conducting of government business.

Questions about electronic mail privacy have also arisen in the private sector. Recently, two employees of an automotive company were discovered to have been communicating disparaging information about their supervisor via electronic mail. The supervisor, who had been monitoring the communication, threatened to fire the employees. When the employees filed a grievance complaining that their privacy had been violated, they were let go. Later, their court case for unlawful termination was dismissed; the company's lawyers successfully argued that because the company owned the computer system, its supervisors had the right to read anything created on it.

In some areas, laws prohibit outside interception of electronic mail by a third party without proper authorization such as a search warrant. However, these laws do not cover "inside" interception such as occurred at the automotive company. In the past, courts have ruled that interoffice communications may be considered private only if employees have a "reasonable expectation" of privacy when they send the messages. The fact is that no absolute guarantee of privacy exists in any computer system. The only solution may be for users to scramble their own messages with encryption codes; unfortunately, such complex codes are likely to

undermine the principal virtue of electronic mail: its convenience.

1. Which one of the following statements most accurately summarizes the main point of the passage?
  - (A) Until the legal questions surrounding the privacy of electronic mail in both the public and private sectors have been resolved, office workers will need to scramble their electronic mail messages with encryption codes.
  - (B) The legal questions surrounding the privacy of electronic mail in the work place can best be resolved by treating such communications as if they were as private as telephone conversations or face-to-face meetings.
  - (C) Any attempt to resolve the legal questions surrounding the privacy of electronic mail in the workplace must take into account the essential difference between public-sector and private sector business.
  - (D) At present, in both the public and private sectors, there seem to be no clear general answers to the legal questions surrounding the privacy of electronic mail in the workplace.
  - (E) The legal questions surrounding the privacy of electronic mail in the workplace of electronic mail in the workplace can best be resolved by allowing supervisors in public-sector but not private-sector offices to monitor their employees' communications.
2. According to the passage, which one of the following best expresses the reason some people use to oppose the deletion of electronic mail records at government offices?
  - (A) Such deletion reveals the extent of government's unhealthy obsession with secrecy.
  - (B) Such deletion runs counter to the notion of government's accountability to its constituency.
  - (C) Such deletion clearly violates the legal requirement that government offices keep duplicate copies of all their transactions.
  - (D) Such deletion violates the government's own guidelines against destruction of electronic records.
  - (E) Such deletion harms relations between government employees and their supervisors.
3. Which one of the following most accurately states the organization of the passage?
  - (A) A problem is introduced, followed by specific examples illustrating the problem: a possible solution is suggested, followed by an acknowledgment of its shortcomings.
  - (B) A problem is introduced, followed by explications of two possible solutions to the problem: the first solution is preferred to the second, and reasons are given for why it is the better alternative.

- (C) A problem is introduced, followed by analysis of the historical circumstances that helped bring the problem about a possible solution is offered and rejected as being only a partial remedy.
- (D) A problem is introduced, followed by enumeration of various questions that need to be answered before a solution can be found: one possible solution is proposed and argued for.
- (E) A problem is introduced, followed by descriptions of two contrasting approaches to thinking about the problem: the second approach is preferred to the first, and reasons are given for why it is more likely to yield a successful solution.
4. Based on the passage, the author's attitude towards interception of electronic mail can most accurately be described as:
- (A) outright disapproval of the practice
- (B) support for employers who engage in it
- (C) support for employees who lose their jobs because of it
- (D) intellectual interest in its legal issues
- (E) cynicism about the motives behind the practice
5. It can be inferred from the passage that the author would most likely hold which one of the following opinions about an encryption system that could encode and decode electronic mail messages with a single keystroke?
- (A) It would be an unreasonable burden on a company's ability to monitor electronic mail created by its employees.
- (B) It would significantly reduce the difficulty of attempting to safeguard the privacy of electronic mail.
- (C) It would create substantial legal complications for companies trying to prevent employees from revealing trade secrets to competitors.
- (D) It would guarantee only a minimal level of employee privacy, and so would not be worth the cost involved in installing such a system.
- (E) It would require a change in the legal definition of "reasonable expectation of privacy" as it applies to employer-employee relations.
6. Given the information in the passage, which one of the following hypothetical events is LEAST likely to occur?
- (A) A court rules that a government office's practice of deleting its electronic mail is not in the public's best interests.
- (B) A private-sector employer is found liable for wiretapping an office telephone conversation in which two employees exchanged disparaging information about their supervisor.
- (C) A court upholds the right of a government office to destroy both paper and electronic versions of its in-house documents.
- (D) A court upholds a private-sector employer's right to monitor messages sent

between employees over the company's in-house electronic mail system.

- (E) A court rules in favor of a private-sector employee whose supervisor stated that in-house electronic mail would not be monitored but later fired the employee for communicating disparaging information via electronic mail.

7. The author's primary purpose in writing the passage is to

- (A) demonstrate that the individual right to privacy has been eroded by advances in computer technology
- (B) compare the legal status of electronic mail in the public and private sectors
- (C) draw an extended analogy between the privacy of electronic mail and the privacy of telephone conversations or face-to-face meeting
- (D) illustrate the complexities of the privacy issues surrounding electronic mail in the workplace
- (E) explain why the courts have not been able to rule definitively on the issue of the privacy of electronic mail

While a new surge of critical interest in the ancient Greek poems conventionally ascribed to Homer has taken place in the last twenty years or so, it was nonspecialists rather than professional scholars who studied the poetic aspects of the *Iliad* and the *Odyssey* between, roughly, 1935 and 1970. During these years, while such nonacademic intellectuals as Simone Weil and Erich Auerbach were trying to define the qualities that made these epic accounts of the Trojan War and its aftermath great poetry, the questions that occupied the specialists were directed elsewhere: "Did the Trojan War really happen?" "Does the bard preserve Indo-European folk memories?" "How did the poems get written down?" Something was driving scholars away from the actual works to peripheral issues. Scholars produced books about archaeology, about gift-exchange in ancient societies, about the development of oral poetry, about virtually anything except the *Iliad* and the *Odyssey* themselves as unique reflections or distillations of life itself—as, in short, great poetry. The observations of the English poet Alexander Pope seemed as applicable in 1970 as they had been when he wrote them in 1715: according to Pope, the remarks of critics "are rather Philosophical, Historical, Geographic...or rather anything than Critical and Poetical."

Ironically, the modern manifestation of this "nonpoetical" emphasis can be traced to the profoundly influential work of Milman Parry, who attempted to demonstrate in detail how the Homeric poems, believed to have been recorded nearly three thousand years ago, were the products of a long and highly developed tradition of oral poetry about the Trojan War. Parry proposed that this tradition built up its diction and its content by a process of constant accumulation and refinement over many generations of storytellers. But after Parry's death in 1935, his legacy was taken up by scholars who, unlike Parry, forsook intensive analysis of the poetry itself and focused instead on only one element of Parry's work: the creative limitations and possibilities of oral composition, concerning on fixed elements and inflexibilities, focusing on the things that oral poetry allegedly can and cannot do. The dryness of this kind of study drove many of the more inventive scholars away from the poems into the rapidly developing field of Homer's archaeological and historical background.

Appropriately, Milman Parry's son Adam was among those scholars responsible for a



renewed interest in Homer's poetry as literary art. Building on his father's work, the younger Parry argued that the Homeric poems exist both within and against a tradition. The *Iliad* and the *Odyssey* were, Adam Parry thought, the beneficiaries of an inherited store of diction, scenes, and at the same time highly individual works that surpasses these conventions. Adam Parry helped prepare the ground for the recent Homeric revival by affirming his father's belief in a strong inherited tradition, but also by emphasizing Homer's unique contributions within that tradition.

8. Which one of the following best states the main idea of the passage?
- (A) The Homeric poems are most fruitfully studied as records of the time and place in which they were written.
  - (B) The Homeric poems are the products of a highly developed and complicated tradition of oral poetry.
  - (C) The Homeric poems are currently enjoying a resurgence of critical interest after an age of scholarship largely devoted to the poems' nonpoetic elements.
  - (D) The Homeric poems are currently enjoying a resurgence of scholarly interest after an age during which most studies were authored by nonacademic writers.
  - (E) Before Milman Parry published his pioneering work in the early twentieth century, it was difficult to assign a date or an author to the Homeric poems.
9. According to the passage, the work of Simone Weil and Erich Auerbach on Homer was primarily concerned with which one of the following?
- (A) considerations of why criticism of Homer had moved to peripheral issues
  - (B) analyses of the poetry itself in terms of its literary qualities
  - (C) studies in the history and nature of oral poetry
  - (D) analyses of the already ancient epic tradition inherited by Homer
  - (E) critiques of the highly technical analyses of academic critics
10. The passage suggests which one of the following about scholarship on Homer that has appeared since 1970?
- (A) It has dealt extensively with the Homeric poems as literary art.
  - (B) It is more incisive than the work of the Parrys.
  - (C) It has rejected as irrelevant the scholarship produced by specialists between 1935 and 1970.
  - (D) It has ignored the work of Simone Weil and Erich Auerbach.
  - (E) It has attempted to confirm that the *Iliad* and the *Odyssey* were written by Homer.
11. The author of the passage most probably quotes Alexander Pope (lines 24-26) in order to
- (A) indicate that the Homeric poems have generally received poor treatment at the hands of English critics

- (B) prove that poets as well as critics have emphasized elements peripheral to the poems
  - (C) illustrate that the nonpoetical emphasis also existed in an earlier century
  - (D) emphasize the problems inherent in rendering classical Greek poetry into modern English
  - (E) argue that poets and literary critics have seldom agreed the interpretation of poetry
12. According to the passage, which one of the following is true of Milman Parry's immediate successors in the field of Homeric studies?
- (A) They reconciled Homer's poetry with archaeological and historical concerns.
  - (B) They acknowledged the tradition of oral poetry, but focused on the uniqueness of Homer's poetry within the tradition.
  - (C) They occupied themselves with the question of what qualities made for great poetry.
  - (D) They emphasized the boundaries of oral poetry.
  - (E) They called for a revival of Homer's popularity.
13. Which one of the following best describes the organization of the passage?
- (A) A situation is identified and its origins are examined.
  - (B) A series of hypotheses is reviewed and one is advocated.
  - (C) The works of two influential scholars are summarized.
  - (D) Several issues contributing to a currently debate are summarized.
  - (E) Three possible solutions to a long-standing problem are posed.

Even in the midst of its resurgence as a vital tradition, many sociologists have viewed the current form of the powwow, a ceremonial gathering of native Americans, as a sign that tribal culture is in decline. Focusing on the dances and rituals that have recently come to be shared by most tribes, they suggest that an intertribal movement is now in ascension and claim the inevitable outcome of this tendency is the eventual dissolution of tribes and the complete assimilation of native Americans into Euroamerican society. Proponents of this "Pan-Indian" theory point to the greater frequency of travel and communication between reservations, the greater urbanization of native Americans, and, most recently, their increasing politicization in response to common grievances as the chief causes of the shift toward intertribalism.

Indeed, the rapid diffusion of dance styles, outfits, and songs from one reservation to another offers compelling evidence that intertribalism has been increasing. However, these sociologists have failed to note the concurrent revitalization of many traditions unique to individual tribes. Among the Lakota, for instance, the Sun Dance was revived, after a forty-year hiatus, during the 1950s. Similarly, the Black Legging Society of the Kiowa and the Hethuska Society of the Ponca—both traditional groups within their respective tribes—have gained new popularity. Obviously, a more complex societal shift is taking place than the theory of Pan-Indianism can account for.

An examination of the theory's underpinnings may be critical at this point, especially given

that native Americans themselves **chafe** most against the Pan-Indian classification. Like other assimilationist theories with which it is associated, the Pan-Indian view is predicated upon an **a priori** assumption about the nature of cultural contact: that upon contact minority societies immediately begin to **succumb in every respect**—biologically, linguistically, and culturally—to the majority society. However, there is no evidence that this is happening to native American groups.

Yet the fact remains that intertribal activities are a major facet of native American cultural today. Certain dances at powwows, for instance, are announced as intertribal, others as traditional. Likewise, speeches given at the beginnings of powwows are often delivered in English, while the prayer that follows is usually spoken in a native language. Cultural borrowing is, of course, old news. What is important to note is the conscious distinction native Americans make between tribal and intertribal tendencies.

Tribalism, although greatly altered by modern history, remains a potent force among native Americans. It forms a basis for tribal identity, and aligns music and dance with other social and cultural activities important to individual tribes. Intertribal activities, on the other hand, reinforce native American identity along a broader front, where this identity is directly threatened by outside influences.

