

### Passage 41

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

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

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

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

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

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

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

### Passage 42

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

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

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

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

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

to the kinds of “handicaps” referred to in line 27?

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

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

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

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

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

conditions often neglected by those studies.

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

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

### Passage 44

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

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

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

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

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

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

### Passage 45

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

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

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

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

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

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

### Passage 46

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

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

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

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

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

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

### Passage 47

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

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

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

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

stimulus.

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

### Passage 48

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

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

weakened support among Black workers for an independent entity.

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

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

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

union.

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

### Passage 49

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

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

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

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

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

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

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

### Passage 50

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

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

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

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

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

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

techniques designed to locate buried mineralization.

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

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

- II. The degree to which the model chosen relies on empirical observation of known mineral deposits rather than on theories of ore-forming processes
- III. The degree to which the model chosen is based on an accurate description of the events leading to mineralization

(A) I only

(B) II only

(C) I and II only

(D) I and III only

(E) I, II and III

## Answer Key

### Passage 41

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

### Passage 42

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

### Passage 43

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

### Passage 44

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

### Passage 45

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

Passage 46

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

Passage 47

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

Passage 48

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

Passage 49

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

Passage 50

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