

## Passage 11

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 archaeological 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 *l'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

(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

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

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

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

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

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

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

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

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.

## Answer Key

### Passage 11

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

### Passage 12

1. A	2. D	3. C	4. C	5. C
6. B	7. B	8. E	9. D	10.

### Passage 13

1. D	2. D	3. C	4. D	5. C
6. D	7. E	8. B	9.	10.

### Passage 14

1. E	2. E	3. D	4. E	5. A
6. B	7. C	8. D	9. D	10.

### Passage 15

1. D	2. C	3. A	4. D	5. C
6. D	7. C	8. A	9.	10.

### Passage 16

1. A	2. C	3. B	4. B	5. C
6. D	7. B	8.	9.	10.

### Passage 17

1. A	2. E	3. E	4. B	5. C
6. D	7. C	8. A	9. E	10.

### Passage 18

1. D	2. D	3. B	4. C	5. B
6. C	7. E	8. A	9. B	10.

### Passage 19

1. E	2. D	3. B	4. C	5. B
6. D	7. A	8. D	9.	10.

### Passage 20

1. C	2. A	3. D	4. A	5. A
6. C	7. B	8.	9.	10.