14. Which one of the following best summarizes the main idea of the passage?
- (A) Despite the fact that sociologists have only recently begun to understand its importance, intertribalism has always been an influential factor in native American culture.
  - (B) Native Americans are currently struggling with an identity crisis caused primarily by the two competing forces of tribalism and intertribalism.
  - (C) The recent growth of intertribalism is unlikely to eliminate tribalism because the two forces do not oppose one another but instead reinforce distinct elements of native American interact with the broader community around them.
  - (D) The tendency toward intertribalism, although prevalent within native American culture, has had a minimal effect on the way native Americans interact with the broader community around them.
  - (E) Despite the recent revival of many native American tribal traditions, the recent trend toward intertribalism is likely to erode cultural differences among the various native American tribes.
15. The author most likely states that “cultural borrowing is of course, old news” (line 47-48) primarily to
- (A) acknowledge that in itself the existence of intertribal tendencies at powwows is unsurprising
  - (B) suggest that native Americans’ use of English in powwows should be accepted as unavoidable
  - (C) argue that the deliberate distinction of intertribal and traditional dances is not a recent development

- (D) suggest that the recent increase in intertribal activity is the result of native Americans borrowing from non-native Americans
- (E) indicate that the powwow itself could have originated by combining practices drawn from both native and non-native American cultures
16. The author of the passage would most likely agree with which one of the following assertions?
- (A) Though some believe the current form of the powwow signals the decline of tribal culture, the powwow contains elements that indicate the continuing strength of tribalism.
- (B) The logical outcome of the recent increase in intertribal activity is the eventual disappearance of tribal culture.
- (C) Native Americans who participate in both tribal and intertribal activities usually base their identities on intertribal rather than tribal affiliations.
- (D) The conclusions of some sociologists about the health of native American cultures show that these sociologists are in fact biased against such cultures.
- (E) Until it is balanced by revitalization of tribal customs, intertribalism will continue to weaken the native American sense of identity.
17. The primary function of the third paragraph is to
- (A) search for evidence to corroborate the basic assumption of the theory of Pan-Indianism
- (B) demonstrate the incorrectness of the theory of Pan-Indianism by pointing out that native American groups themselves disagree with the theory
- (C) explain the origin of the theory of Pan-Indianism by showing how it evolved from other assimilationist theories
- (D) examine several assimilationist theories in order to demonstrate that they rest on a common assumption
- (E) criticize the theory of Pan-Indianism by pointing out that it rests upon an assumption for which there is no supporting evidence
18. Which one of the following most accurately describes the author's attitude towards the theory of Pan-Indianism?
- (A) critical of its tendency to attribute political motives to cultural practices
- (B) discomfort at its negative characterization of cultural borrowing by native Americans
- (C) hopeful about its chance for preserving tribal culture
- (D) offended by its claim that assimilation is a desirable consequence of cultural contact
- (E) skeptical that it is a complete explanation of recent changes in native American society
19. With which one of the following statements would the author of the passage be

most likely to agree? (Intertribal activities, on the other hand, reinforce native American identity along a broader front, where this identity is directly threatened by outside influences.)

- (A) The resurgence of the powwow is a sign that native American customs are beginning to have an important influence on Euroamerican society.
  - (B) Although native Americans draw conscious distinctions between tribal and intertribal activities, there is no difference in how the two types of activity actually function within the context of native American society.
  - (C) Without intertribal activities, it would be more difficult for native Americans to maintain the cultural differences between native American and Euroamerican society.
  - (D) The powwow was recently revived, after an extended hiatus, in order to strengthen native Americans' sense of ethnic identity.
  - (E) The degree of urbanization, intertribal communication, and politicization among native Americans has been exaggerated by proponents of the theory of Pan-Indianism.
20. Which one of the following situations most clearly illustrates the phenomenon of intertribalism, as that phenomenon is described in the passage?
- (A) a native American tribe in which a number of powerful societies attempt to prevent the revival of a traditional dance
  - (B) a native American tribe whose members attempt to learn the native languages of several other tribes
  - (C) a native American tribe whose members attempt to form a political organization in order to redress several grievances important to that tribe
  - (D) a native American tribe in which a significant percentage of the members have forsake their tribal identity and become assimilated into Euroamerican society
  - (E) a native American tribe whose members often travel to other parts of the reservation in order to visit friends and relatives
21. In the passage, the author is primarily concerned with doing which one of the following?
- (A) identifying an assumption common to various assimilationist theories and then criticizing these theories by showing this assumption to be false
  - (B) arguing that the recent revival of a number of tribal practices shows sociologists are mistaken in believing intertribalism to be a potent force among native American societies
  - (C) questioning the belief that native American societies will eventually be assimilated into Euroamerican society by arguing that intertribalism helps strengthen native American identity
  - (D) showing how the recent resurgence of tribal activities is a deliberate attempt to counteract the growing influence of intertribalism

- (E) proposing an explanation of why the ascension of intertribalism could result in the eventual dissolution of tribes and complete assimilation of native American into Euroamerican society

Scientists typically advocate the analytic method of studying complex systems: systems are divided into component parts that are investigated separately. But nineteenth-century critics of this method claimed that when a system's parts are isolated its complexity tends to be lost. To address the perceived weakness of the analytic method these critics put forward a concept called organicism, which posited that the whole determines the nature of its parts and that the parts of a whole are interdependent.

Organicism depended upon the theory of internal relations, which states that relations between entities are possible only within some whole that embraces them, and that entities are altered by the relationships into which they enter. If an entity stands in a relationship with another entity, it has some property as a consequence. Without this relationship, and hence without the property, the entity would be different—and so would be another entity. Thus, the property is one of the entity's defining characteristics. Each of an entity's relationships likewise determines a defining characteristic of the entity.

One problem with the theory of internal relations is that not all properties of an entity are defining characteristics: numerous properties are accompanying characteristics—even if they are always present, their presence does not influence the entity's identity. Thus, even if it is admitted that every relationship into which an entity enters determines some characteristic of the entity, it is not necessarily true that such characteristics will define the entity; it is possible for the entity to enter into a relationship yet remain essentially unchanged.

The ultimate difficulty with the theory of internal relations is that it renders the acquisition of knowledge impossible. To truly know an entity, we must know all of its relationships; but because the entity is related to everything in each whole of which it is a part, these wholes must be known completely before the entity can be known. This seems to be a prerequisite impossible to satisfy.

Organicists' criticism of the analytic method arose from their failure to fully comprehend the method. In rejecting the analytic method, organicists overlooked the fact that before the proponents of the method analyzed the component parts of a system, they first determined both the laws applicable to the whole system and the initial conditions of the system; proponents of the method thus did not study parts of a system in full isolation from the system as a whole. Since organicists failed to recognize this, they never advanced any argument to show that laws and initial conditions of complex systems cannot be discovered. Hence, organicists offered no valid reason for rejecting the analytic method or for adopting organicism as a replacement for it.

22. Which one of the following most completely and accurately summarizes the argument of the passage?
- (A) By calling into question the possibility that complex systems can be studied in their entirety, organicists offered an alternative to the analytic method favored by nineteenth-century scientists.
- (B) Organicists did not offer a useful method of studying complex systems



- because they did not acknowledge that there are relationship into which an entity may enter that do not alter the entity's identity.
- (C) Organicism is flawed because it relies on a theory that both ignores the fact that not all characteristics of entities are defining and ultimately makes the acquisition of knowledge impossible.
- (D) Organicism does not offer a valid challenge to the analytic method both because it relies on faulty theory and because it is based on a misrepresentation of the analytic method.
- (E) In criticizing the analytic method, organicists neglected to disprove that scientists who employ the method are able to discover the laws and initial conditions of the systems they study.
23. According to the passage, organicists' chief objection to the analytic method was that the method
- (A) oversimplified systems by isolating their components
- (B) assumed that a system can be divided into component parts
- (C) ignored the laws applicable to the system as a whole
- (D) claimed that the parts of a system are more important than the system as a whole
- (E) denied the claim that entities enter into relationships
24. The passage offers information to help answer each of the following questions EXCEPT:
- (A) Why does the theory of internal relations appear to make the acquisition of knowledge impossible?
- (B) Why did the organicists propose replacing the analytic method?
- (C) What is the difference between a defining characteristic and an accompanying characteristic?
- (D) What did organicists claim are the effects of an entity entering into a relationship with another entity?
- (E) What are some of the advantages of separating out the parts of a system for study?
25. The passage most strongly supports the ascription of which one of the following views to scientists who use the analytic method?
- (A) A complex system is best understood by studying its component parts in full isolation from the system as a whole.
- (B) The parts of a system should be studied with an awareness of the laws and initial conditions that govern the system.
- (C) It is not possible to determine the laws governing a system until the system's parts are separated from one another.
- (D) Because the parts of a system are interdependent, they cannot be studied

- separately without destroying the system's complexity.
- (E) Studying the parts of a system individually eliminate the need to determine which characteristics of the parts are defining characteristics.
26. Which one of the following is a principle upon which the author bases an argument against the theory of the internal relations?
- (A) An adequate theory of complex systems must define the entities of which the system is composed.
- (B) An acceptable theory cannot have consequences that contradict its basic purpose.
- (C) An adequate method of study of complex systems should reveal the actual complexity of the system it studies.
- (D) An acceptable theory must describe the laws and initial conditions of a complex system.
- (E) An acceptable method of studying complex systems should not study parts of the system in isolation from the system as a whole.

### **LSAT 28 SECTION IV**

**Time 35 minutes 27 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

Opponents of compulsory **national service** claim that such a program is not **in keeping with** the liberal principles upon which Western democracies are founded. This reasoning is reminiscent of the argument that a tax on one's income is undemocratic because it violates one's right to property. Such conceptions of the liberal state fail to take into account the intricate character of the social agreement that undergirds our liberties. It is only in the context of a community that the notion of individual rights has any application; individual rights are meant to define the limits of people's actions with respect to other people. Implicit in such a context is the concept of shared sacrifice. Were no taxes paid, there could be no law enforcement, and the enforcement of law is of benefit to everyone in society. Thus, each of us must bear a share of the burden to ensure that the community is protected.

The responsibility to defend one's nation against outside aggression is surely no less than the responsibility to help pay for law enforcement within the nation. Therefore, the state is certainly within its rights to compel citizens to perform national service when it is needed for the benefit of society.

It might be objected that the cases of taxation and national service are not analogous: While taxation must be coerced, the military is quite able to find recruits without resorting to **conscription**. Furthermore, proponents of national service do not limit its scope to only those duties absolutely necessary to the defense of the nation. Therefore, it may be contended, compulsory national service oversteps the acceptable boundaries of governmental interference

in the lives of its citizens.

By responding thus, the opponent of **national service** has already **allowed** that it is a right of government to demand service when it is needed. But what is the true scope of the term “need”? If it is granted, say, that present tax policies are legitimate intrusions on the right to property, then it must also be granted that need involves more than just what is necessary for a sound national defense. Even the most conservative of politicians admits that tax money is rightly spent on programs that, while not necessary for the survival of the state, are nevertheless of great benefit to society. Can the opponent of national service truly claim that activities of the military such as quelling civil disorders, rebuilding dams and bridges, or assisting the victims of natural disasters—all extraneous to the defense of society against outside aggression—do not provide a similar benefit to the nation? Upon reflection, opponents of national service must concede that such a broadened conception of what is necessary is in keeping with the ideas of shared sacrifice and community benefit that are essential to the functioning of a liberal democratic state.

1. Which one of the following most accurately describes the author’s attitude toward the relationship between citizenship and individual rights in a democracy?
  - (A) confidence that individual rights are citizens’ most important guarantees of personal freedom
  - (B) satisfaction at how individual rights have protected citizens from unwarranted government intrusion
  - (C) alarm that so many citizens use individual rights as an excuse to take advantage of one another
  - (D) concern that individual rights represent citizens’ only defense against government interference
  - (E) dissatisfaction at how some citizens cite individual rights as a way of avoiding certain obligations to their government
2. The author indicates all politicians agree about the
  - (A) legitimacy of funding certain programs that serve the national good
  - (B) use of the military to prevent domestic disorders
  - (C) similarity of conscription and compulsory taxation
  - (D) importance of broadening the definition of necessity
  - (E) compatibility of compulsion with democratic principles
3. Which one of the following most accurately characterizes what the author means by the term “social agreement” (line 8)?
  - (A) an agreement among members of a community that the scope of their individual liberties is limited somewhat by their obligations to one another
  - (B) an agreement among members of a community that they will not act in ways that infringe upon each other’s pursuit of individual liberty
  - (C) an agreement among members of a community that they will petition the government for redress when government actions limit their rights

- (D) an agreement between citizens and their government detailing which government actions do or do not infringe upon citizen's personal freedoms
  - (E) an agreement between citizens and their government stating that the government has right to suspend individual liberties whenever it sees fit
4. According to the author, national service and taxation are analogous in the sense that both
- (A) do not require that citizens be compelled to help bring them about
  - (B) are at odds with the notion of individual rights in a democracy
  - (C) require different degrees of sacrifice from different citizens
  - (D) allow the government to overstep its boundaries and interfere in the lives of citizens
  - (E) serve ends beyond those related to the basic survival of the state
5. Based on the information in the passage, which one of the following would most likely be found objectionable by those who oppose compulsory national service?
- (A) the use of tax revenues to prevent the theft of national secrets by foreign agents
  - (B) the use of tax revenues to fund relief efforts for victims of natural disasters in other nations
  - (C) the use of tax revenues to support the upkeep of the nation's standing army
  - (D) the use of tax revenues to fund programs for the maintenance of domestic dams and bridges
  - (E) the use of tax revenues to aid citizens who are victims of natural disasters

James Porter (1905-1970) was the first scholar to identify the African influence on visual art in the Americans, and much of what is known about the cultural legacy that African-American artists inherited from their African forebears has come to us by way of his work. Porter, a painter and art historian, began by studying African-American crafts of the eighteenth and nineteenth centuries. This research revealed that many of the household items created by African-American men and women—walking sticks, jugs, and textiles—displayed characteristics that linked them iconographically to artifacts of West Africa. Porter then went on to establish clearly the range of the cultural territory inherited by later African-American artists.

