

GMAT (RC)

1. Context
2. Background story
3. Information base

Predominant topics

- Biological Evolution
 - Human Behavior shaped by biological evolution
 - Brain Science (evolution of the human brain and how it affects human behavior)
- Animal kingdom
- Biology – cell structure etc.
- American History, American Independence, US Civil War
- American Economy, Finance, Capital Markets
- Challenges to religion
- American domination – various aspects, major events
- Capitalism, Communism, Socialism, Democracy, the Cold War
- Various groups in America: minorities, women, feminism, Blacks, Native Americans, Asians, Hispanics / popular Supreme Court cases
- **Science**, especially biology and astronomy
- Latest technology

Common Topic 1

Women / Feminism

Passage 11

Current feminist theory, in validating women's own stories of their experience, has encouraged scholars of women's history to view the use of women's oral narratives as the methodology, next to the use of women's written autobiography, that brings historians closest to the "reality" of women's lives. Such narratives, unlike most standard histories, represent experience from the perspective of women, affirm the importance of women's contributions, and furnish present-day women with historical continuity that is essential to their identity, individually and collectively. Scholars of women's history should, however, be as cautious about accepting oral narratives at face value as they already are about written memories. Oral narratives are no more likely than are written narratives to provide a disinterested commentary on events or people. Moreover, the stories people tell to explain themselves are shaped by narrative devices and storytelling conventions, as well as by other cultural and historical factors, in ways that the storytellers may be unaware of. The political rhetoric

37. The passage is primarily concerned with
- (A) contrasting the benefits of one methodology with the benefits of another
 - (B) describing the historical origins and inherent drawbacks of a particular methodology
 - (C) discussing the appeal of a particular methodology and some concerns about its use
 - (D) showing that some historians' adoption of a particular methodology has led to criticism of recent historical scholarship
 - (E) analyzing the influence of current feminist views on women's interpretations of their experience
38. According to the passage, scholars of women's history should refrain from doing which of the following?
- (A) Relying on traditional historical sources when women's oral narratives are unavailable
 - (B) Focusing on the influence of political rhetoric on women's perceptions to the exclusion of other equally important factors
 - (C) Attempting to discover the cultural and historical factors that influence the stories women tell

Recent feminist scholarship concerning the United States in the 1920's challenges earlier interpretations that assessed the twenties in terms of the unkept "promises" of the women's suffrage movement. This new scholarship disputes the long-held view that because a women's voting bloc did not materialize after women gained the right to vote in 1920, suffrage failed to produce long-term political gains for women. These feminist scholars also challenge the old view that pronounced suffrage a failure for not delivering on the promise that the women's vote would bring about moral, corruption-free governance. Asked whether women's suffrage was a failure, these scholars cite the words of turn-of-the-century social reformer Jane Addams, "Why don't you ask if suffrage in general is failing?"

In some ways, however, these scholars still present the 1920's as a period of decline. After suffrage, they argue, the feminist movement lost its cohesiveness, and gender consciousness waned. After the mid-1920's, few successes could be claimed by feminist reformers: little could be seen in the way of legislative victories.

- The passage is primarily concerned with
- A. providing evidence indicating that feminist reformers of the 1920's failed to reach some of their goals
 - B. presenting scholarship that contrasts suffragist "promises" with the historical realities of the 1920's
 - C. discussing recent scholarship concerning the achievements of women's suffrage during the 1920's and presenting an alternative view of those achievements
 - D. outlining recent findings concerning events leading to suffrage for women in the 1920's and presenting a challenge to those findings
 - E. providing support for a traditional view of the success of feminist attempts to increase gender consciousness among women during the 1920's

- It can be inferred that the author of the passage disagrees with the "new scholarship" mentioned in the highlighted text regarding the
- A. degree to which the "promises" of the suffrage movement remained unkept
 - B. degree to which suffrage for women improved the

The fields of antebellum (pre-Civil War) political history and women's history use separate sources and focus on separate issues. Political historians, examining sources such as voting records, newspapers, and politicians' writings, focus on the emergence in the 1840's of a new "American political nation," and since women were neither voters nor politicians, they receive little discussion. Women's historians, meanwhile, have shown little interest in the subject of party politics, instead drawing on personal papers, legal records such as wills, and records of female associations to illuminate women's domestic lives, their moral reform activities, and the emergence of the woman's rights movement.

However, most historians have underestimated the extent and significance of women's political allegiance in the antebellum period. For example, in the presidential election campaigns of the 1840's, the Virginia Whig party strove to win the allegiance of Virginia's women by inviting them to rallies and speeches. According to Whig propaganda, women who turned out at the party's rallies gathered information that enabled them to mold party-loyal families,

According to the passage, which of the following was true of Virginia Democrats in the mid-1850's?

- A. They feared that their party was losing its strong moral foundation.
- B. They believed that the Whigs' inclusion of women in party politics had led to the Whigs' success in many elections.
- C. They created an ideology that justified the inclusion of women in party politics.
- D. They wanted to demonstrate that they were in support of the woman's rights movement.
- E. They imitated the Whigs' efforts to include women in the rituals of party politics.

The author of the passage would be most likely to agree with which of the following statements regarding most historians of the antebellum period?

- A. They have failed to adequately contrast the differing roles that women played in the Democratic and Whig parties in the 1850's.
- B. They have failed to see that political propaganda advocating women's political involvement did not reflect the reality of women's actual roles.

Passage 31

The identification of femininity with morality and a belief in the innate moral superiority of women were fundamental to the cult of female domesticity in the nineteenth-century United States. Ironically, this ideology of female benevolence empowered women in the realm of social activism, enabling them to escape the confines of their traditional domestic spheres and to enter prisons, hospitals, battlefields, and slums. By following this path, some women came to wield considerable authority in the distribution of resources and services in their communities.

The sentimentalized concept of female benevolence bore little resemblance to women's actual work, which was decidedly unsentimental and businesslike, in that it involved chartering societies, raising money, and paying salaries. Moreover, in the face of legal limitations on their right to control money and property, women had to find ingenious legal ways to run and finance organized philanthropy. In contrast to the day-to-day reality of this work, the idealized image of female benevolence lent a sentimental and gracious aura of altruism to the very real authority and privilege that some women commanded—which explains why some women activists clung tenaciously to this ideology. But clinging to this ideology also prevented

42. According to the passage, the ideology of female benevolence was consistent with women taking part in each of the following spheres of activity EXCEPT
- (A) organized philanthropy
 - (B) domestic life
 - (C) electoral politics
 - (D) fund-raising for worthy causes
 - (E) social work
43. Information in the passage suggests that the author would be most likely to agree with which of the following statements concerning the cult of female domesticity?
- (A) The cult of female domesticity developed independently of the concept of female benevolence.
 - (B) The cult of female domesticity was incompatible with women's participation in social activism.
 - (C) The cult of female domesticity incorporated ideological elements that actually helped some women to escape from their traditional domestic roles.
 - (D) The original motivation behind the promotion of the cult of female domesticity was to exclude women from partisan politics.
 - (E) The growth of organized philanthropy in the

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

Before the late nineteenth century, these views coexisted within the feminist movement, often within the writings of the same individual. Between 1890 and 1920, however, relational feminism, which had been the dominant strain in feminist thought, and which still predominates among European and non-Western feminists, lost ground in England and the United States. Because the concept of individual rights was already well established in the Anglo-Saxon legal and political tradition,

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

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

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

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 (5) 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 (10) 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 (15) 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,

Part 2

Passage 1

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

The 1850 census, partly responding to antislavery and women's rights movements, initiated the collection of specific information about each individual in a

1. The primary purpose of the passage is to
 - (A) explain and critique the methods used by early statisticians
 - (B) compare and contrast a historical situation with a current-day one
 - (C) describe and explain a historical change
 - (D) discuss historical opposition to an established institution
 - (E) trace the origin of a contemporary controversy

2. Each of the following aspects of nineteenth-century United States censuses is mentioned in the passage EXCEPT the
 - (A) year in which data on occupations began to be analyzed by gender
 - (B) year in which specific information began to be collected on individuals in addition to the head of the household
 - (C) year in which overlap between women employed outside the home and women keeping house was first calculated
 - (D) way in which the 1890 census measured women's income levels and educational backgrounds

While acknowledging that there are greater employment opportunities for Latin American women in cities than in the countryside, social science theorists have continued to argue that urban migration has unequivocally hurt women's status. However, the effects of migration are more complex than these theorists presume. For example, effects can vary depending on women's financial condition and social class. Brazilian women in the lowest socioeconomic class have relatively greater job opportunities and job security in cities than do men of the same class, although there is no compelling evidence that for these women the move to the city is a move out of poverty. Thus, these women may improve their status in relation to men but at the same time may experience no improvement in their economic standing.

