

## Passage 1

(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

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

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

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

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

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

Virtually everything astronomers know 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

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

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.

## Answer Key

### Passage 1

1. B	2. E	3. C	4. A	5. C
6. B	7. E	8. C		

### Passage 2

1. A	2. B	3. C	4. E	5. B
6. C	7. B	8. C	9. D	

### Passage 3

1. E	2. B	3. A	4. E	5. D
6. A	7. B	8. B		

### Passage 4

1. D	2. B	3. C	4. B	5. A
6. B	7. A			

### Passage 5

1. E	2. D	3. B	4. C	5. B
6. A	7. E	8. D	9. A	

### Passage 6

1. A	2. D	3. B	4. A	5. E
------	------	------	------	------

6. C	7. D	8. B	9. A	
------	------	------	------	--

### Passage 7

1. E	2. C	3. D	4. B	5. B
6. D	7. C			

### Passage 8

1. A	2. C	3. A	4. D	5. E
6. A	7. E	8. D	9. C	

### Passage 9

1. E	2. A	3. C	4. C	5. B
6. E	7. D	8. A	9. B	

### Passage 10

1. D	2. D	3. D	4. A	5. D
6. E	7. B	8. B	9. A	