An example of this aspect of Porter's research **occurs** in his essay "Robert S. Duncanson, Midwestern Romantic-Realist." The work of Duncanson, a nineteenth-century painter of the Hudson River school, like that of his predecessor in the movement, Joshua Johnston, was commonly thought to have been created by a Euro-American artist. Porter proved definitively that both Duncanson and Johnston were of African ancestry. Porter published this finding and thousands of others in a comprehensive volume tracing the history of African-American art. At the time of its first printing in 1943, only two other books devoted exclusively to the accomplishments of African-American artists existed. Both of these books were written by Alain LeRoy Locke, a professor at the university where Porter also taught. While these earlier studies by Locke are interesting for being the first to survey the field, neither addressed the critical issue of African precursors; Porter's book addressed this issue, painstakingly integrating the

history of African-American art into the larger history of art in the Americas without separating it from those qualities that gave it its unique ties to African artisanship. Porter may have been especially attuned to these ties because of his conscious effort to maintain them in his own paintings, many of which combine the style of the genre portrait with evidence of an extensive knowledge of the cultural history of various African peoples.

In his later years, Porter wrote additional chapters for later editions of his book, constantly revising and correcting his findings, some of which had been based **of necessity** on fragmentary evidence. Among his later achievements were his definitive **reckoning** of the birth year of the painter Patrick Reason, long a point of scholarly uncertainty, and his identification of an unmarked grave in San Francisco as that of the sculptor Edmonia Lewis. At his death, Porter left extensive notes for unfinished project aimed at exploring the influence of African art on the art of the Western world generally, a body of research whose **riches** scholars still have not exhausted.

6. Which one of the following most accurately states the main idea of the passage?
- (A) Because the connections between African-American art and other art in the Americas had been established by earlier scholars, Porter's work focused on showing African-American art's connections to African artisanship.
  - (B) In addition to showing the connections between African-American art and African artisanship, Porter's most important achievement was illustrating the links between African-American art and other art in Americas.
  - (C) Despite the fact that his last book remains unfinished, Porter's work was the first to devote its attention exclusively to the accomplishments of African-American artists.
  - (D) Although showing the connections between African-American art and African artisanship, Porter's work concentrated primarily on placing African-American art in the context of Western art in general.
  - (E) While not the first body of scholarship to treat the subject of African-American art, Porter's work was the first to show the connections between African-American art and African artisanship.
7. The discussion of Locke's books is intended primarily to
- (A) argue that Porter's book depended upon Locke's pioneering scholarship
  - (B) highlight an important way in which Porter's work differed from previous work in his field
  - (C) suggest an explanation for why Porter's book was little known outside academic circles
  - (D) support the claim that Porter was not the first to notice African influences in African-American art
  - (E) argue that Locke's example was a major influence on Porter's decision to publish his findings
8. The passage states which one of the following about the 1943 edition of Porter's book on African-American art?

- (A) It received little scholarly attention at first.
  - (B) It was revised and improved upon in later editions.
  - (C) It took issue with several of Locke's conclusions.
  - (D) It is considered the definitive version of Porter's work.
  - (E) It explored the influence of African art on western art in general.
9. Given the information in the passage, Porter's identification of the ancestry of Duncanson and Johnston provides conclusive evidence for which one of the following statements?
- (A) Some of the characteristics defining the Hudson River school are iconographically linked to West African artisanship.
  - (B) Some of the works of Duncanson and Johnston are not in the style of the Hudson River school.
  - (C) Some of the work of Euro-American painters displays similarities to African-American crafts of the eighteenth and nineteenth centuries.
  - (D) Some of the works of the Hudson River school were done by African-American painters.
  - (E) Some of the works of Duncanson and Johnston were influenced by West African artifacts.
10. Which one of the following can most reasonably be inferred from the passage about the study that Porter left unfinished at his death?
- (A) If completed, it would have contradicted some of the conclusions contained in his earlier book.
  - (B) If completed, it would have amended some of the conclusions contained in his earlier book.
  - (C) If completed, it would have brought up to date the comprehensive history of African-American art begun in his earlier book.
  - (D) If completed, it would have expanded upon the project of his earlier book by broadening the scope of inquiry found in the earlier book.
  - (E) If completed, it would have supported some of the theories put forth by Porter's contemporaries since the publication of his earlier book.
11. Which of the following hypothetical observations is most closely analogous to the discoveries Porter made about African-American crafts of the eighteenth and nineteenth centuries?
- (A) Contemporary Haitian social customs have a unique character dependent on but different from both their African and French origins.
  - (B) Popular music in the United States, some of which is based on African musical traditions, often influences music being composed on the African continent.
  - (C) Many novels written in Canada by Chinese immigrants exhibit narrative



themes very similar to those found in Chinese folktales.

- (D) Extensive Indian immigration to England has made traditional Indian foods nearly as popular there as the traditional English foods that had been popular there before Indian immigration.
  - (E) Some Mexican muralists of the early twentieth century consciously imitated the art of native peoples as a response to the Spanish influences that had predominated in Mexican art.
12. The passage most strongly supports which one of the following inferences about Porter's own paintings?
- (A) They often contained figures or images derived from the work of African artisans.
  - (B) They fueled his interest in pursuing a career in art history.
  - (C) They were used in Porter's book to show the extent of African influence on African-American art.
  - (D) They were a deliberate attempt to prove his theories about art history.
  - (E) They were done after all of his academic work had been completed.
13. Based on the passage, which one of the following, if true, would have been most relevant to the project Porter was working on at the time of his death?
- (A) African-American crafts of the eighteenth and nineteenth centuries have certain resemblances to European folk crafts of earlier periods.
  - (B) The paintings of some twentieth-century European artists prefigured certain stylistic developments in North African graphic art.
  - (C) The designs of many of the quilts made by African-American women in the nineteenth century reflect designs of European trade goods.
  - (D) After the movement of large numbers of African-Americans to cities, the African influences in the work of many African-American painters increased.
  - (E) Several portraits by certain twentieth-century European painters were modeled after examples of Central African ceremonial masks.

Between June 1987 and May 1988, the bodies of at least 740 **bottlenose** dolphins out of a total coastal population of 3,000 to 5,000 **washed** ashore on the Atlantic coast of the United States. Since some of the dead animals never washed ashore, the overall disaster was presumably worse; perhaps 50 percent of the population died. A dolphin **die-off** of this character and magnitude had never before been observed; furthermore, the dolphins exhibited a startling range of symptoms. The research team that examined the die-off noted the presence of both skin lesions and internal lesions in the liver, lung, pancreas and heart, which suggested a massive **opportunistic** bacterial infection of already weakened animals.

Tissues from the **stricken** dolphins were analyzed for a variety of toxins. Brevetoxin, a toxin produced by the blooming of the alga *Ptychodiscus brevis*, was present in eight out of seventeen dolphins tested. Tests for synthetic pollutants revealed that polychlorinated

biphenyls (PCBs) were present in almost all animals tested.

The research team concluded that brevetoxin poisoning was the most likely cause of the illnesses that killed the dolphins. Although *P. brevis* is ordinarily not found along the Atlantic coast, an unusual bloom of this organism—such blooms are called “red tides” because of the reddish color imparted by the blooming algae—did occur in the middle of the affected coastline in October 1987. These researchers believe the toxin accumulated in the tissue of fish and then was ingested by dolphins that preyed on them. The emaciated appearance of many dolphins indicated that they were metabolizing their blubber reserves, thereby reducing their buoyancy and insulation (and adding to overall stress) as well as releasing stores of previously accumulated synthetic pollutants, such as PCBs, which further exacerbated their condition. The combined impact made the dolphins vulnerable to opportunistic bacterial infection, the ultimate cause of death.

For several reasons, however, this explanation is not entirely plausible. First, bottlenose dolphins and *P. brevis* red tides are both common in the Gulf of Mexico, yet no dolphin die-off of a similar magnitude has been noted there. Second, dolphins began dying in June, hundreds of miles north of and some months earlier than the October red tide bloom. Finally, the specific effects of brevetoxin on dolphins are unknown, whereas PCB poisoning is known to impair functioning of the immune system and liver and to cause skin lesions; all of these problems are observed in the diseased animals. An alternative hypothesis, which accounts for these facts, is that a sudden influx of pollutants, perhaps from offshore dumping, triggered a cascade of disorders in animals whose systems were already heavily laden with pollutants. Although brevetoxin may have been a contributing factor, the event that actually precipitated the die-off was a sharp increase in the dolphins’ exposure to synthetic pollutants.

14. The passage is primarily concerned with assessing
- (A) the effects of a devastating bacterial infection in Atlantic coast bottlenose dolphins
  - (B) the progress by which illnesses in Atlantic coast bottlenose dolphins were correctly diagnosed
  - (C) the weaknesses in the research methodology used to explore the dolphin die-off
  - (D) possible alternative explanations for the massive dolphin die-off
  - (E) relative effects of various marine pollutants on dolphin mortality
15. Which one of the following is mentioned in the passage as evidence for the explanation of the dolphin die-off offered in the final paragraph?
- (A) the release of stored brevetoxins from the dolphins’ blubber reserves
  - (B) the date on which offshore dumping was known to have occurred nearby
  - (C) the presence of dumping sites for PCBs in the area
  - (D) the synthetic pollutants that were present in the fish eaten by the dolphins
  - (E) the effects of PCBs on liver function in dolphins
16. Which one of the following is most analogous to the approach taken by author of

- the passage with regard to the research described in the third paragraph?
- (A) A physics teacher accepts the data from a student's experiment but questions the student's conclusions.
  - (B) An astronomer provides additional observations to support another astronomer's theory.
  - (C) A cook revises a traditional recipe by substituting modern ingredients for those used in the original.
  - (D) A doctor prescribes medication for a patient whose illness was misdiagnosed by another doctor.
  - (E) A microbiologist sets out to replicate the experiment that yielded a classic theory of cell structure.
17. Which one of the following most accurately describes the organization of the last paragraph?
- (A) One explanation is criticized and different explanation is proposed.
  - (B) An argument is advanced and then refuted by means of an opposing argument.
  - (C) Objections against a hypothesis are advanced, the hypothesis is explained more fully, and then the objections are rejected.
  - (D) New evidence in favor of a theory is described, and then the theory is reaffirmed.
  - (E) Discrepancies between two explanations are noted, and a third explanation is proposed.
18. It can be inferred from the passage that the author would most probably agree with which one of the following statements about brevetoxin?
- (A) It may have been responsible for the dolphins' skin lesions but could not have contributed to the bacterial infection.
  - (B) It forms more easily when both *P. brevis* and synthetic pollutants are present in the environment simultaneously.
  - (C) It damages liver function and immune system responses in bottlenose dolphins but may not have triggered this particular dolphin die-off.
  - (D) It is unlikely to be among the factors that contributed to the dolphin die-off.
  - (E) It is unlikely to have caused the die-off because it was not present in the dolphins' environment when the die-off began.
19. The explanation for the dolphin die-off given by the research team most strongly supports which one of the following?
- (A) The biological mechanism by which brevetoxin affects dolphins is probably different from that by which it affects other marine animals.
  - (B) When *P. brevis* blooms in an area where it does not usually exist, it is more toxic than it is in its usual habitat.

- (C) Opportunistic bacterial infection is usually associated with brevetoxin poisoning in bottlenose dolphins.
  - (D) The dolphins' emaciated state was probably a symptom of PCB poisoning rather than of brevetoxin poisoning.
  - (E) When a dolphin metabolizes its blubber, the PCBs released may be more dangerous to the dolphin than they were when stored in the blubber.
20. The author refers to dolphins in the Gulf of Mexico in the last paragraph in order to
- (A) refute the assertion that dolphins tend not to inhabit areas where *P. brevis* is common
  - (B) compare the effects of synthetic pollutants on these dolphins and on Atlantic coast dolphins
  - (C) cast doubt on the belief that *P. brevis* contributes substantially to dolphin die-offs
  - (D) illustrate the fact that dolphins in relatively pollution-free waters are healthier than dolphins in polluted waters
  - (E) provide evidence for the argument that *P. brevis* was probably responsible for the dolphins' deaths
21. Which one of the following factors is explicitly cited as contributing to the dolphins' deaths in both theories discussed in the passage?
- (A) the dolphins' diet
  - (B) the presence of *P. brevis* in the Gulf of Mexico
  - (C) the wide variety of toxins released by the red tide bloom of October 1987
  - (D) the presence of synthetic pollutants in the dolphins' bodies
  - (E) the bacterial infection caused by a generalized failure of the dolphins' immune systems

In England before 1660, a husband controlled his wife's property. In the late seventeenth and eighteenth centuries, with the shift from land-based to commercial wealth, marriage began to incorporate certain features of a contract. Historians have traditionally argued that this trend represented a gain for women, one that reflects changing views about democracy and property following the English Restoration in 1660. Susan Staves contests this view; she argues that whatever gains marriage contracts may briefly have represented for women were undermined by judicial decisions about women's contractual rights.