In addition, working outside the home, which is more common in urban than in rural areas, helps women in the lowest socioeconomic class make contacts to extend exchange networks—the flow of gifts, loans, or child care from those who currently have access to resources to those who do not. Moreover, poor women working in urban areas actively seek to cultivate long-

- Which of the following best summarizes the main point of the passage?
- A. Although Latin American women disagree about the effects urban migration has had on their lives, they agree that migration has provided them with greater opportunities for stable employment outside the home.
 - B. Although urban migration has improved the quality of life for Latin American women, it has weakened the social support systems that these women enjoyed in rural communities.
 - C. The effects that urban migration has had on Latin American women's lives are complex and are best evaluated in light of a range of issues concerning Latin American women's overall quality of life.
 - D. The effects of urban migration in Latin America are different for men than they are for women because of the relatively greater job opportunities and job security enjoyed by women in urban areas.
 - E. Urban migration has led to an increasing disparity between the economic prosperity of Latin American women in the lowest socioeconomic classes and that of women in the higher socioeconomic classes.

The author mentions which of the following as a

Passage 26

Although the industrial union organizations that emerged under the banner of the Congress of Industrial Organizations (CIO) in the 1930s and 1940s embraced the principles of nondiscrimination and inclusion, the role of women within unions reflected the prevailing **gender ideology** of the period. Elizabeth Fauve's study of the labor movement in Minneapolis argues that women were marginalized by union bureaucratization and by the separation of unions from the community politics from which industrial unionism had emerged. Fauve stresses the importance of women's contribution to the development of unions at the community level, contributions that made women's ultimate fate within the city's labor movement all the more poignant: as unions reached the peak of their strength in the 1940s, the community base that had made their success possible and to which women's contributions were so vital became increasingly irrelevant to unions' institutional life.

In her study of CIO industrial unions from the 1930s to

25. According to the passage, Fauve's study and Gabin's study agree in that both
 - (A) attribute the inclusion of women in unions to the policies of the CIO
 - (B) emphasize the importance of unions at the community level
 - (C) argue that women played important roles in the establishment of industrial union organizations
 - (D) suggest that women in industrial union organizations played a subordinate role
 - (E) suggest that the interests of women workers were incompatible with those of unions in general
26. Which of the following can be inferred regarding the "gender ideology" mentioned in the highlighted text?
 - (A) It prevented women from making significant contributions to the establishment of industrial unions.
 - (B) It resulted from the marginalization of women in industrial unions.
 - (C) It had a significant effect on the advancement of women's issues within industrial unions.

Passage 23

Traditional social science models of class groups in the United States are based on economic status and assume that women's economic status derives from association with men, typically fathers or husbands, and that women therefore have more compelling common interest with men of their own economic class than with women outside it. Some feminist social scientists, by contrast, have argued that the basic division in American society is instead based on gender, and that the total female population, regardless of economic status, constitutes a distinct class. Social historian Mary Ryan, for example, has argued that in early-nineteenth-century America the identical legal status of working-class and middle-class free women outweighed the differences between women of these two classes: married women, regardless of their family's wealth, did essentially the same unpaid domestic work, and none could own property or vote. Recently, though, other feminist analysts have questioned this model, examining ways in which the condition of working-class women differs

16. The primary purpose of the passage is to
 - (A) offer sociohistorical explanations for the cultural differences between men and women in the United States
 - (B) examine how the economic roles of women in the United States changed during the nineteenth century
 - (C) consider differing views held by social scientists concerning women's class status in the United States
 - (D) propose a feminist interpretation of class structure in the United States
 - (E) outline specific distinctions between working-class women and women of the upper and middle classes
17. It can be inferred from the passage that the most recent feminist social science research on women and class seeks to do which of the following?
 - (A) Introduce a divergent new theory about the relationship between legal status and gender
 - (B) Illustrate an implicit middle-class bias in earlier feminist models of class and gender

Passage 21

Ethnohistoric documents from sixteenth-century Mexico suggesting that weaving and cooking were the most common productive activities for Aztec women may lead modern historians to underestimate the value of women's contributions to Aztec society. Since weaving and cooking occurred mostly (but not entirely) in a domestic setting, modern historians are likely to apply to the Aztec culture the modern Western distinction between "private" and "public" production. Thus, the ethnohistoric record conspires with Western culture to foster the view that women's production was not central to the demographic, economic, and political structures in sixteenth-century Mexico.

A closer examination of Aztec culture indicates that treating Aztec women's production in Mexico in such a manner would be a mistake. Even if the products of women's labor did not circulate beyond the household, such products were essential to population growth. Researchers document a tenfold increase in the

8. The author of the passage would be most likely to agree with which of the following statements about the documents mentioned in the first sentence of the passage?
 - (A) They contain misleading information about the kinds of productive activities Aztec women engaged in.
 - (B) They overlook certain crucial activities performed by women in Aztec society.
 - (C) They provide useful information about the way that Aztec society viewed women.
 - (D) They are of limited value because they were heavily influenced by the bias of those who recorded them.
 - (E) They contain information that is likely to be misinterpreted by modern-day readers.
9. According to the passage, Aztec women's cloth production enabled Aztec society to do which of the following?
 - (A) Expand women's role in agriculture
 - (B) Organize the flow of goods and services
 - (C) Develop self-contained communities

Passage 12

The professionalization of the study of history in the second half of the nineteenth century, including history's transformation from a literary genre to a scientific discipline, had important consequences not only for historians' perceptions of women but also for women as historians. The disappearance of women as objects of historical studies during this period has **elements of irony** to it. On the one hand, in writing about women, earlier historians had relied not on firsthand sources but rather on secondary sources; the shift to more rigorous research methods required that secondary sources be disregarded. On the other hand, the development of archival research and the critical editing of collections of documents began to reveal significant new historical evidence concerning women yet this evidence was perceived as substantially irrelevant: historians saw political history as the general framework for historical writing. Because women were seen as belonging to the private rather than to the public sphere, the discovery of documents about them, or by them, did not, by itself,

40. The passage is primarily concerned with
- (A) describing some effects of the professionalization of the study of history on the writing of women's history
 - (B) explaining some reasons for the professionalization of the writing of history
 - (C) discussing the kinds of historical writing traditionally practiced by women
 - (D) contrasting the approach to the writing of history taken by women with the approach taken by men
 - (E) criticizing certain changes that occurred in the writing of history during the second half of the nineteenth century
41. Which of the following best describes one of the "elements of irony" referred to in the highlighted text?
- (A) Although the more scientific-minded historians of the second half of the nineteenth century considered women appropriate subjects for historical writing, earlier historians did not.
 - (B) Although archival research uncovered documentary evidence of women's role in history,

When the history of women began to receive focused attention in the 1970's, Eleanor Roosevelt was one of a handful of female Americans who were well known to both historians and the general public. Despite the evidence that she had been important in social reform circles before her husband was elected President and that she continued to advocate different causes than he did, she held a place in the public imagination largely because she was the wife of a particularly influential President. Her own activities were seen as preparing the way for her husband's election or as a complement to his programs. Even Joseph Lash's two volumes of sympathetic biography, *Eleanor and Franklin* (1971) and *Eleanor: The Years Alone* (1972), reflected this assumption.

Lash's biography revealed a complicated woman who sought through political activity both to flee inner misery and to promote causes in which she passionately believed. However, she still appeared to be an idiosyncratic figure, somehow self-generated not amenable to any generalized explanation. She emerged from the biography as a mother to the entire nation, or as a busybody, but hardly as a social type, a

The passage as a whole is primarily concerned with which of the following?

- A. Changes in the way in which Eleanor Roosevelt's life is understood
- B. Social changes that made possible the role played by Eleanor Roosevelt in social reform
- C. Changes in the ways in which historians have viewed the lives of American women
- D. Social changes that resulted from the activities of Eleanor Roosevelt
- E. Changes in the social roles that American women have played

The author indicates that, according to Scharf's biography, which of the following was NOT characteristic of feminists of Eleanor Roosevelt's generation?

- A. Their lives were full of contradictions
- B. Their policies identified them as idiosyncratic.
- C. They were from privileged backgrounds.
- D. They held that women had unique responsibilities.
- E. They made a transition from old patterns of association to new ones.

In colonial Connecticut between 1670 and 1719, women participated in one of every six civil cases, the vast majority of which were debt related. Women's participation dropped to one in ten cases after 1719, and to one in twenty by the 1770's. However, as Cornelia Hughes Dayton notes in *Women Before the Bar: Gender, Law, and Society in Connecticut, 1639-1789*, these statistics are somewhat deceptive: in fact, both the absolute numbers and the percentage of adult women participating in civil cases grew steadily throughout the eighteenth century, but the legal activity of men also increased dramatically, and at a much faster rate. Single, married, and widowed women continued to pursue their own and their husbands' debtors through legal action much as they had done in the previous century, but despite this continuity, their place in the legal system shifted dramatically. Men's commercial interests and credit networks became increasingly far-flung, owing in part to the ability of creditors to buy and sell promissory notes (legal promises to pay debts). At the same time, women's networks of credit and debt remained primarily local and personal. Dayton contends that, although still performing crucial economic services in

- The passage is primarily concerned with
- A. reporting an author's view of a phenomenon
 - B. disputing the reasons usually given for an unexpected change
 - C. evaluating the conclusions reached by an author
 - D. assessing the impact of certain legal decisions
 - E. defending a controversial point of view

- According to the passage, compared with women in eighteenth-century Connecticut, men were
- A. more likely to rely on credit and go into debt
 - B. more likely to pursue their families' debtors
 - C. more likely to participate in economic transactions outside their own communities
 - D. less likely to perform economic services in their own communities
 - E. less likely to participate in civil cases that were not debt-related

- The passage suggests that which of the following best compares the economic concerns of women with those of men toward the close of the eighteenth Century in colonial Connecticut?
- (A) Both men and women had more economic

In mid-February 1917 a women's movement independent of political affiliation erupted in New York City, the stronghold of the Socialist Party in the United States. Protesting against the high cost of living, thousands of women refused to buy chickens, fish, and vegetables. The boycott shut down much of the City's foodstuffs marketing for two weeks, riveting public attention on the issue of food prices, which had increased partly as a result of increased exports of food to Europe that had been occurring since the outbreak of the First World War.

By early 1917 the Socialist party had established itself as a major political presence in New York City. New York Socialists, whose customary spheres of struggle were electoral work and trade union organizing, seized the opportunity and quickly organized an extensive series of cost-of-living protests designed to direct the women's movement toward Socialist goals. Underneath the Socialists' brief commitment to cost-of-living organizing lay a basic indifference to the issue itself. While some Socialists did view price protests as a direct step toward socialism, most Socialists ultimately sought to divert the cost-of-living movement into alternative channels of protest. Union organizing,

The author suggests which of the following about the New York Socialists' commitment to the cost-of-living movement?

- A. It lasted for a relatively short period of time.
- B. It was stronger than their commitment to the suffrage struggle.
- C. It predated the cost-of-living protests that erupted in 1917.
- D. It coincided with their attempts to bring more women into union organizing.
- E. It explained the popularity of the Socialist party in New York City.

It can be inferred from the passage that the goal of the boycotting women was the

- A. achievement of an immediate economic outcome
- B. development of a more socialistic society
- C. concentration of widespread consumer protests on the more narrow issue of food prices
- D. development of one among a number of different approaches that the women wished to employ in combating the high cost of living
- E. attraction of more public interest to issues that the women and the New York Socialists considered

In her account of unmarried women's experiences in colonial Philadelphia, Wulf argues that educated young women, particularly Quakers, engaged in resistance to patriarchal marriage by exchanging poetry critical of marriage, copying verse into their commonplace books. Wulf suggests that this critique circulated beyond the daughters of the Quaker elite and middle class, whose commonplace books she mines, proposing that Quaker schools brought it to many poor female students of diverse backgrounds.

Here Wulf probably overstates Quaker schools' impact. At least three years' study would be necessary to achieve the literacy competence necessary to grapple with the material she analyzes. In 1765, the year Wulf uses to demonstrate the diversity of Philadelphia's Quaker schools, 128 students enrolled in these schools. Refining Wulf's numbers by the information she provides on religious affiliation, gender, and length of study, it appears that only about 17 poor non-Quaker girls were educated in Philadelphia's Quaker schools for three years or longer. While Wulf is correct that a critique of patriarchal marriage circulated broadly, Quaker schools probably cannot be credited with bringing this critique into the broader female population.

According to the passage, which of the following was true of attitudes toward marriage in colonial Philadelphia?

- A. Exemplars of a critique of marriage could be found in various literary forms, but they did not impact public attitudes except among educated young women.
- B. The diversity of the student body in the Quaker schools meant that attitudes toward marriage were more disparate there than elsewhere in Philadelphia society.
- C. Although critical attitudes toward marriage were widespread, Quaker schools' influence in disseminating these attitudes was limited.
- D. Criticisms of marriage in colonial Philadelphia were directed at only certain limited aspects of patriarchal marriage.
- E. The influence of the wide range of marital beliefs and practices present in Philadelphia's multiethnic population can be detected in the poetry that educated young women copied in their commonplace books.

The author of the passage implies which of the following about the attitude toward marriage in the Society of Friends?

Historians who study European women of the Renaissance try to measure "independence," "options," and other indicators of the degree to which the expression of women's individuality was either permitted or suppressed. Influenced by Western individualism, these historians define a peculiar form of personhood: an innately bounded unit, autonomous and standing apart from both nature and society. An anthropologist, however, would contend that a person can be conceived in ways other than as an "individual." In many societies a person's identity is not intrinsically unique and self-contained but instead is defined within a complex web of social relationships. In her study of the fifteenth-century Florentine widow Alessandra Strozzi, a historian who specializes in European women of the Renaissance attributes individual intention and authorship of actions to her subject. This historian assumes that Alessandra had goals and interests different from those of her sons, yet much of the historian's own research reveals that Alessandra acted primarily as a champion of her sons' interests, taking their goals as her own. Thus Alessandra conforms more closely to the anthropologist's notion that personal motivation is

- According to the passage, much of the research on Alessandra Strozzi done by the historian mentioned in the second paragraph supports which of the following conclusions?
- A. Alessandra used her position as her sons' sole guardian to further interests different from those of her sons.
 - B. Alessandra unwillingly sacrificed her own interests in favor of those of her sons.
 - C. Alessandra's actions indicate that her motivations and intentions were those of an independent individual.
 - D. Alessandra's social context encouraged her to take independent action.
 - E. Alessandra regarded her sons' goals and interests as her own.