Sifting (to go through especially to sort out what is useful or valuable "sifted the evidence" often used with through "sift through a pile of old letters") through the tangled details of court cases, Staves demonstrates that, despite surface changes, a rhetoric of equality, and occasional decisions supporting women's financial power, definitions of men's and women's property remained inconsistent—generally to women's detriment. For example, dower lands (property inherited by wives after their husbands' deaths) could not be sold, but "curtesy" property (inherited by husbands from their wives) could be sold. Furthermore, comparatively

new concepts that developed in conjunction with the marriage contract, such as **jointure**, **pin money** (pin money: money given by a man to his wife for her own use), and **separate maintenance**, were compromised by peculiar rules. For instance, if a woman spent her pin money (money paid by the husband according to the marriage contract for wife's personal items) on possessions other than clothes she could not sell them; **in effect** they belonged to her husband. In addition, a wife could sue for pin money only up to a year **in arrears**—which rendered a suit impractical. Similarly, separate maintenance allowances (stated sums of money for the wife's support if husband and wife agreed to live apart) were complicated by the fact that if a couple tried to agree in a marriage contract on an amount, they were admitting that a supposedly indissoluble bond could be dissolved, an assumption courts could not recognize. Eighteenth-century historians underplayed these inconsistencies, calling them "little contraries" that would soon vanish. Staves shows, however, that as judges gained power over decisions on marriage contracts, they tended to **fall back on** pre-1660 assumptions about property.

Staves' work on women's property has general implications for other studies about women in eighteenth-century England. Staves revised her previous claim that separate maintenance allowances proved the weakening of patriarchy; she now finds that an oversimplification. She also challenges the contention by historians Jeanne and Lawrence Stone that in the late eighteenth century wealthy men married widows less often than before because couples began marrying for love rather than for financial reasons. Staves does not completely undermine their contention, but she does counter their assumption that widows had more money than never-married women. She points out that jointure property (a widow's lifetime use of an amount of money specified in the marriage contract) was often lost on remarriage.

22. Which one of the following best expresses the main idea of the passage?
- (A) As notions of property and democracy changed in late seventeenth-and eighteenth-century England, marriage settlements began to incorporate contractual features designed to protect women's property rights.
  - (B) Traditional historians have incorrectly identified the contractual features that were incorporated into marriage contracts in late seventeenth-and eighteenth-century England.
  - (C) The incorporation of contractual features into marriage settlements in late seventeen-and eighteenth-century England did not represent a significant gain of women.
  - (D) An examination of late seventeenth-and eighteenth-century English court cases indicates that most marriage settlements did not incorporate contractual features designed to protect women's property rights.
  - (E) Before marriage settlements incorporated contractual features protecting women's property rights, women were unable to gain any financial power in England.
23. Which one of the following best describes the function of the last paragraph in the context of the passage as a whole?
- (A) It suggests that Staves' recent work has caused significant revision of theories

- about the rights of women in eighteenth-century England.
- (B) It discusses research that may qualify Staves' work on women's property in eighteenth-century England.
- (C) It provides further support for Staves' argument by describing more recent research on women's property in eighteenth-century England.
- (D) It asserts that Staves' recent work has provided support for two other hypotheses developed by historians of eighteenth-century England.
- (E) It suggests the implications Staves' recent research has for other theories about women in eighteenth-century England.
24. The primary purpose of the passage to
- (A) compare two explanations for the same phenomenon
- (B) summarize research that refutes an argument
- (C) resolve a long-standing controversy
- (D) suggest that a recent hypothesis should be reevaluated
- (E) provide support for a traditional theory
25. According to the passage, Staves' research has which one of the following effects on the Stones' contention about marriage in late eighteenth-century England?
- (A) Staves' research undermines one of the Stones' assumptions but does not effectively invalidate their contention.
- (B) Staves' research refutes that the Stones' contention by providing additional data overlooked by the Stones.
- (C) Staves' research shows that the Stones' contention cannot be correct, and that a number of their assumptions are mistaken.
- (D) Staves' research indicates that the Stones' contention is incorrect because it is based on contradictory data.
- (E) Staves' research qualifies the Stones' contention by indicating that it is based on accurate out incomplete data.
26. According to the passage, Staves indicates that which one of the following was true of judicial decisions on contractual rights?
- (A) Judges frequently misunderstood and misapplied laws regarding married women's property.
- (B) Judges were aware of inconsistencies in laws concerning women's contractual rights but claimed that such inconsistencies would soon vanish.
- (C) Judges' decisions about marriage contracts tended to reflect assumptions about property that had been common before 1660.
- (D) Judges had little influence on the development and application of laws concerning married women's property.
- (E) Judges recognized the patriarchal assumptions underlying laws concerning married women's property and tried to interpret the laws in ways that would



protect women.

27. The passage suggests that the historians mentioned in line 5 would be most likely to agree with which one of the following statements?
- (A) The shift from land-based to commercial wealth changed views about property but did not significantly benefit married women until the late eighteenth century.
  - (B) Despite initial judicial resistance to women's contractual rights, marriage contracts represented a significant gain for married women.
  - (C) Although marriage contracts incorporated a series of surface changes and a rhetoric of equality, they did not ultimately benefit married women.
  - (D) Changing views about property and democracy in post-Restoration England had an effect on property laws that was beneficial to women.
  - (E) Although contractual rights protecting women's property represented a small gain for married women, most laws continued to be more beneficial for men than for women.

### **LSAT 2002 SECTION III**

**Time 35 minutes 26 Questions**

*Directions: Each passage in this section is followed by a group of questions to be answered on the basis of what is stated or implied in the passage. For some of the questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer, that is, the response that most accurately and completely answers the question, and blacken the corresponding space on your answer sheet.*

The myth persists that in 1492 the Western Hemisphere was an untamed wilderness and that it was European settlers who harnessed and transformed its ecosystems. But scholarship shows that forests, in particular, had been altered to varying degrees well before the arrival of Europeans. Native populations had converted much of the forests to successfully cultivated stands, especially by means of burning. Nevertheless, some researchers have maintained that the extent, frequency, and impact of such burning was minimal. One geographer claims that climatic change could have accounted for some of the changes in forest composition; another argues that burning by native populations was done only sporadically, to augment the effects of natural fires.

However, a large body of evidence for the routine practice of burning exists in the geographical record. One group of researchers found, for example, that sedimentary charcoal accumulations in what is now the northeastern United States are greatest where known native American settlements were greatest. Other evidence shows that, while the characteristics and impact of fires set by native populations varied regionally according to population size, extent of resource management techniques, and environment, all such fires had markedly different effects on vegetation pattern than did natural fires. Controlled burning created grassy openings such as meadows and glades. Burning also promoted a mosaic quality to North and South American ecosystems, creating forests in many different stages of ecological development. Much of the mature forestland was characterized by open herbaceous undergrowth, another

result of the clearing brought about by burning.

In North America, controlled burning created conditions favorable to berries and other fire-tolerant and sun-loving foods. Burning also converted mixed stands of trees to homogeneous forest, for example the longleaf, slash pine, and scrub oak forests of the southeastern U.S. natural fires do account for some of this vegetation, but regular burning clearly extended and maintained it. Burning also influenced forest composition in the tropics, where natural fires are rare. An example is the pine-dominant forests of Nicaragua, where warm temperatures and heavy rainfall naturally favor mixed tropical or rain forests. While there are primarily grown in cooler, drier, higher elevations, regions where such vegetation is in large part natural and even prehuman. Today, the Nicaraguan pines occur where there has been clearing followed by regular burning, and the same is likely to have occurred in the past: such forests were present when Europeans arrived and were found only in areas where native settlements were substantial; when these settlements were abandoned, the land returned to mixed hardwoods. This succession is also evident elsewhere in similar low tropical elevations in the Caribbean and Mexico.

1. Which one of the following most accurately expresses the main idea of the passage?
  - (A) Despite extensive evidence that native populations had been burning North and South American forests extensively before 1492, some scholars persist in claiming that such burning was either infrequent or the result of natural causes.
  - (B) In opposition to the widespread belief that in 1492 the Western hemisphere was uncultivated, scholars unanimously agree that native populations were substantially altering North and South American forests well before the arrival of Europeans.
  - (C) Although some scholars minimize the scope and importance of the burning of forests engaged in by native populations of North and South America before 1492, evidence of the frequency and impact of such burning is actually quite extensive.
  - (D) Where scholars had once believed that North and South American forests remained uncultivated until the arrival of Europeans, there is now general agreement that native populations had been cultivating the forests since well before 1492.
  - (E) While scholars have acknowledged that North and South American forests were being burned well before 1492, there is still disagreement over whether such burning was the result of natural causes or of the deliberate actions of native populations.
2. It can be inferred that a forest burned as described in the passage would have been LEAST likely to display
  - (A) numerous types of hardwood trees
  - (B) extensive herbaceous undergrowth

- (C) a variety of fire-tolerant plants
  - (D) various stages of ecological maturity
  - (E) grassy opening such as meadows or glades
3. Which one of the following is a type of forest identified by the author as a product of controlled burning in recent times?
- (A) scrub oak forests in the southeastern U.S.
  - (B) slash pine forests in the southeastern U.S.
  - (C) pine forests in Guatemala at high elevations
  - (D) pine forests in Mexico at high elevations
  - (E) pine forests in Nicaragua at low elevations
4. Which one of the following is presented by the author as evidence of controlled burning in the tropics before the arrival of Europeans?
- (A) extensive homogeneous forests at high elevation
  - (B) extensive homogeneous forests at low elevation
  - (C) extensive heterogeneous forests at high elevation
  - (D) extensive heterogeneous forests at low elevation
  - (E) extensive sedimentary charcoal accumulations at high elevation
5. With which one of the following would the author be most likely to agree?
- (A) The long-term effects of controlled burning could just as easily have been caused by natural fires.
  - (B) Herbaceous undergrowth prevents many forests from reaching full maturity.
  - (C) European settlers had little impact on the composition of the ecosystems in North and South America.
  - (D) Certain species of plants may not have been as widespread in North American without controlled burning.
  - (E) Nicaraguan pine forests could have been created either by natural fires or by controlled burning.
6. As evidence from the routine practice of forest burning by native populations before the arrival of Europeans, the author cites all of the following EXCEPT:
- (A) The similar characteristics of fires in different regions.
  - (B) The simultaneous presence of forests at varying stages of maturity
  - (C) The existence of herbaceous undergrowth in certain forests
  - (D) The heavy accumulation of charcoal near populous settlements
  - (E) The presence of meadows and glades in certain forests.
7. The “succession” mentioned in line 57 refers to
- (A) forest clearing followed by controlled burning of forests
  - (B) tropical rain forest followed by pine forest

- (C) European settlement followed by abandonment of land
  - (D) homogeneous pine forest followed by mixed hardwoods
  - (E) correct the geographical record
8. The primary purpose of the passage is to
- (A) refute certain researchers' view
  - (B) support a common belief
  - (C) counter certain evidence
  - (D) synthesize two viewpoints
  - (E) correct the geographical record

Intellectual authority is defined as the authority of arguments that prevail by virtue of good reasoning and do not depend on coercion or convention. A contrasting notion, institutional authority, refers to the power of social institutions to enforce acceptance of arguments that may or may not possess intellectual authority. The authority wielded by legal systems is especially interesting because such systems are institutions that nonetheless aspire to a purely intellectual authority. One judge goes so far as to claim that courts are merely passive vehicles for applying the intellectual authority of the law and possess no coercive powers of their own.

In contrast, some critics maintain that whatever authority judicial pronouncements have is exclusively institutional. Some of these critics go further, claiming that intellectual authority does not really exist—i.e., it reduces to institutional authority. But it can be countered that these claims break down when a sufficiently broad historical perspective is taken: Not all arguments accepted by institutions withstand the test of time, and some well-reasoned arguments never receive institutional imprimatur. The reasonable argument that goes unrecognized in its own time because it challenges institutional beliefs is common in intellectual history; intellectual authority and institutional consensus are not the same thing.

But the critics might respond, intellectual authority is only recognized as such because of institutional consensus. For example, if a musicologist were to claim that an alleged musical genius who, after several decades, had not gained respect and recognition for his or her compositions is probably not a genius, the critics might say that basing a judgment on a unit of time—"several decades"—is an institutional rather than an intellectual construct. What, the critics might ask, makes a particular number of decades reasonable evidence by which to judge genius? The answer, of course, is nothing, except for the fact that such institutional procedures have proved useful to musicologists in making such distinctions in the past.

The analogous legal concept is the doctrine of precedent, i.e., a judge's merely deciding a case a certain way becoming a basis for deciding later cases the same way—a pure example of institutional authority. But eh critics miss the crucial distinction that when a judicial decision is badly reasoned, or simply no longer applies in the face of evolving social standards or practices, the notion of intellectual authority is introduced: judges reconsider, revise, or in some cases throw out in the reconsideration of decisions, leading one to draw the conclusion that legal systems contain a significant degree of intellectual authority even if the thrust of their power is predominantly institutional.

9. Which one of the following most accurately states the main idea of the passage?

- (A) Although some argue that the authority of legal systems is purely intellectual, these systems possess a degree of institutional authority due to their ability to enforce acceptance of badly reasoned or socially inappropriate judicial decisions.
- (B) Although some argue that the authority of legal systems is purely institutional, these systems are more correctly seen as vehicles for applying the intellectual authority of the law while possessing no coercive power of their own.
- (C) Although some argue that the authority of legal systems is purely intellectual, these systems in fact wield institutional authority by virtue of the fact that intellectual authority reduces to institutional authority.
- (D) Although some argue that the authority of legal systems is purely institutional, these systems possess a degree of intellectual authority due to their ability to reconsider badly reasoned or socially inappropriate judicial decisions.
- (E) Although some argue that the authority of legal systems is purely intellectual, these systems in fact wield exclusively institutional authority in that they possess the power to enforce acceptance of badly reasoned or socially inappropriate judicial decisions.
10. That some arguments “never receive institutional imprimatur” (line 22-23) most likely means that these arguments
- (A) fail to gain institutional consensus
- (B) fail to challenge institutional beliefs
- (C) fail to conform to the example of precedent
- (D) fail to convince by virtue of good reasoning
- (E) fail to gain acceptance except by coercion
11. Which one of the following, if true, most challenges the author’s contention that legal systems contain a significant degree of intellectual authority?
- (A) Judges often act under time constraints and occasionally render a badly reasoned or socially inappropriate decision.
- (B) In some legal systems, the percentage of judicial decisions that contain faulty reasoning is far higher than it is in other legal systems.
- (C) Many socially inappropriate legal decisions are thrown out by judges only after citizens begin to voice opposition to them.
- (D) In some legal systems, the percentage of judicial decisions that are reconsidered and revised is far higher than it is in other legal systems.
- (E) Judges are rarely willing to rectify the examples of faulty reasoning they discover when reviewing previous legal decisions.
12. Given the information in the passage, the author is LEAST likely to believe which one of the following?
- (A) Institutional authority may depend on coercion; intellectual authority never

does.