- The passage suggests that the historian mentioned in the second paragraph would be most likely to agree with which of the following assertions regarding Alessandra Strozzi?
- A. Alessandra was able to act more independently than most women of her time because she was a widow.
 - B. Alessandra was aware that her personal motivation

Line Jacob Burckhardt's view that Renaissance European women "stood on a footing of perfect equality" with Renaissance men has been repeatedly cited by feminist scholars as a prelude to their presentation of rich historical evidence of women's inequality. In striking contrast to Burckhardt, Joan Kelly in her famous 1977 essay, "Did Women Have a Renaissance?" argued that the Renaissance was a period of economic and social decline for women relative both to Renaissance men and to medieval women. Recently, however, a significant trend among feminist scholars has entailed a rejection of both Kelly's dark vision of the Renaissance and Burckhardt's rosy one. Many recent works by these scholars stress the ways in which differences among Renaissance women—especially in terms of social status and religion—work to complicate the kinds of generalizations both Burckhardt and Kelly made on the basis of their observations about upper-class Italian women.

The trend is also evident, however, in works focusing on those middle- and upper-class

- (45) (at least in the realm of public discourse) against potentially constraining ideologies, but in her sober and thoughtful concluding remarks, she suggests that such verbal opposition to cultural stereotypes was highly circumscribed; women seldom attacked the basic assumptions in the ideologies that oppressed them.

Questions 530–536 refer to the passage.

530. The author of the passage discusses Krontiris primarily to provide an example of a writer who
- (A) is highly critical of the writings of certain Renaissance women
 - (B) supports Kelly's view of women's status during the Renaissance
 - (C) has misinterpreted the works of certain Renaissance women
 - (D) ...

Linda Kerber argued in the mid-1980's that after the American Revolution (1775-1783), an ideology of "republican motherhood" resulted in a surge of educational opportunities for women in the United States. Kerber maintained that the leaders of the new nation wanted women to be educated in order to raise politically virtuous sons. A virtuous citizenry was considered essential to the success of the country's republican form of government; virtue was to be instilled not only by churches and schools, but by families, where the mother's role was crucial. Thus, according to Kerber, motherhood became pivotal to the fate of the republic, providing justification for an unprecedented attention to female education.

Introduction of the republican motherhood thesis dramatically changed historiography. Prior to Kerber's work, educational historians barely mentioned women and girls; Thomas Woody's 1929 work is the notable exception. Examining newspaper advertisements for academies, Woody found that educational opportunities increased for both girls and boys around 1750. Pointing to "An Essay on Woman" (1753) as reflecting a shift in view, Woody also claimed that

According to the passage, Kerber argued that political leaders thought that the form of government adopted by the United States after the American Revolution depended on which of the following for its success?

- A. Women assuming the sole responsibility for instilling political virtue in children
- B. Girls becoming the primary focus of a reformed educational system that emphasized political virtue
- C. The family serving as one of the primary means by which children were imbued with political virtue
- D. The family assuming many of the functions previously performed by schools and churches
- E. Men and women assuming equal responsibility for the management of schools, churches, and the family

The passage suggests that, with regard to the history of women's education in the United States, Kerber's work differs from Woody's primarily concerning which of the following?

- A. The extent to which women were interested in pursuing educational opportunities in the eighteenth century
- B. The extent of the support for educational

Line

It is an odd but indisputable fact that the
seventeenth-century English women who are
generally regarded as among the forerunners of
modern feminism are almost all identified with the
(5) Royalist side in the conflict between Royalists and
Parliamentarians known as the English Civil Wars.
Since Royalist ideology is often associated with the
radical patriarchalism of seventeenth-century
political theorist Robert Filmer—a patriarchalism
(10) that equates family and kingdom and asserts the
divinely ordained absolute power of the king and,
by analogy, of the male head of the household—
historians have been understandably puzzled by the
fact that Royalist women wrote the earliest
(15) extended criticisms of the absolute subordination
of women in marriage and the earliest systematic
assertions of women's rational and moral equality
with men. Some historians have questioned the
facile equation of Royalist ideology with Filmerian
(20) patriarchalism; and indeed, there may have been
no consistent differences between Royalists and
Parliamentarians on issues of family organization

Questions 493–498 refer to the passage.

493. The author of the passage refers to Robert Filmer (see line 9) primarily in order to
- (A) show that Royalist ideology was somewhat more radical than most historians appear to realize
 - (B) qualify the claim that patriarchalism formed the basis of Royalist ideology
 - (C) question the view that most early feminists were associated with the Royalist faction
 - (D) highlight an apparent tension between Royalist ideology and the ideas of early feminists
 - (E) argue that Royalists held conflicting opinions on issues of family organization and women's political rights

Line Women's grassroots activism and their vision of a new civic consciousness lay at the heart of social reform in the United States throughout the Progressive Era, the period between the depression of 1893 and America's entry into the Second World War. Though largely disenfranchised except for school elections, white middle-class women reformers won a variety of victories, notably in the improvement of working conditions, especially for women and children. Ironically, though, child labor legislation pitted women of different classes against one another. To the reformers, child labor and industrial home work were equally inhumane practices that should be outlawed, but, as a number of women historians have recently observed, working-class mothers did not always share this view. Given the precarious finances of working-class families and the necessity of pooling the wages of as many family members as possible, working-class families viewed the passage and enforcement of stringent child labor statutes as a personal economic disaster and made strenuous

60. The primary purpose of the passage is to
- (A) explain why women reformers of the Progressive Era failed to achieve their goals
 - (B) discuss the origins of child labor laws in the late nineteenth and early twentieth centuries
 - (C) compare the living conditions of working-class and middle-class women in the Progressive Era
 - (D) discuss an oversight on the part of women reformers of the Progressive Era
 - (E) revise a traditional view of the role played by women reformers in enacting Progressive Era reforms
61. The view mentioned in line 17 of the passage refers to which of the following?
- (A) Some working-class mothers' resistance to the enforcement of child labor laws
 - (B) Reformers' belief that child labor and industrial home work should be abolished

Line In current historiography, the picture of a consistent, unequivocal decline in women's status with the advent of capitalism and industrialization is giving way to an analysis that not only emphasizes both change (whether improvement or decline) and continuity but also accounts for geographical and occupational variation.

(5) The history of women's work in English farmhouse cheese making between 1800 and 1930 is a case in point. In her influential *Women Workers and the Industrial Revolution* (1930), Pinchbeck argued that the agricultural revolution of the eighteenth and early nineteenth centuries, with its attendant specialization and enlarged scale of operation, curtailed women's participation in the business of cheese production. Earlier, she

(10) maintained, women had concerned themselves with feeding cows, rearing calves, and even selling the cheese in local markets and fairs. Pinchbeck thought that the advent of specialization meant that women's work in cheese dairying was reduced simply to

(15) processing the milk. "Dairymen" (a new social category) raised and fed cows and sold the cheese through factors, who were also men. With this narrowing of the

(20)

Questions 102–105 refer to the passage.

102. The primary purpose of the passage is to
- (A) present recently discovered evidence that supports a conventional interpretation of a historical period
 - (B) describe how reinterpretations of available evidence have reinvigorated a once-discredited scholarly position
 - (C) explain why some historians have tended to emphasize change rather than continuity in discussing a particular period
 - (D) explore how changes in a particular occupation serve to counter the prevailing view of a historical period
 - (E) examine a particular area of historical research in order to exemplify a general scholarly trend
103. Regarding English local markets and fairs, which of the following can be inferred from the passage?