- (B) Intellectual authority may accept well-reasoned arguments; institutional authority never does.
  - (C) Institutional authority may depend on convention; intellectual authority never does.
  - (D) Intellectual authority sometimes challenges institutional beliefs; institutional authority never does.
  - (E) Intellectual authority sometimes conflicts with precedent; institutional authority never does.
13. The author discusses the example from musicology primarily in order to
- (A) distinguish the nothing of institutional authority from that of intellectual authority
  - (B) given an example of an argument possessing intellectual authority that did not prevail in its own time
  - (C) identify an example in which the ascription of musical genius did not withstand the test of time
  - (D) illustrate the claim that assessing intellectual authority requires an appeal to institutional authority
  - (E) demonstrate that the authority wielded by the arbiters of musical genius is entirely institutional
14. Based on the passage, the author would be most likely to hold which one of the following views about the doctrine of precedent?
- (A) it is the only tool judges should use if they wish to achieve a purely intellectual authority.
  - (B) It is a useful tool in theory but in practice it invariably conflicts with the demands of intellectual authority.
  - (C) It is a useful tool but lacks intellectual authority unless it is combined with the reconsidering of decisions.
  - (D) It is often an unreliable tool because it prevents judges from reconsidering the intellectual authority of past decisions.
  - (E) It is an unreliable tool that should be abandoned because it lacks intellectual authority.

In explaining the foundations of the discipline known as historical sociology—the examination of history using the methods of sociology—historical sociologist Philip Abrams argues that, while people are made by society as much as society is made by people, sociologists' approach to the subject is usually to focus on only one of these forms of influence to the exclusion of the other. Abrams insists on the necessity for sociologists to move beyond these one-sided approaches to understand society as an entity constructed by individuals who are at the same time constructed by their society. Abrams refers to this continuous process as "structuring".



Abrams also sees history as the result of structuring. People, both individually and as members of collectives, make history. But our making of history is itself formed and informed not only by the historical conditions we inherit from the past, but also by the prior formation of our own identities and capacities, which are shaped by what Abrams calls “contingencies”—social phenomena over which we have varying degrees of control. Contingencies include such things as the social conditions under which we come of age, the condition of our household’s economy, the ideologies available to help us make sense of our situation, and accidental circumstances. The ways in which contingencies affect our individual or group identities create a structure of forces within which we are able to act, and that partially determines the sorts of actions we are able to perform.

In Abrams analysis, historical structuring, like social structuring, is manifold and unrelenting. To understand it, historical sociologists must extract from it certain significant episodes, or events, that their methodology can then analyze and interpret. According to Abrams, these events are points at which action and contingency meet, points that represent a cross section of the specific social and individual forces in play at a given time. At such moments, individuals stand forth as agents of history not simply because they possess a unique ability to act, but also because in them we see the force of the specific social conditions that allowed their actions to come forth. Individuals can “make their mark” on history, yet in individuals one also finds the convergence of wider social forces. In order to capture the various facets of this mutual interaction, Abrams recommends a fourfold structure to which he believes the investigations of historical sociologists should conform: first, description of the event itself; second, discussion of the social context that helped bring the event about and gave it significance; third, summary of the life history of the individual agent in the event; and fourth, analysis of the consequences of the event both for history and for the individual.

15. Which one of the following most accurately states the central idea of the passage?
- (A) Abrams argues that historical sociology rejects the claims of sociologists who assert that the sociological concept of structuring cannot be applied to the interactions between individuals and history.
  - (B) Abrams argues that historical sociology assumes that, despite the views of sociologists to the contrary, history influences the social contingencies that affect individuals.
  - (C) Abrams argues that historical sociology demonstrates that, despite the views of sociologists to the contrary, social structures both influence and are influenced by the events of history.
  - (D) Abrams describes historical sociology as a discipline that unites two approaches taken by sociologists to studying the formation of societies and applies the resulting combined approach to the study of history.
  - (E) Abrams describes historical society as an attempt to compensate for the shortcoming of traditional historical methods by applying the methods established in sociology.
16. Given the passage’s argument, which one of the following sentences most logically completes the last paragraph?

- (A) Only if they adhere to this structure, Abrams believes, can historical sociologists conclude with any certainty that the events that constitute the historical record are influenced by the actions of individuals
  - (B) Only if they adhere to this structure, Abrams believes, will historical sociologists be able to counter the standard sociological assumption that there is very little connection between history and individual agency.
  - (C) Unless they can agree to adhere to this structure, Abrams believes, historical sociologists risk having their discipline treated as little more than an interesting but ultimately indefensible adjunct to history and sociology.
  - (D) By adhering to this structure, Abrams believes, historical sociologists can shed light on issues that traditional sociologists have chosen to ignore in their one-sided approaches to the formation of societies.
  - (E) By adhering to this structure, Abrams believes, historical sociologists will be able to better portray the complex connections between human agency and history.
17. The passage states that a contingency could be each of the following EXCEPT:
- (A) a social phenomenon
  - (B) a form of historical structuring
  - (C) an accidental circumstance
  - (D) a condition controllable to some extent by an individual
  - (E) a partial determinant of an individual's actions
18. Which one of the following is most analogous to the ideal work of a historical sociologist as outlined by Abrams?
- (A) In a report on the enactment of a bill into law, a journalist explains why the need for the bill arose, sketches the biography of the principal legislator who wrote the bill, and ponders the effect that the bill's enactment will have both on society and on the legislator's career.
  - (B) In a consultation with a patient, a doctor reviews the patient's medical history, suggests possible reasons for the patient's current condition, and recommends steps that the patient should take in the future to ensure that the condition improves or at least does not get any worse.
  - (C) In an analysis of a historical novel, a critic provides information to support the claim that details of the work's setting are accurate, explains why the subject of the novel was of particular interest to the author, and compares the novel with some of the author's other books set in the same period.
  - (D) In a presentation to stockholders, a corporation's chief executive officer describes the corporations' most profitable activities during the past year, introduces the vice president largely responsible for those activities, and discusses new projects the vice president will initiate in the coming year.
  - (E) In developing a film based on a historical event, a filmmaker conducts interviews with participants in the event, bases part of the film's screenplay

on the interviews, and concludes the screenplay with a sequence of scenes speculating on the outcome of the event had certain details been different.

19. The primary function of the first paragraph of the passage is to
- (A) outline the merits of Abram's conception of historical sociology
  - (B) convey the details of Abrams's conception of historical sociology
  - (C) anticipate challenges to Abrams's conception of historical sociology
  - (D) examine the roles of key terms used in Abrams's conception of historical sociology
  - (E) identify the basis of Abrams's conception of historical sociology
20. Based on the passage, which one of the following is the LEAST illustrative example of the effect of a contingency upon an individual?
- (A) the effect of the fact that a person experienced political injustice on that person's decision to work for political reform
  - (B) the effect of the fact that a person was raised in an agricultural region on that person's decision to pursue a career in agriculture
  - (C) the effect of the fact that a person lives in a particular community on that person's decision to visit friends in another community
  - (D) the effect of the fact that a person's parents practiced a particular religion on that person's decision to practice that religion
  - (E) the effect of the fact that a person grew up in financial hardship on that person's decision to help others in financial hardship

One of the greatest challenges facing medical students today, apart from absorbing volumes of technical information and learning habits of scientific thought, is that of remaining empathetic to the needs of patients in the face of all this rigorous training. Requiring students to immerse themselves completely in medical coursework risks disconnecting them from the personal and ethical aspects of doctoring, and such strictly scientific thinking is insufficient for grappling with modern ethical dilemmas. For these reasons, aspiring physicians need to develop new ways of thinking about and interacting with patients. Training in ethics that takes narrative literature as its primary subject is one method of accomplishing this.

Although training in ethics is currently provided by medical schools, this training relies heavily on an abstract, philosophical view of ethics. Although the conceptual clarity provided by a traditional ethics course can be valuable, theorizing about ethics contributes little to the understanding of everyday human experience or to preparing medical students for the multifarious ethical dilemmas they will face as physicians. A true foundation in ethics must be predicated on an understanding of human behavior that reflects a wide array of relationships and readily adapts to various perspectives, for this is what is required to develop empathy. Ethics courses drawing on narrative literature can better help students prepare for ethical dilemmas precisely because such literature attaches its readers so forcefully to the concrete and varied world of human events.

The act of reading narrative literature is uniquely suited to the development of what might be called flexible ethical thinking. To grasp the development of character, to tangle with

heightening moral crises, and to engage oneself with the story not as one's own but nevertheless as something recognizable and worthy of attention, readers must use their moral imagination. Giving oneself over to the ethical conflicts in a story requires the abandonment of strictly absolute, inviolate sets of moral principles. Reading literature also demands that the reader adopt another person's point of view—that of the narrator or a character in a story—and thus requires the ability to depart from one's personal ethical stance and examine moral issues from new perspectives.

It does not follow that readers, including medical professionals, must relinquish all moral principles, as is the case with situational ethics, in which decisions about ethical choices are made on the basis of intuition and are entirely relative to the circumstances in which they arise. Such an extremely relativistic stance would have as little benefit for the patient or physician as would a dogmatically absolutist one. Fortunately, the incorporation of narrative literature into the study of ethics, while serving as a corrective to the latter stance, need not lead to the former. But it can give us something that is lacking in the traditional philosophical study of ethics—namely, a deeper understanding of human nature that can serve as a foundation for ethical reasoning and allow greater flexibility in the application of moral principles.

21. Which one of the following most accurately states the main point of the passage?
- (A) Training in ethics that incorporates narrative literature would better cultivate flexible ethical thinking and increase medical students' capacity for empathetic patient care as compared with the traditional approach of medical schools to such training.
  - (B) Traditional abstract ethical training, because it is too heavily focused on theoretical reasoning, tends to decrease or impair that medical student's sensitivity to modern ethical dilemmas.
  - (C) Only a properly designed curriculum that balances situational, abstract, and narrative approaches to ethics will adequately prepare the medical student for complex ethical confrontations involving actual patients.
  - (D) Narrative-based instruction in ethics is becoming increasingly popular in medical schools because it requires students to develop a capacity for empathy by examining complex moral issues from a variety of perspectives.
  - (E) The study of narrative literature in medical schools would nurture moral intuition, enabling the future doctor to make ethical decisions without appeal to general principles.
22. Which one of the following most accurately represents the author's use of the term "moral imagination" in line 38?
- (A) a sense of curiosity, aroused by reading, that leads one to follow actively the development of problems involving the characters depicted in narratives.
  - (B) A faculty of seeking out and recognizing the ethical controversies involved in human relationships and identifying oneself with one side or another in such controversies
  - (C) A capacity to understand the complexities of various ethical dilemmas and to

- fashion creative and innovative solutions to them
- (D) An ability to understand personal aspects of ethically significant situations even if one is not a direct participant and to empathize with those involved in them.
- (E) An ability to act upon ethical principles different from one's own for the sake of variety.
23. It can be inferred from the passage that the author would most likely agree with which one of the following statements?
- (A) The heavy load of technical coursework in today's medical schools often keeps them from giving adequate emphasis to courses in medical ethics.
- (B) Students learn more about ethics through the use of fiction than through the use of non-fictional readings.
- (C) The traditional method of ethical training in medical schools should be supplemented or replaced by more direct practical experience with real-life patients in ethically difficult situations.
- (D) The failing of an abstract, philosophical training in ethics can be remedied only by replacing it with a purely narrative-based approach.
- (E) Neither scientific training nor traditional philosophical ethics adequately prepares doctors to deal with the emotional dimension of patients' needs.
24. 原稿缺
25. Which one of the following is most likely the author's overall purpose in the passage?
- (A) To advise medical schools on how to implement a narrative-based approach to ethics in their curricula.
- (B) To argue that the current methods of ethics education are counterproductive to the formation of empathetic doctor-patient relationships.
- (C) To argue that the ethical content of narrative literature foreshadows the pitfalls of situational ethics.
- (D) To propose an approach to ethical training in medical school that will preserve the human dimension of medicine.
- (E) To demonstrate the value of a well-designed ethics education for medical students.
26. The passage ascribes each of the following characteristics to the use of narrative literature in ethical education EXCEPT:
- (A) It tends to avoid the extreme relativism of situational ethics.
- (B) It connects students to varied types of human events.
- (C) It can help lead medical students to develop new ways of dealing with patients.
- (D) It requires students to examine moral issues from new perspectives.

(E) It can help insulate future doctors from the shock of the ethical dilemmas they will confront.

27. The author's attitude regarding the traditional method of teaching ethics in medical school can most accurately be described as
- (A) unqualified disapproval of the method and disapproval of all of its effects  
 (B) reserved judgment regarding the method and disapproval of all of its effects  
 (C) partial disapproval of the method and clinical indifference toward its effects  
 (D) partial approval of the method and disapproval of all of its effects  
 (E) partial disapproval of the method and approval of some of its effects

### 全部答案

### GMAT RC 117 Passages

#### 一、GMAT New 63 Passages

##### Passage 1 (1/63)

1. B	2. E	3. C	4. A	5. C
6. B	7. E	8. C		

##### Passage 2 (2/63)

1. A	2. B	3. C	4. E	5. B
6. C	7. B	8. C	9. D	

##### Passage 3 (3/63)

1. E	2. B	3. A	4. E	5. D
6. A	7. B	8. B		

##### Passage 4 (4/63)

1. D	2. B	3. C	4. B	5. A
6. B	7. A			

##### Passage 5 (5/63)

1. E	2. D	3. B	4. C	5. B
6. A	7. E	8. D	9. A	

##### Passage 6 (6/63)

1. A	2. D	3. B	4. A	5. E
6. C	7. D	8. B	9. A	



## Passage 7 (7/63)

1. E	2. C	3. D	4. B	5. B
6. D	7. C			

## Passage 8 (8/63)

1. A	2. C	3. A	4. D	5. E
6. A	7. E	8. D	9. C	

## Passage 9 (9/63)

1. E	2. A	3. C	4. C	5. B
6. E	7. D	8. A	9. B	

## Passage 10 (10/63)

1. D	2. D	3. D	4. A	5. D
6. E	7. B	8. B	9. A	

## Passage 11 (11/63)

1. B	2. E	3. E	4. C	5. A
6. C	7. B			

## Passage 12 (12/63)

1. A	2. D	3. C	4. C	5. C
6. B	7. B	8. E	9. D	10.

## Passage 13 (13/63)

1. D	2. D	3. C	4. D	5. C
6. D	7. E	8. B	9.	10.

## Passage 14 (14/63)

1. E	2. E	3. D	4. E	5. A
6. B	7. C	8. D	9. D	10.

## Passage 15 (15/63)

1. D	2. C	3. A	4. D	5. C
6. D	7. C	8. A	9.	10.

## Passage 16 (16/63)

1. A	2. C	3. B	4. B	5. C
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6. D	7. B	8.	9.	10.
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## Passage 17 (17/63)

1. A	2. E	3. E	4. B	5. C
6. D	7. C	8. A	9. E	10.

## Passage 18 (18/63)

1. D	2. D	3. B	4. C	5. B
6. C	7. E	8. A	9. B	10.

## Passage 19 (19/63)

1. E	2. D	3. B	4. C	5. B
6. D	7. A	8. D	9.	10.

## Passage 20 (20/63)

1. C	2. A	3. D	4. A	5. A
6. C	7. B	8.	9.	10.

## Passage 21 (21/63)

1. D	2. D	3. B	4. A	5. D
6. E	7. C	8. A	9.	10.

## Passage 22 (22/63)

1. B	2. D	3. E	4. D	5. D
6. B	7. C	8. A	9.	10.

## Passage 23 (23/63)

1. D	2. C	3. A	4. E	5. C
6. B	7. C	8. A	9.	10.

## Passage 24 (24/63)

1. B	2. D	3. A	4. E	5. E
6. C	7. A	8.	9.	10.

## Passage 25 (25/63)

1. B	2. E	3. B	4. C	5. A
6. C	7. A	8. C	9.	10.

## Passage 26 (26/63)

1. E	2. C	3. E	4. E	5. B
6. D	7. D	8. A	9.	10.

**Passage 27 (27/63)**

1. B	2. C	3. E	4. C	5. B
6. E	7. D	8.	9.	10.

**Passage 28 (28/63)**

1. B	2. B	3. D	4. D	5. D
6. C	7. D	8.	9.	10.

**Passage 29 (29/63)**

1. E	2. C	3. C	4. A	5. E
6. D	7. B	8.	9.	10.

**Passage 30 (30/63)**

1. B	2. A	3. D	4. B	5. A
6. C	7. E	8. D	9.	10.

**Passage 31 (31/63)**

1. D	2. E	3. E	4. C	5. C
6. D	7. B	8. D	9.	10.

**Passage 32 (32/63)**

1. B	2. C	3. C	4. C	5. A
6. B	7. B	8. D	9.	10.

**Passage 33 (33/63)**

1. B	2. A	3. B	4. D	5. B
6. C	7. B	8.	9.	10.

**Passage 34 (34/63)**

1. C	2. D	3. D	4. B	5. A
6. C	7. C	8.	9.	10.

**Passage 35 (35/63)**

1. B	2. E	3. C	4. D	5. E
6. A	7. D	8. E	9.	10.

## Passage 36 (36/63)

1. B	2. A	3. C	4. A	5. A
6. E	7. B	8. D	9.	10.

## Passage 37 (37/63)

1. C	2. B	3. E	4. C	5. A
6. C	7. D	8.	9.	10.

## Passage 38 (38/63)

1. C	2. B	3. A	4. C	5. E
6. E	7. D	8.	9.	10.

## Passage 39 (39/63)

1. C	2. D	3. E	4. B	5.
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## Passage 40 (40/63)

1. D	2. E	3. A	4. D	5. C
6. B	7. A	8. A	9.	10.

## Passage 41 (41/63)

1. E	2. A	3. E	4. C	5. B
6. C	7. D	8. A	9. A	10.

## Passage 42 (42/63)

1. C	2. D	3. C	4. E	5. B
6. E	7.	8.	9.	10.

## Passage 43 (43/63)

1. A	2. B	3. D	4. B	5. C
6. C	7. D	8. E	9.	10.

## Passage 44 (44/63)

1. B	2. C	3. E	4. D	5. A
6. C	7. E	8. A	9.	10.

## Passage 45 (45/63)

1. C	2. B	3. B	4. E	5. A
6. A	7. C	8.	9.	10.

## Passage 46 (46/63)

1. D	2. E	3. D	4. D	5. C
6. A	7.	8.	9.	10.

## Passage 47 (47/63)

1. D	2. C	3. A	4. C	5. E
6. B	7.	8.	9.	10.

## Passage 48 (48/63)

1. C	2. D	3. B	4. C	5. A
6. B	7.	8.	9.	10.

## Passage 49 (49/63)

1. B	2. C	3. E	4. C	5. E
6. C	7. C	8. A	9.	10.

## Passage 50 (50/63)

1. B	2. A	3. C	4. B	5. D
6. A	7. C	8. D	9.	10.

## Passage 51 (51/63)

1. D	2. A	3. E	4. B	5. C
6. E	7. A	8.	9.	10.

## Passage 52 (52/63)

1. B	2. A	3. B	4. B	5. D
6. E	7.	8.	9.	10.

## Passage 53 (53/63)

1. C	2. B	3. E	4. C	5. D
6. A	7.	8.	9.	10.

## Passage 54 (54/63)

1. D	2. D	3. C	4. E	5. B
6. E	7.	8.	9.	10.

## Passage 55 (55/63)

1. C	2. B	3. E	4. E	5. E
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6. A	7. A	8.	9.	10.
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## Passage 56 (56/63)

1. E	2. D	3. A	4. D	5. B
6. C	7.	8.	9.	10.

## Passage 57 (57/63)

1. C	2. D	3. D	4. A	5. E
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## Passage 58 (58/63)

1. C	2. D	3. E	4. D	5. B
------	------	------	------	------

## Passage 59 (59/63)

1. A	2. D	3. B	4. E	5. B
6. C	7.	8.	9.	10.

## Passage 60 (60/63)

1. C	2. B	3. B	4. B	5. E
6. A	7. C	8.	9.	10.

## Passage 61 (61/63)

1. B	2. A	3. A	4. E	5. C
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## Passage 62 (62/63)

1. B	2. D	3. B	4. D	5. D
6. C	7. A	8.	9.	10.

## Passage 63 (63/63)

1. B	2. C	3. A	4. D	5. E
6. B	7.	8.	9.	10.

二、GMAT 补充 22Passages

## Passage 64 (1/22)

1. E	2. E	3. D	4. C	5. A
6. B	7. A	8. B	9.	10.

## Passage 65 (2/22)

1. A	2. E	3. C	4. D	5. B
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6. B	7. A	8. D	9.	10.
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## Passage 66 (3/22)

1. C	2. A	3. B	4. A	5. C
6. C	7. D	8. C	9.	10.

## Passage 67 (4/22)

1. A	2. C	3. E	4. A	5. C
6. A	7. E	8. B	9. D	10.

## Passage 68 (5/22)

1. C	2. B	3. E	4. A	5. B
6. B	7. C	8. A	9. A	10.

## Passage 69 (6/22)

1. C	2. B	3. E	4. A	5. D
6. E	7. C	8. B	9. B	10.

## Passage 70 (7/22)

1. E	2. A	3. E	4. A	5. B
6. C	7. E	8. A	9. D	10.

## Passage 71 (8/22)

1. C	2. B	3. A	4. A	5. B
6. E	7. A	8.	9.	10.

## Passage 72 (9/22)

1. C	2. E	3. B	4. B	5. A
6. E	7. D	8. C	9. B	10.

## Passage 73 (10/22)

1. E	2. B	3. A	4. E	5. C
6. B	7. D	8. C	9. A	10.

## Passage 74 (11/22)

1. C	2. B	3. E	4. D	5. A
6. C	7. E	8. A	9. D	10.

## Passage 75 (12/22)

1. C	2. A	3. D	4. E	5. C
6. B	7. D	8. E	9.	10.

## Passage 76 (13/22)

1. B	2. E	3. D	4. A	5. A
6. D	7. C	8. B	9.	10.

## Passage 77 (14/22)

1. C	2. E	3. C	4. B	5. B
6. A	7. C	8. C	9. B	10.

## Passage 78 (15/22)

1. A	2. A	3. B	4. A	5. E
6. C	7. D	8. D	9.	10.

## Passage 79 (16/22)

1. C	2. E	3. A	4. C	5. D
6. D	7. E	8. A	9. B	10.

## Passage 80 (17/22)

1. B	2. D	3. C	4. A	5. B
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## Passage 81 (18/22)

1. E	2. D	3. B	4. E	5. C
6. C	7. B	8. A	9. D	10.

## Passage 82 (19/22)

1. C	2. B	3. D	4. A	5. E
6. A	7. E	8. D	9. D	10.

## Passage 83 (20/22)

1. A	2. E	3. C	4. D	5. B
6. A	7. C	8. A	9.	10.

## Passage 84 (21/22)

1. B	2. A	3. B	4. C	5. C
6. C	7. D	8. E	9. E	10.

## Passage 85 (22/22)

1. D	2. E	3. A	4. A	5. C
6. D	7. B	8.	9.	10.

### 三、GMAT 考古题 15Passages

#### Passage 86 (1/15)

1. D	2. B	3. B	4. E	5. A
6. C	7. E	8. D	9.	10.

#### Passage 87 (2/15)

1. B	2. C	3. B	4. A	5. E
6. D	7. B	8. C	9.	10.

#### Passage 88 (3/15)

1. C	2. A	3. D	4. B	5. C
6. A	7. B	8. D	9. C	10.

#### Passage 89 (4/15)

1. B	2. A	3. B	4. E	5. C
6. E	7. B	8. C	9. A	10.

#### Passage 90 (5/15)

1. C	2. E	3. E	4. E	5. D
6. C	7. B	8. D	9. D	10. A

#### Passage 91 (6/15)

1. A	2. A	3. A	4. B	5. C
6. A	7.	8.	9.	10.

#### Passage 92 (7/15)

1. E	2. B	3. A	4. D	5. A
6. E	7. B	8. C	9. E	10.

#### Passage 93 (8/15)

1. A	2. C	3. E	4. C	5. D
6. B	7. E	8. B	9. D	10.

#### Passage 94 (9/15)

1. B	2. D	3. D	4. E	5. A
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6. E	7. C	8.	9.	10.
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## Passage 95 (10/15)