Line Antonia Castañeda has utilized scholarship from women's studies and Mexican-American history to examine nineteenth-century literary portrayals of Mexican women. As Castañeda notes, scholars of (5) women's history observe that in the United States, male novelists of the period—during which, according to these scholars, women's traditional economic role in home-based agriculture was threatened by the transition to a factory-based industrial economy—(10) define women solely in their domestic roles of wife and mother. Castañeda finds that during the same period that saw non-Hispanic women being economically displaced by industrialization, Hispanic law in territorial California protected the economic position of (15) "Californianas" (the Mexican women of the territory) by ensuring them property rights and inheritance rights equal to those of males.

For Castañeda, the laws explain a stereotypical plot created primarily by male, non-Hispanic novelists: (20) the story of an ambitious non-Hispanic merchant or trader desirous of marrying an elite Californiana. These novels' favorable portrayal of such women

Questions 89–91 refer to the passage.

89. The "apparent contradiction" mentioned in line 29 refers to the discrepancy between the
- (A) legal status of Mexican women in territorial California and their status in the United States
 - (B) unflattering depiction of Mexicans in novels and the actual public sentiment about the Mexican-American War
 - (C) existence of many marriages between Californianas and non-Hispanic merchants and the strictures against them expressed in novels
 - (D) literary depiction of elite Californianas and the literary depiction of other Mexican individuals
 - (E) novelistic portrayals of elite Californianas' privileged lives and the actual circumstances of those lives
90. Which of the following could best serve as an example of the kind of fictional plot discussed by Antonia

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

By redefining "political activity," historian Paula Baker has developed a political history that includes
(15) women. She concludes that among ordinary
citizens, political activism by women in the
nineteenth century prefigured trends in twentieth
century politics. Defining "politics" as "any action
taken to affect the course of behavior of
(20) government or of the community," Baker concludes
that, while voting and holding office were restricted

Questions 27-32 refer to the passage above.

27. The primary purpose of the passage is to
- (A) enumerate reasons why both traditional scholarly methods and newer scholarly methods have limitations
 - (B) identify a shortcoming in a scholarly approach and describe an alternative approach
 - (C) provide empirical data to support a long-held scholarly assumption
 - (D) compare two scholarly publications on the basis of their authors' backgrounds
 - (E) attempt to provide a partial answer to a long-standing scholarly dilemma
28. The passage suggests which of the following concerning the techniques used by the new political historians described in the first paragraph of the passage?

Historians have identified two dominant currents in the Russian women's movement of the late tsarist period. "Bourgeois" feminism, so called by its more radical opponents, emphasized "individualist" feminist goals such as access to education, career opportunities, and legal equality. "Socialist" feminists, by contrast, emphasized class, rather than gender, as the principal source of women's inequality and oppression, and socialist revolution, not legal reform, as the only road to emancipation and equality.

However, despite antagonism between bourgeois feminists and socialist feminists, the two movements shared certain underlying beliefs. Both regarded paid labor as the principal means by which women might attain emancipation: participation in the workplace and economic self-sufficiency, they believed, would make women socially useful and therefore deserving of equality with men. Both groups also recognized the enormous difficulties women faced when they combined paid labor with motherhood. In fact, at the First All-Russian Women's Congress in 1908, most participants advocated maternity insurance and paid maternity leave, although the intense hostility between some socialists and bourgeois feminists at the Congress made it difficult for them to recognize these areas of agreement. Finally, socialist feminists and most bourgeois feminists concurred in subordinating women's emancipation to what they considered the more important goal of liberating the entire Russian population from political oppression, economic backwardness, and social injustice.

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

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

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

Common Topic 2

Native Americans / Tribes / Paleo-
Indians / American Indians

In *Winters v. United States* (1908), the Supreme Court held that the right to use waters flowing through or adjacent to the Fort Belknap Indian Reservation was reserved to American Indians by the treaty establishing the reservation. Although this treaty did not mention water rights, the Court ruled that the federal government, when it created the reservation, intended to deal fairly with American Indians by reserving for them the waters without which their lands would have been useless. Later decisions, citing *Winters*, established that courts can find federal rights to reserve water for particular purposes if (1) the land in question lies within an enclave under exclusive federal jurisdiction, (2) the land has been formally withdrawn from federal public lands—i.e., withdrawn from the stock of federal lands available for private use under federal land use laws—and set aside or reserved, and (3) the circumstances reveal the government intended to reserve water as well as land when establishing the reservation.

Some American Indian tribes have also established water rights through the courts based on their traditional diversion and use of certain waters prior to the United States' acquisition of sovereignty. For example, the Rio Grande pueblos already existed when the United States acquired sovereignty over New Mexico in 1848. Although they at that time became part of the United States, the pueblo lands never formally constituted a part of federal public lands; in any event, no treaty, statute, or executive order has ever designated or withdrawn the pueblos from public lands as American Indian reservations. This fact, however, has not barred application of the *Winters* doctrine. What constitutes an American Indian reservation is a question of practice, not of legal definition, and the pueblos have always been treated as reservations by the United States. This pragmatic approach is buttressed by *Arizona v. California* (1963), wherein the Supreme Court indicated that the manner in which any type of federal reservation is created does not affect the application to it of the *Winters* doctrine. Therefore, the reserved water rights of Pueblo Indians have priority over other citizens' water rights as of 1848, the year in which pueblos must be considered to have become reservations.

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

There were, however, arguments against this method as a way of acquiring accurate and complete information. Franz Boas, for example, described autobiographies as being "of limited value, and useful chiefly for the study of the perversion of truth by memory," while Paul Radin contended that investigators rarely spent enough time with the tribes they were observing, and inevitably derived results too tinged by the investigator's own emotional tone to be reliable. Even more importantly, as these life stories moved from the traditional oral mode to recorded written form, much was inevitably lost. Editors often decided what elements were significant to the field research on a given tribe. Native Americans recognized that the essence of their lives could not be communicated in English and that events that they thought significant were often deemed unimportant by their interviewers. Indeed, the very act of telling their stories could force Native American narrators to distort their cultures, as taboos had to be broken to speak the names of dead relatives crucial to their family stories.

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

Passage 3

In its 1903 decision in the case of *Lone Wolf v. Hitchcock*, the United States Supreme Court rejected the efforts of three Native American tribes to prevent the opening of tribal lands to non-Indian settlement without tribal consent. In his study of the Lone Wolf case, Blue Clark properly emphasizes the Court's assertion of a virtually unlimited unilateral power of Congress (the House of Representatives and the Senate) over Native American affairs. But he fails to note the decision's more far-reaching impact: shortly after Lone Wolf, the federal government totally abandoned negotiation and execution of formal written agreements with Indian tribes as a prerequisite for the implementation of federal Indian policy. Many commentators believe that this change had already occurred in 1871 when—following a dispute between the House and the Senate over which chamber should enjoy primacy in Indian affairs—Congress abolished the making of treaties with Native American tribes. But in reality the federal government continued to negotiate formal tribal agreements past the turn of the century, treating these documents not as treaties with

8. According to the passage, the congressional action of 1871 had which of the following effects?
 - (A) Native American tribal agreements were treated as legislation that had to be passed by both houses of Congress.
 - (B) The number of formal agreements negotiated between the federal government and Native American tribes decreased.
 - (C) The procedures for congressional approval and implementation of federal Indian policy were made more precise.
 - (D) It became more difficult for Congress to exercise unilateral authority over Native American affairs.
 - (E) The role of Congress in the ratification of treaties with sovereign nations was eventually undermined.
9. According to the passage, which of the following resulted from the Lone Wolf decision?
 - (A) The Supreme Court took on a greater role in Native American affairs.
 - (B) Native American tribes lost their legal standing as sovereign nations in their dealings with the federal government, but their ownership of tribal lands

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

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

Schools expect textbooks to be a valuable source of information for students. My research suggests, however, that textbooks that address the place of Native Americans within the history of the United States distort history to suit (5) a particular cultural value system. In some textbooks, for example, settlers are pictured as more humane, complex, skillful, and wise than Native American. In essence, textbooks stereotype and deprecate the numerous Native American cultures while reinforcing the attitude that the (10) European conquest of the New World denotes the superiority of European cultures. Although textbooks evaluate Native American architecture, political systems, and home-making, I contend that they do it from an ethnocentric, (15) European perspective without recognizing that other perspectives are possible.