1. B	2. C	3. D	4. E	5. C
6. E	7. E	8. D	9.	10.

## Passage 96 (11/15)

1. B	2. E	3. A	4. E	5. C
6. D	7. D	8. A	9. D	10.

## Passage 97 (12/15)

1. C	2. B	3. A	4. A	5. A
6. C	7. B	8. A	9.	10.

## Passage 98 (13/15)

1. D	2. C	3. A	4. E	5. A
6. B	7. A	8. C	9. D	10.

## Passage 99 (14/15)

1. C	2. C	3. E	4. B	5. B
6. A	7. E	8. A	9.	10.

## Passage 100 (15/15)

1. E	2. D	3. B	4. D	5. E
6. B	7. B	8. D	9.	10.

四、OG 新增 17 Passages

## Passage 101 (1/17)

73. C	74. E	75. A	76. D	77. C
78. A	79. D	80.	81.	82.

## Passage 102 (2/17)

80. B	81. C	82. D	83. A	84. A
85. D	86. C	87. E	88.	89.

## Passage 103 (3/17)

131. B	132. D	133. B	134. E	135. A
136. C	137.	138.	139.	140.

## Passage 104 (4/17)

137. D	138. A	139. E	140. C	141. D
142. B	143. E	144.	145.	146.

## Passage 105 (5/17)

144. E	145. C	146. C	147. C	148. E
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## Passage 106 (6/17)

231. E	232. B	233. D	234. D	235. A
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## Passage 107 (7/17)

236. C	237. D	238. B	239. E	240. B
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## Passage 108 (8/17)

241. C	242. A	243. A	244. C	245. B
246. E	247. E	248. B	249.	250.

## Passage 109 (9/17)

249. B	250. D	251. C	252. B	253.
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## Passage 110 (10/17)

253. D	254. B	255. E	256. C	257.
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## Passage 111 (11/17)

257. B	258. A	259. B	260. D	261.
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## Passage 112 (12/17)

261. D	262. B	263. B	264. B	265.
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## Passage 113 (13/17)

265. B	266. A	267. A	268.	269.
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## Passage 114 (14/17)

268. D	269. D	270. E	271. C	272.
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## Passage 115 (15/17)

272. D	273. B	274. D	275. E	276.
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## Passage 116 (16/17)

276. C	277. B	278. D	279. B	280. C
281. D	282. E	283.	284.	285.

## Passage 117 (17/17)

283. D	284. B	285. D	286.	287.
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GRE RC (No. 2—No. 9)

## No. 2-1

## SECTION A

17. B	18. C	19. D	20. E	21. A
22. C	23. E	24. B	25. E	26. A
27. D	28.	29.	30.	31.

## SECTION B

17. A	18. C	19. D	20. E	21. B
22. C	23. A	24. C	25. E	26. C
27. B	28.	29.	30.	31.

## No. 2-2

## SECTION A

17. B	18. C	19. D	20. D	21. E
22. E	23. B	24. C	25. E	26. D
27. D	28.	29.	30.	31.

## SECTION B

17. A	18. B	19. D	20. C	21. B
22. B	23. E	24. D	25. E	26. E
27. C	28.	29.	30.	31.

## No. 2-3

## SECTION A

17. D	18. B	19. E	20. C	21. A
22. E	23. D	24. B	25. D	26. C



27. A	28.	29.	30.	31.
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## SECTION B

17. E	18. D	19. B	20. D	21. B
22. A	23. C	24. A	25. C	26. E
27. D	28.	29.	30.	31.

## No. 3-1

## SECTION A

17. D	18. C	19. C	20. D	21. D
22. C	23. A	24. E	25. D	26. C
27. D	28.	29.	30.	31.

## SECTION B

17. C	18. A	19. B	20. E	21. A
22. D	23. C	24. D	25. B	26. A
27. A	28.	29.	30.	31.

## No. 3-2

## SECTION A

17. A	18. B	19. C	20. D	21. A
22. E	23. C	24. D	25. E	26. C
27. C				

## SECTION B

17. E	18. D	19. E	20. D	21. D
22. E	23. C	24. D	25. A	26. D
27. E	28.	29.	30.	31.

## No. 3-3

## SECTION A

17. C	18. D	19. C	20. B	21. C
22. B	23. A	24. C	25. E	26. A
27. E	28.	29.	30.	31.

## SECTION B

17. D	18. B	19. C	20. D	21. C
22. A	23. B	24. A	25. C	26. D
27. E	28.	29.	30.	31.

No. 4-1

## SECTION A

17. C	18. B	19. A	20. B	21. C
22. D	23. B	24. B	25. A	26. E
27. D	28.	29.	30.	31.

## SECTION B

17. D	18. B	19. A	20. D	21. C
22. A	23. C	24. D	25. A	26. C
27. B	28.	29.	30.	31.

No. 4-2

## SECTION A

17. B	18. C	19. A	20. D	21. E
22. C	23. A	24. E	25. D	26. E
27. E	28.	29.	30.	31.

## SECTION B

17. E	18. A	19. D	20. B	21. C
22. E	23. B	24. D	25. C	26. A
27. D	28.	29.	30.	31.

No. 4-3

## SECTION A

17. E	18. D	19. C	20. E	21. E
22. B	23. D	24. A	25. E	26. A
27. A	28.	29.	30.	31.

## SECTION B

17. A	18. E	19. C	20. C	21. D
22. D	23. D	24. A	25. E	26. E
27. B	28.	29.	30.	31.

## No. 5-1

## SECTION A

17. D	18. B	19. E	20. E	21. C
22. A	23. D	24. A	25. E	26. D
27. B	28.	29.	30.	31.

## SECTION B

17. B	18. A	19. E	20. A	21. E
22. D	23. B	24. D	25. A	26. E
27. B	28.	29.	30.	31.

## No. 5-2

## SECTION A

17. D	18. D	19. B	20. C	21. E
22. B	23. A	24. C	25. B	26. C
27. D	28.	29.	30.	31.

## SECTION B

17. A	18. C	19. E	20. B	21. D
22. B	23. C	24. A	25. B	26. E
27. A	28.	29.	30.	31.

## No. 5-3

## SECTION A

17. B	18. D	19. A	20. C	21. B
22. A	23. E	24. C	25. A	26. B
27. E	28.	29.	30.	31.

## SECTION B

17. E	18. B	19. E	20. C	21. E
22. D	23. B	24. C	25. E	26. A
27. E	28.	29.	30.	31.

## No. 6-1

## SECTION A

17. B	18. A	19. B	20. A	21. D
22. A	23. E	24. B	25. C	26. D
27. E	28.	29.	30.	31.

## SECTION B

17. B	18. B	19. A	20. E	21. B
22. D	23. D	24. A	25. D	26. E
27. E	28.	29.	30.	31.

## No. 6-2

## SECTION A

17. E	18. D	19. C	20. A	21. D
22. B	23. C	24. E	25. C	26. E
27. D	28.	29.	30.	31.

## SECTION B

17. C	18. C	19. A	20. A	21. D
22. E	23. E	24. B	25. E	26. C
27. D	28.	29.	30.	31.

## No. 6-3

## SECTION A

17. C	18. C	19. A	20. C	21. E
22. C	23. A	24. C	25. A	26. D
27. A	28.	29.	30.	31.

## SECTION B

17. B	18. E	19. D	20. A	21. D
22. B	23. C	24. A	25. C	26. C
27. B	28.	29.	30.	31.

## No. 7-1

## SECTION A

17. A	18. E	19. D	20. A	21. D
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22. B	23. B	24. C	25. C	26. E
27. E	28.	29.	30.	31.

## SECTION B

17. A	18. C	19. B	20. B	21. A
22. D	23. C	24. D	25. A	26. E
27. D	28.	29.	30.	31.

## No. 7-2

## SECTION A

17. C	18. A	19. C	20. A	21. A
22. C	23. E	24. C	25. D	26. A
27. D	28.	29.	30.	31.

## SECTION B

17. D	18. A	19. B	20. D	21. C
22. E	23. B	24. C	25. D	26. B
27. D	28.	29.	30.	31.

## No. 7-3

## SECTION A

17. C	18. B	19. E	20. D	21. C
22. D	23. E	24. A	25. B	26. D
27. E	28.	29.	30.	31.

## SECTION B

17. D	18. E	19. C	20. B	21. D
22. D	23. A	24. C	25. C	26. B
27. E	28.	29.	30.	31.

## No. 8-1

## SECTION A

17. D	18. E	19. C	20. A	21. B
22. E	23. A	24. C	25. C	26. E
27. D	28.	29.	30.	31.

## SECTION B

17. C	18. A	19. D	20. E	21. C
22. E	23. B	24. D	25. A	26. E

## No. 8-2

## SECTION A

17. C	18. D	19. B	20. D	21. B
22. A	23. D	24. D	25. B	26. E
27. A	28.	29.	30.	31.

## SECTION B

17. D	18. B	19. A	20. E	21. B
22. D	23. A	24. A	25. B	26. C
27. D	28.	29.	30.	31.

## No. 8-3

## SECTION A

17. C	18. B	19. D	20. A	21. B
22. E	23. B	24. A	25. C	26. D
27. A	28.	29.	30.	31.

## SECTION B

17. B	18. E	19. C	20. C	21. A
22. B	23. C	24. C	25. A	26. A
27. B	28.	29.	30.	31.

## No. 9-1

## SECTION A

17. D	18. B	19. B	20. B	21. B
22. A	23. D	24. E	25. D	26. A
27. D	28.	29.	30.	31.

## SECTION B

17. B	18. D	19. A	20. D	21. C
22. D	23. A	24. B	25. B	26. B



27. C	28.	29.	30.	31.
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No. 9-2

## SECTION A

17. B	18. B	19. A	20. D	21. A
22. B	23. E	24. C	25. D	26. A
27. B	28.	29.	30.	31.

## SECTION B

17. D	18. C	19. E	20. B	21. D
22. E	23. A	24. A	25. E	26. C
27. D	28.	29.	30.	31.

No. 9-3

## SECTION A

17. A	18. E	19. B	20. B	21. E
22. E	23. C	24. E	25. C	26. C
27. B	28.	29.	30.	31.

## SECTION B

17. B	18. D	19. B	20. D	21. E
22. A	23. E	24. C	25. A	26. B
27. B	28.	29.	30.	31.

No. 9-4

## SECTION A

17. A	18. D	19. D	20. B	21. B
22. D	23. A	24. E	25. B	26. C
27. B	28.	29.	30.	31.

## SECTION B

17. B	18. B	19. C	20. A	21. E
22. C	23. B	24. D	25. C	26. A
27. B	28.	29.	30.	31.

No. 9-5

## SECTION A

17. C	18. A	19. D	20. E	21. A
22. D	23. B	24. E	25. A	26. A
27. B	28.	29.	30.	31.

## SECTION B

17. C	18. D	19. E	20. A	21. D
22. B	23. A	24. B	25. A	26. D
27. E	28.	29.	30.	31.

No. 9-6

## SECTION A

17. B	18. E	19. A	20. B	21. A
22. C	23. B	24. C	25. E	26. D
27. B	28.	29.	30.	31.

## SECTION B

17. E	18. C	19. D	20. A	21. A
22. D	23. A	24. E	25. B	26. C
27. D	28.	29.	30.	31.

GRE 国内题全部 RC

1990 04

## SECTION A

17. A	18. C	19. C	20. C	21. B
22. A	23. B	24. C	25. E	26. A
27. E	28.	29.	30.	31.

## SECTION B

17. C	18. B	19. A	20. B	21. D
22. C	23. C	24. D	25. E	26. A
27. D	28.	29.	30.	31.

1990 10

## SECTION A

17. C	18. B	19. A	20. C	21. E
22. D	23. D	24. B	25. A	26. E
27. B	28.	29.	30.	31.

## SECTION B

17. A	18. D	19. B	20. D	21. B
22. A	23. B	24. C	25. D	26. A
27. C	28.	29.	30.	31.

1991 02

## SECTION A

17. A	18. B	19. E	20. A	21. D
22. E	23. D	24. E	25. E	26. D
27. C	28.	29.	30.	31.

## SECTION B

17. B	18. E	19. E	20. B	21. B
22. A	23. D	24. A	25. C	26. C
27. D	28.	29.	30.	31.

1991 04

## SECTION A

17. D	18. C	19. B	20. A	21. A
22. C	23. B	24. A	25. E	26. E
27. E	28.	29.	30.	31.

## SECTION B

17. C	18. B	19. E	20. B	21. C
22. D	23. D	24. B	25. C	26. A
27. B	28.	29.	30.	31.

1991 10

## SECTION A

17. A	18. B	19. E	20. C	21. B
22. C	23. D	24. A	25. D	26. E
27. B	28.	29.	30.	31.

## SECTION B

17. D	18. E	19. D	20. E	21. D
22. B	23. D	24. A	25. C	26. B
27. E	28.	29.	30.	31.

1992 02

## SECTION A

17. B	18. C	19. B	20. E	21. D
22. A	23. A	24. A	25. B	26. D
27. E	28.	29.	30.	31.

## SECTION B

17. B	18. A	19. E	20. D	21. B
22. D	23. A	24. E	25. B	26. B
27. C	28.	29.	30.	31.

1992 04

## SECTION A

17. E	18. D	19. E	20. A	21. E
22. B	23. C	24. D	25. C	26. B
27. C	28.	29.	30.	31.

## SECTION B

17. B	18. B	19. D	20. A	21. B
22. B	23. E	24. C	25. A	26. A
27. B	28.	29.	30.	31.

1992 10

## SECTION A

17. A	18. E	19. D	20. B	21. C
22. D	23. B	24. C	25. D	26. E
27. C	28.	29.	30.	31.

## SECTION B

17. E	18. D	19. C	20. B	21. A
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22. D	23. E	24. D	25. B	26. D
27. E	28.	29.	30.	31.