One argument against my contention asserts that, by nature, textbooks are culturally biased and that I am simply underestimating children's ability to see through these

Line Exactly when in the early modern era Native Americans began exchanging animal furs with Europeans for European-made goods is uncertain. What is fairly certain, even though they left
(5) no written evidence of having done so, is that the first Europeans to conduct such trade during the modern period were fishing crews working the waters around Newfoundland. Archaeologists had noticed that sixteenth-century Native American sites were strewn with iron bolts and metal pins. Only later, upon reading Nicolas Denys's
(10) 1672 account of seventeenth-century European settlements in North America, did archaeologists realize that sixteenth-century European fishing crews had dismantled and exchanged parts of their ships for furs.
(15)

By the time Europeans sailing the Atlantic coast of North America first documented the fur trade, it was apparently well underway. The first to record
(20) such trade—the captain of a Portuguese vessel sailing from Newfoundland in 1501—observed that a Native American aboard the ship wore Venetian silver

46. The passage suggests that which of the following is partially responsible for the difficulty in establishing the precise date when the fur trade in North America began?
- (A) A lack of written accounts before that of Nicolas Denys in 1672
(B) A lack of written documentation before 1501
(C) Ambiguities in the evidence from Native American sources
(D) Uncertainty about Native American trade networks
(E) Uncertainty about the origin of artifacts supposedly traded by European fishing crews for furs
47. Which of the following, if true, most strengthens the author's assertion in the first sentence of the second paragraph?
- (A) When Europeans retraced Cartier's voyage in the first years of the seventeenth century, they

Anthropologists studying the Hopi people of the southwestern United States often characterize Hopi society between 1680 and 1880 as surprisingly stable, considering that it was a period of diminution in population and pressure from contact with outside groups, factors that might be expected to cause significant changes in Hopi social arrangements.

The Hopis' retention of their distinctive socio-cultural system has been attributed to the Hopi religious elite's determined efforts to preserve their religion and way of life, and also to a geographical isolation greater than that of many other Native American groups, an isolation that limited both cultural contact and exposure to European diseases. But equally important to Hopi cultural persistence may have been an inherent flexibility in their social system that may have allowed preservation of traditions even as the Hopis accommodated themselves to change. For example, the system of matrilineal clans was maintained throughout this period, even though some clans merged to form larger groups while others divided into smaller descent groups. Furthermore, although traditionally members of particular Hopi clans appear to have exclusively controlled particular ceremonies, a

The author of the passage would be most likely to agree with which of the following statements about the explanation outlined in the highlighted text?

- Native American*
- A. It fails to take into account the effect of geographical circumstances on Hopi culture.
 - B. It correctly emphasizes the role of the religious elite in maintaining the system of matrilineal clans.
 - C. It represents a misreading of Hopi culture because it fails to take into account the actual differences that existed among the various Hopi clans.
 - D. It underestimates the effect on Hopi cultural development of contact with other cultural groups.
 - E. It is correct but may be insufficient in itself to explain Hopi socio-cultural persistence.

Which of the following can be inferred from the passage about the Hopis' geographic situation between 1680 and 1880?

- A. It prevented the Hopis from experiencing a diminution in population.
- B. It helped to promote flexibility within their social system.
- C. It limited but did not eliminate contact with other cultural groups.

By the sixteenth century, the Incas of South America ruled an empire that extended along the Pacific coast and Andean highlands from what is now Ecuador to central Chile. While most of the Incas were self-sufficient agriculturists, the inhabitants of the highland basins above 9,000 feet were constrained by the kinds of crops they could cultivate. Whereas 95 percent of the principal Andean food crops can be cultivated below 3,000 feet, only 20 percent reproduce readily above 9,000 feet. Given this unequal resource distribution, highland Incas needed access to the products of lower, warmer climatic zones in order to enlarge the variety and quantity of their foodstuffs. In most of the preindustrial world, the problem of different resource distribution was resolved by long-distance trade networks over which the end consumer exercised little control. Although the peoples of the Andean highlands participated in such networks, they relied primarily on the maintenance of autonomous production forces in as many ecological zones as possible. The commodities produced in these zones were extracted, processed, and transported entirely by members of a single group.

According to the passage, which of the following is true about the preindustrial long-distance trade networks mentioned in the highlighted text?

- Native Americans*
- A. They were not used extensively in most of the preindustrial world.
 - B. They were used to some extent by the people of the Andean highlands.
 - C. They were not an effective means of solving the problem of different resource distribution.
 - D. They necessitated the establishment of permanent satellite communities in widely dispersed locations.
 - E. They were useful only for the transportation of products from warm climatic zones.

According to the passage, the inhabitants of the Andean highlands resolved the problem of unequal resource distribution primarily in which of the following ways?

- A. Following self-sufficient agricultural practices
- B. Increasing commodity production from the ecological zones in the highland basins
- C. Increasing their reliance on long-distance trade networks

Passage 16

What kinds of property rights apply to Native American Algonquian family hunting territories, and how did they come to be? The dominant view in recent decades has been that family hunting territories, like other forms of private landownership, were not found among Algonquians (a group of North American Indian tribes) before contact with Europeans but are the result of changes in Algonquian society brought about by the European-Algonquian fur trade, in combination with other factors such as ecological changes and consequent shifts in wildlife harvesting patterns. Another view claims that Algonquian family hunting territories predate contact with Europeans and are forms of private landownership by individuals and families. More recent fieldwork, however, has shown that individual and family rights to hunting territories form part of a larger land-use system of multifamilial hunting groups, that rights to hunting territories at this larger community level take precedence over those at the individual or family level, and that this system reflects a concept of spiritual and social reciprocity that conflicts with European concepts of private property.

*Native American
Algonquian*

53. The primary purpose of the passage is to
- (A) provide an explanation for an unexpected phenomenon
 - (B) suggest that a particular question has yet to be answered
 - (C) present a new perspective on an issue
 - (D) defend a traditional view from attack
 - (E) reconcile opposing sides of an argument
54. It can be inferred from the passage that proponents of the view mentioned in the first highlighted text believe which of the following about the origin of Algonquian family hunting territories?
- (A) They evolved from multifamilial hunting territories.
 - (B) They are an outgrowth of reciprocal land-use practices.
 - (C) They are based on certain spiritual beliefs.
 - (D) They developed as a result of contact with Europeans.
 - (E) They developed as a result of trade with non-Algonquian Indian tribes.
55. According to the passage, proponents of the view

In the fourteenth and fifteenth centuries, many Western Pueblo settlements in what is now the southwestern United States may have possessed distinctly hierarchical organizational structures. These communities' agricultural systems—which were "intensive" in the use of labor rather than "extensive" in area—may have given rise to political leadership that managed both labor and food resources. That formal management of food resources was needed is suggested by the large size of storage spaces located around some communal Great Kivas (underground ceremonial chambers). Though no direct evidence exists that such spaces were used to store food, Western Pueblo communities lacking sufficient arable land to support their populations could have preserved the necessary extra food, including imported foodstuffs, in such apparently communal spaces. Moreover, evidence of specialization in producing raw materials and in manufacturing ceramics and textiles indicates differentiation of labor within and between communities. The organizational and managerial demands of such specialization strengthen the possibility that a decision-making elite existed, an elite whose control over labor, the use of community

Which of the following, if true, would most clearly undermine the author's statement in the last sentence of the passage regarding the distribution of wealth in Western Pueblo settlements?

- Native American*
- A. Only community members of exceptional wealth are likely to have been buried with their personal possessions.
 - B. Members of communities with extensive agricultural systems are usually buried without personal possessions.
 - C. Most artifacts found in burial sites were manufactured locally rather than imported from other communities.
 - D. Burial artifacts are often ritual objects associated with religious practices rather than being the deceased's personal possessions.
 - E. The quality of burial artifacts varies depending on the site with which they are associated.

According to the passage, which of the following is probably true of the storage spaces mentioned in highlighted text?

- A. They were used by the community elite for storage of their own food supplies.

According to a theory advanced by researcher Paul Martin, the wave of species extinctions that occurred in North America about 11,000 years ago, at the end of the Pleistocene era, can be directly attributed to the arrival of humans, i.e., the Paleo-Indians, who were ancestors of modern Native Americans.

However, anthropologist Shepard Krech points out that large animal species vanished even in areas where there is no evidence to demonstrate that Paleoindians hunted them. Nor were extinctions confined to large animals: small animals, plants, and insects disappeared, presumably not all through human consumption.

Krech also contradicts Martin's exclusion of climatic change as an explanation by asserting that widespread climatic change did indeed occur at the end of the Pleistocene. Still, Krech attributes secondary if not primary responsibility for the extinctions to the Paleo-Indians, arguing that humans have produced local extinctions elsewhere.

But, according to historian Richard White, even the attribution of secondary responsibility may not be supported by the evidence. White observes that Martin's thesis depends on coinciding dates for the arrival of humans and the decline of large animal species, and Krech, though aware that the dates are controversial, does not challenge them; yet **recent archaeological discoveries** are providing evidence that the date of human arrival was much earlier than 11,000 years ago. Thus White's hypothesis stands vindicated.

Two divergent definitions have dominated sociologists' discussions of the nature of ethnicity. The first emphasizes the primordial and unchanging character of ethnicity. In this view, people have an essential need for belonging that

- (5) is satisfied by membership in groups based on shared ancestry and culture. A different conception of ethnicity de-emphasizes the cultural component and defines ethnic groups as interest groups. In this view, ethnicity serves as a way of mobilizing a certain population behind issues
(10) relating to its economic position. While both of these definitions are useful, neither fully captures the dynamic and changing aspects of ethnicity in the United States.
Rather, ethnicity is more satisfactorily conceived of as a process in which preexisting communal bonds and common
(15) cultural attributes are adapted for instrumental purposes according to changing real-life situations.

One example of this process is the rise of participation by Native American people in the broader United States political system since the Civil Rights movement of the

Common Topic 3

Blacks / African Americans

In the two decades between 1910 and 1930, more than 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 more than 600,000 black workers, or ten percent of the black workforce, 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.

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.

Line In a 1918 editorial, W. E. B. Du Bois advised African Americans to stop agitating for equality and to proclaim their solidarity with White Americans for the duration of the First World War. The editorial (5) surprised many African Americans who viewed Du Bois as an uncompromising African American leader and a chief opponent of the accommodationist tactics urged by Booker T. Washington. In fact, however, Du Bois often shifted positions along the (10) continuum between Washington and confrontationists such as William Trotter. In 1895, when Washington called on African Americans to concentrate on improving their communities instead of opposing discrimination and agitating for political rights, Du Bois praised Washington's speech. In (15) 1903, however, Du Bois aligned himself with Trotter, Washington's militant opponent, less for ideological reasons than because Trotter had described to him Washington's efforts to silence those in the African American press who opposed Washington's (20) positions.

Questions 45-49 refer to the passage above.

45. The passage is primarily concerned with
- (A) identifying historical circumstances that led Du Bois to alter his long-term goals
 - (B) defining "accommodationism" and showing how Du Bois used this strategy to achieve certain goals
 - (C) accounting for a particular position adopted by Du Bois during the First World War
 - (D) contesting the view that Du Bois was significantly influenced by either Washington or Trotter
 - (E) assessing the effectiveness of a strategy that Du Bois urged African Americans to adopt
46. The passage indicates which of the following about Du Bois's attitude toward Washington?
- (A) It underwent a shift during the First World War as Du Bois became more sympathetic with Trotter's

Passage 39

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

- (5) 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
- (10) 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

(15) skepticism toward unions, which had historically barred Black workers from membership. An additional obstacle was the union that Pullman itself had formed, which

Line When Jamaican-born social activist Marcus Garvey came to the United States in 1916, he arrived at precisely the right historical moment. What made the moment right was the return of
(5) **African American soldiers** from the First World War in 1918, which created an ideal constituency for someone with Garvey's message of unity, pride, and improved conditions for African American communities.

(10) Hoping to participate in the traditional American ethos of individual success, many **African American** people entered the armed forces with enthusiasm, only to find themselves segregated from white troops and subjected to numerous indignities. They
(15) returned to a United States that was as segregated as it had been before the war. Considering similar experiences, anthropologist Anthony F. C. Wallace has argued that when a perceptible gap arises between a culture's expectations and the reality of
(20) that culture, the resulting tension can inspire a revitalization movement: an organized, conscious effort to construct a culture that fulfills long-standing expectations.

Some scholars have argued that Garvey created

Questions 14–17 refer to the passage above.

14. According to the passage, which of the following contributed to Marcus Garvey's success?
- (A) He introduced cultural and historical consciousness to the African American community.
- (B) He believed enthusiastically in the traditional American success ethos.
- (C) His audience had already formed a consciousness that made it receptive to his message.
- (D) His message appealed to critics of African American support for United States military involvement in the First World War.
- (E) He supported the movement to protest segregation that had emerged prior to his arrival in the United States.
15. The passage suggests that many African American people responded to their experiences in the armed forces in which of the following ways?

In the 1930's and 1940's, African American industrial workers in the southern United States, who constituted 80 percent of the unskilled factory labor force there, strongly supported unionization. While the American Federation of Labor (AFL) either excluded African Americans or maintained racially segregated unions, the Congress of Industrial Organizations (CIO) organized integrated unions nationwide on the basis of a stated policy of equal rights for all, and African American unionists provided the CIO's backbone. Yet it can be argued that through contracts negotiated and enforced by White union members, unions—CIO unions not excluded—were often instrumental in maintaining the occupational segregation and other forms of racial discrimination that kept African Americans socially and economically oppressed during this period. However, recognizing employers' power over workers as a central factor in African Americans' economic marginalization, African American workers saw the need to join with White workers in seeking change despite White unionists' toleration of or support for racial discrimination. The persistent efforts of African American unionists eventually paid off:

- The passage is primarily concerned with
- A. demonstrating that unions failed to address the concerns of African American workers during a particular period
 - B. arguing that African American workers' participation in unions during a particular period was ultimately beneficial to them
 - C. contrasting the treatment of African American workers by two different labor organizations during a particular period
 - D. giving reasons for the success of African American unionists in winning victories for both African American and White workers during a particular period
 - E. questioning one explanation for the attitudes of African American workers toward unionization during a particular period

According to the passage, which of the following was true of many racist White unionists during the period discussed in the passage?