1993 02

## SECTION A

17. D	18. E	19. B	20. A	21. E
22. C	23. E	24. B	25. D	26. B
27. A	28.	29.	30.	31.

## SECTION B

17. C	18. A	19. A	20. D	21. A
22. D	23. B	24. B	25. B	26. D
27. A	28.	29.	30.	31.

1993 04

## SECTION A

17. D	18. B	19. A	20. C	21. E
22. E	23. A	24. C	25. C	26. D
27. E	28.	29.	30.	31.

## SECTION B

17. B	18. D	19. A	20. B	21. A
22. C	23. B	24. E	25. E	26. C
27. D	28.	29.	30.	31.

## SECTION C

17. D	18. E	19. D	20. E	21. A
22. B	23. D	24. B	25. E	26. A
27. A	28.	29.	30.	31.

1993 10

## SECTION A

17. C	18. D	19. B	20. A	21. B
22. E	23. C	24. E	25. E	26. A
27. B	28.	29.	30.	31.

## SECTION B

17. D	18. A	19. B	20. E	21. E
22. C	23. D	24. A	25. C	26. E
27. E	28.	29.	30.	31.

1994 02

## SECTION A

17. B	18. E	19. B	20. C	21. C
22. B	23. B	24. D	25. A	26. E
27. E	28.	29.	30.	31.

## SECTION B

17. B	18. A	19. D	20. E	21. D
22. A	23. B	24. E	25. A	26. D
27. B	28.	29.	30.	31.

1994 04

## SECTION A

17. A	18. D	19. C	20. E	21. B
22. A	23. B	24. D	25. E	26. C
27. B	28.	29.	30.	31.

## SECTION B

17. B	18. D	19. C	20. E	21. A
22. D	23. B	24. E	25. C	26. E
27. B	28.	29.	30.	31.

1994 10

## SECTION A

17. C	18. A	19. B	20. B	21. A
22. D	23. E	24. B	25. C	26. D
27. A	28.	29.	30.	31.

## SECTION B

17. B	18. E	19. A	20. A	21. D
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22. B	23. D	24. D	25. D	26. A
27. C	28.	29.	30.	31.

1995 04

## SECTION A

17. E	18. A	19. C	20. D	21. B
22. A	23. E	24. A	25. E	26. B
27. D	28.	29.	30.	31.

## SECTION B

17. B	18. D	19. D	20. E	21. C
22. E	23. A	24. D	25. D	26. B
27. D	28.	29.	30.	31.

1995 10

## SECTION A

17. C	18. B	19. E	20. D	21. C
22. A	23. E	24. E	25. E	26. D
27. A	28.	29.	30.	31.

## SECTION B

17. C	18. D	19. C	20. C	21. B
22. E	23. A	24. B	25. C	26. C
27. E	28.	29.	30.	31.

1996 04

## SECTION A

17. E	18. C	19. D	20. D	21. E
22. D	23. D	24. A	25. C	26. B
27. D	28.	29.	30.	31.

## SECTION B

17. C	18. A	19. D	20. B	21. E
22. E	23. E	24. B	25. C	26. A
27. A	28.	29.	30.	31.

1996 04

## SECTION A

17. E	18. C	19. C	20. D	21. C
22. D	23. B	24. D	25. A	26. D
27. C	28.	29.	30.	31.

## SECTION B

17. D	18. C	19. C	20. A	21. C
22. C	23. A	24. A	25. C	26. E
27. E	28.	29.	30.	31.

1996 10

## SECTION A

17. E	18. C	19. B	20. B	21. C
22. B	23. A	24. C	25. A	26. D
27. D	28.	29.	30.	31.

## SECTION B

17. D	18. E	19. C	20. B	21. D
22. A	23. B	24. C	25. A	26. A
27. C	28.	29.	30.	31.

1997 04

## SECTION A

17. C	18. E	19. C	20. E	21. A
22. A	23. A	24. E	25. B	26. A
27. C	28.	29.	30.	31.

## SECTION B

17. C	18. A	19. B	20. C	21. E
22. D	23. E	24. A	25. D	26. B
27. A	28.	29.	30.	31.

1997 11

## SECTION A

17. D	18. D	19. E	20. D	21. D
22. A	23. A	24. B	25. B	26. C
27. C	28.	29.	30.	31.

## SECTION B

17. B	18. A	19. D	20. E	21. E
22. C	23. C	24. D	25. C	26. D
27. B	28.	29.	30.	31.

1998 04

## SECTION A

17. B	18. C	19. C	20. C	21. A
22. E	23. B	24. E	25. C	26. A
27. D	28.	29.	30.	31.

## SECTION B

17. C	18. B	19. E	20. D	21. C
22. B	23. B	24. C	25. E	26. A
27. D	28.	29.	30.	31.

1998 11

## SECTION A

17. B	18. C	19. B	20. A	21. E
22. A	23. E	24. C	25. A	26. B
27. C	28.	29.	30.	31.

## SECTION B

17. E	18. D	19. B	20. C	21. B
22. C	23. A	24. E	25. A	26. A
27. B	28.	29.	30.	31.

1999 04

## SECTION A

17. A	18. A	19. E	20. E	21. C
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22. B	23. B	24. D	25. D	26. E
27. D	28.	29.	30.	31.

## SECTION B

17. A	18. E	19. B	20. E	21. D
22. C	23. A	24. C	25. A	26. C
27. B	28.	29.	30.	31.

LSAT 01 SECTION III

1. B	2. D	3. E	4. A	5. A
6. C	7. C	8. A	9. B	10. D
11. B	12. A	13. D	14. D	15. B
16. B	17. B	18. E	19. E	20. A
21. B	22. D	23. A	24. D	25. E
26. A	27.	28.	29.	30.

LSAT 02 SECTION I

1. C	2. B	3. D	4. B	5. A
6. D	7. E	8. B	9. B	10. E
11. C	12. D	13. A	14. D	15. D
16. A	17. A	18. B	19. E	20. C
21. A	22. B	23. E	24. B	25. B
26. C	27. A	28. D	29.	30.

LSAT 03 SECTION II

1. B	2. C	3. A	4. C	5. C
6. D	7. E	8. E	9. D	10. B
11. B	12. A	13. C	14. D	15. C
16. B	17. D	18. A	19. E	20. B
21. B	22. C	23. C	24. A	25. D
26. D	27. E	28.	29.	30.

LSAT 04 SECTION IV

1. A	2. D	3. D	4. E	5. E
6. C	7. D	8. A	9. C	10. C
11. C	12. B	13. E	14. B	15. D
16. B	17. E	18. E	19. C	20. B
21. A	22. C	23. E	24. B	25. E
26. C	27. C	28.	29.	30.

LSAT 05 SECTION III

1. E	2. D	3. A	4. C	5. D
6. C	7. C	8. C	9. E	10. C
11. D	12. A	13. D	14. A	15. D

16. E	17. E	18. D	19. B	20. A
21. E	22. A	23. C	24. D	25. D
26. C	27. B	28. B	29.	30.

**LSAT 06 SECTION I**

1. E	2. C	3. A	4. E	5. B
6. D	7. E	8. D	9. A	10. A
11. D	12. D	13. D	14. A	15. D
16. B	17. B	18. D	19. D	20. C
21. C	22. A	23. C	24. E	25. E
26. A	27. E	28.	29.	30.

**LSAT 07 SECTION III**

1. E	2. D	3. C	4. B	5. D
6. A	7. A	8. D	9. A	10. B
11. C	12. C	13. E	14. D	15. B
16. D	17. C	18. E	19. A	20. D
21. C	22. C	23. D	24. E	25. B
26. B	27. D	28.	29.	30.

**LSAT 08 SECTION III**

1. A	2. E	3. A	4. C	5. B
6. A	7. A	8. C	9. A	10. C
11. E	12. B	13. D	14. A	15. D
16. B	17. D	18. E	19. C	20. D
21. B	22. B	23. E	24. D	25. C
26. B	27. B	28. E	29.	30.

**LSAT 09 SECTION III**

1. D	2. A	3. D	4. A	5. E
6. B	7. A	8. D	9. B	10. A
11. B	12. C	13. C	14. D	15. E
16. B	17. D	18. A	19. C	20. B
21. C	22. D	23. A	24. E	25. B
26. D	27. E	28.	29.	30.

**LSAT 10 SECTION I**

1. B	2. A	3. D	4. E	5. C
6. E	7. C	8. A	9. A	10. C
11. B	12. A	13. B	14. B	15. D
16. C	17. A	18. D	19. B	20. B
21. C	22. D	23. C	24. C	25. E
26. C	27. E	28.	29.	30.

**LSAT 11 SECTION III**

1. A	2. D	3. B	4. E	5. C
6. B	7. E	8. D	9. B	10. C
11. B	12. E	13. A	14. C	15. E
16. E	17. B	18. A	19. D	20. D
21. D	22. B	23. D	24. E	25. B
26. A	27. E	28.	29.	30.

**LSAT 12 SECTION III**

1. D	2. E	3. B	4. E	5. D
6. C	7. C	8. A	9. E	10. B
11. A	12. B	13. E	14. D	15. C
16. C	17. D	18. A	19. E	20. E
21. E	22. B	23. B	24. E	25. B
26. D	27. D	28.	29.	30.

**LSAT 13 SECTION III**

1. D	2. E	3. B	4. C	5. B
6. E	7. E	8. E	9. C	10. D
11. E	12. A	13. A	14. C	15. E
16. E	17. D	18. A	19. C	20. A
21. A	22. A	23. B	24. A	25. E
26. C	27. E	28.	29.	30.

**LSAT 14 SECTION III**

1. A	2. D	3. B	4. C	5. D
6. A	7. C	8. C	9. E	10. B
11. A	12. D	13. D	14. E	15. D
16. E	17. B	18. C	19. A	20. D
21. A	22. D	23. D	24. C	25. B
26. A	27. E	28.	29.	30.

**LSAT 15 SECTION III**

1. C	2. E	3. A	4. B	5. D
6. D	7. A	8. E	9. C	10. B
11. C	12. B	13. D	14. C	15. B
16. C	17. C	18. A	19. D	20. E
21. A	22. B	23. C	24. C	25. A
26. D	27. D	28.	29.	30.

**LSAT 16 SECTION I**

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



21. A	22. E	23. B	24. C	25. C
26. A	27. D	28.	29.	30.

**LSAT 17 SECTION I**

1. C	2. E	3. D	4. D	5. A
6. E	7. D	8. B	9. B	10. E
11. A	12. B	13. A	14. A	15. B
16. C	17. A	18. E	19. B	20. D
21. B	22. E	23. D	24. C	25. D
26. E	27. B	28. C	29.	30.

**LSAT 18 SECTION III**

1. A	2. E	3. C	4. E	5. A
6. B	7. B	8. C	9. A	10. D
11. A	12. C	13. D	14. B	15. B
16. E	17. B	18. D	19. A	20. D
21. B	22. E	23. D	24. B	25. D
26. A	27.	28.	29.	30.

**LSAT 19 SECTION IV**

1. B	2. D	3. C	4. C	5. C
6. E	7. B	8. A	9. E	10. A
11. C	12. B	13. D	14. E	15. B
16. C	17. E	18. A	19. E	20. E
21. D	22. C	23. D	24. C	25. A
26. A	27. B	28.	29.	30.

**LSAT 20 SECTION IV**

1. B	2. E	3. D	4. A	5. B
6. B	7. E	8. B	9. A	10. B
11. B	12. D	13. E	14. D	15. C
16. A	17. D	18. B	19. A	20. B
21. C	22. C	23. B	24. B	25. A
26. A	27. B	28.	29.	30.

**LSAT 21 SECTION I**

1. B	2. A	3. C	4. D	5. E
6. B	7. D	8. C	9. B	10. A
11. C	12. B	13. C	14. D	15. B
16. E	17. A	18. A	19. D	20. A
21. C	22. D	23. C	24. E	25. C
26. E	27. D	28.	29.	30.

**LSAT 22 SECTION IV**

1. E	2. B	3. C	4. E	5. C
6. B	7. C	8. B	9. C	10. C
11. D	12. D	13. B	14. B	15. E
16. B	17. A	18. A	19. B	20. C
21. E	22. B	23. B	24. D	25. A
26. D	27. E	28.	29.	30.

**LSAT 23 SECTION III**

1. A	2. E	3. B	4. E	5. A
6. D	7. D	8. C	9. C	10. E
11. D	12. B	13. A	14. D	15. C
16. E	17. A	18. E	19. D	20. B
21. B	22. A	23. D	24. C	25. B
26. A	27. C	28.	29.	30.

**LSAT 24 SECTION II**

1. B	2. E	3. A	4. E	5. D
6. B	7. C	8. A	9. B	10. C
11. A	12. B	13. B	14. C	15. B
16. A	17. B	18. A	19. E	20. D
21. B	22. D	23. E	24. E	25. B
26. E	27.	28.	29.	30.

**LSAT 25 SECTION I**

1. C	2. B	3. A	4. B	5. C
6. E	7. C	8. D	9. C	10. A
11. A	12. D	13. D	14. B	15. B
16. A	17. A	18. B	19. B	20. A
21. C	22. D	23. A	24. B	25. B
26. A	27.	28.	29.	30.

**LSAT 26 SECTION IV**

1. D	2. D	3. E	4. D	5. A
6. C	7. E	8. B	9. C	10. E
11. D	12. A	13. B	14. D	15. A
16. E	17. C	18. D	19. C	20. E
21. C	22. D	23. B	24. C	25. A
26. B	27.	28.	29.	30.

**LSAT 27 SECTION I**

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

21. C	22. D	23. A	24. E	25. B
26. B	27.	28.	29.	30.

**LSAT 28 SECTION IV**

1. E	2. A	3. A	4. E	5. B
6. E	7. B	8. B	9. D	10. D
11. C	12. A	13. E	14. D	15. E
16. A	17. A	18. E	19. E	20. C
21. D	22. C	23. E	24. B	25. A
26. C	27. D	28.	29.	30.

**LSAT 2002 SECTION III**

1. C	2. A	3. E	4. B	5. D
6. A	7. D	8. A	9. D	10. A
11. E	12. B	13. D	14. C	15. D
16. E	17. B	18. A	19. E	20. C
21. A	22. D	23. E	24. N/A	25. E
26. C	27. E	28.	29.	30.

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