- A. Their attitudes toward African American union organizers changed once they recognized that the activities of these organizers were serving workers'

Some historians contend that conditions in the United States during the Second World War gave rise to a dynamic wartime alliance between trade unions and the African American community, an alliance that advanced the cause of civil rights. They conclude that the postwar demise of this vital alliance constituted a lost opportunity for the civil rights movement that followed the war. Other scholars, however, have portrayed organized labor as defending all along the relatively privileged position of White workers relative to African American workers. Clearly, these two perspectives are not easily reconcilable, but the historical reality is not reducible to one or the other. Unions faced a choice between either maintaining the prewar status quo or promoting a more inclusive approach that sought for all members the right to participate in the internal affairs of unions, access to skilled and high-paying positions within the occupational hierarchy, and protection against management's arbitrary authority in the workplace. While union representatives often voiced this inclusive ideal, in practice unions far more often favored entrenched interests. The accelerating development of

The passage is primarily concerned with

- A. providing a context within which to evaluate opposing viewpoints about a historical phenomenon
- B. identifying a flawed assumption underlying one interpretation of a historical phenomenon
- C. assessing the merits and weaknesses of a controversial theory about a historical phenomenon
- D. discussing the historical importance of the development of a wartime alliance
- E. evaluating evidence used to support a particular interpretation of a historical phenomenon

According to the passage, the historians and scholars mentioned in the highlighted texts disagree about the

- A. contribution made by organized labor to the war effort during the Second World War
- B. issues that union members considered most important during the Second World War
- C. relationship between unions and African Americans during the Second World War
- D. effect of the Second World War on the influence of unions in the workplace
- E. extent to which African Americans benefited from

Joseph Glarthaar'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 concen-

(5) rates more intensely on Black-White relations in Black regiments than do any of its predecessors. Glathaar'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.

(10) Glarthaar 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 through

(15) out 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

Common Topic 4

Minorities

(Blacks, Native Americans, Asians, Hispanics)

Passage 3

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

- (5) 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 15
(10) 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

- (15) minority business sector by moving away from directly

Line

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

(15)

A complicating factor has been the continuing lack of specialized one-volume reference works on Asian Americans, such as biographical dictionaries or desktop encyclopedias. Such works would enable students taking Asian American studies courses (and professors in related fields) to look up basic information on Asian American individuals, institutions, history, and culture without having

Questions 43–47 refer to the passage above.

43. The author of the passage is primarily concerned with doing which of the following?

- (A) Recommending a methodology
- (B) Describing a course of study
- (C) Discussing a problem
- (D) Evaluating a past course of action
- (E) Responding to a criticism

44. The "dilemma" mentioned in line 3 can best be characterized as being caused by the necessity to make a choice when faced with a

- (A) lack of acceptable alternatives
- (B) lack of strict standards for evaluating alternatives
- (C) preponderance of bad alternatives as compared to good
- (D) multitude of different alternatives
- (E) large number of alternatives that are nearly identical in content

Line During the 1980s, many economic historians studying Latin America focused on the impact of the Great Depression of the 1930s. Most of these historians argued that although the Depression began earlier in Latin America than in the United States, it was less severe in Latin America and did not significantly impede industrial growth there.

(5) The historians' argument was grounded in national government records concerning tax revenues and exports and in government-sponsored industrial censuses, from which historians have drawn conclusions about total manufacturing output and profit levels across Latin America. However,

(10) economic statistics published by Latin American governments in the early twentieth century are neither reliable nor consistent; this is especially true of manufacturing data, which were gathered from factory owners for taxation purposes and which therefore may well be distorted. Moreover,

(15) one cannot assume a direct correlation between the output level and the profit level of a given industry as these variables often move in opposite

Questions 471–473 refer to the passage.

471. The primary purpose of the passage is to
- (A) compare the impact of the Great Depression on Latin America with its impact on the United States
 - (B) criticize a school of economic historians for failing to analyze the Great Depression in Latin America within a global context
 - (C) illustrate the risks inherent in comparing different types of economic enterprises to explain economic phenomena
 - (D) call into question certain scholars' views concerning the severity of the Great Depression in Latin America
 - (E) demonstrate that the Great Depression had a more severe impact on industry in Latin America than in certain other regions

Common Topic 5

Brain

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 and of 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 is in a 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.

Line Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Snyder, Daly, and Bruns have recently proposed that caffeine affects behavior by (5) countering the activity in the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, (10) chemicals that carry nerve impulses from one neuron to the next.

Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at (15) least two classes of these receptors, which have been designated A₁ and A₂. Snyder et al. propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily (20) than they otherwise would.

Line There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutylT-methylxanthine (55) (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al. suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence (60) with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

Line The idea of the brain as an information processor—a machine manipulating blips of energy according to fathomable rules—has come to dominate neuroscience. However, one enemy of (5) the brain-as-computer metaphor is John R. Searle, a philosopher who argues that since computers simply follow algorithms, they cannot deal with important aspects of human thought such as meaning and content. Computers are syntactic, (10) rather than semantic, creatures. People, on the other hand, understand meaning because they have something Searle obscurely calls the causal powers of the brain.

Yet how would a brain work if not by reducing (15) what it learns about the world to information—some kind of code that can be transmitted from neuron to neuron? What else could meaning and content be? If the code can be cracked, a computer should be able to simulate it, at least in principle. But (20) even if a computer could simulate the workings of the mind, Searle would claim that the machine would not really be thinking; it would just be acting

54. The main purpose of the passage is to
- (A) propose an experiment
 - (B) analyze a function
 - (C) refute an argument
 - (D) explain a contradiction
 - (E) simulate a process
55. Which of the following is most consistent with Searle's reasoning as presented in the passage?
- (A) Meaning and content cannot be reduced to algorithms.
 - (B) The process of digestion can be simulated mechanically, but not on a computer.
 - (C) Simulated thoughts and real thoughts are essentially similar because they are composed primarily of information.
 - (D) A computer can use "causal powers" similar to those of the human brain when processing information.

Line

Scientists long believed that two nerve clusters in the human hypothalamus, called suprachiasmatic nuclei (SCNs), were what controlled our circadian rhythms. Those rhythms are the biological cycles that recur approximately every 24 hours in synchronization with the cycle of sunlight and darkness caused by Earth's rotation. Studies have demonstrated that in some animals, the SCNs control daily fluctuations in blood pressure, body temperature, activity level, and alertness, as well as the nighttime release of the sleep-promoting agent melatonin. Furthermore, cells in the human retina dedicated to transmitting information about light levels to the SCNs have recently been discovered.

(5)

(10)

(15)

(20)

Four critical genes governing circadian cycles have been found to be active in every tissue, however, not just the SCNs, of flies, mice, and humans. In addition, when laboratory rats that usually ate at will were fed only once a day, peak activity of a clock gene in their livers shifted by 12 hours, whereas the same clock gene in the SCNs remained synchronized with light cycles. While

Brain

Questions 409–411 refer to the passage.

409. The primary purpose of the passage is to
- (A) challenge recent findings that appear to contradict earlier findings
 - (B) present two sides of an ongoing scientific debate
 - (C) report answers to several questions that have long puzzled researchers
 - (D) discuss evidence that has caused a long-standing belief to be revised
 - (E) attempt to explain a commonly misunderstood biological phenomenon
410. The passage mentions each of the following as a function regulated by the SCNs in some animals EXCEPT
- (A) activity level
 - (B) blood pressure

The term "episodic memory" was introduced by Tulving to refer to what he considered a uniquely human capacity—the ability to recollect specific past events, to travel back into the past in one's own mind—as distinct from the capacity simply to use information acquired through past experiences. Subsequently, Clayton et al. developed criteria to test for episodic memory in animals. According to these criteria, episodic memories are not of individual bits of information; they involve multiple components of a single event "bound" together. Clayton sought to examine evidence of scrub jays' accurate memory of "what," "where," and "when" information and their binding of this information. In the wild, these birds store food for retrieval later during periods of food scarcity. Clayton's experiment required jays to remember the type, location, and freshness of stored food based on a unique learning event. Crickets were stored in one location and peanuts in another. Jays prefer crickets, but crickets degrade more quickly. Clayton's birds switched their preference from crickets to peanuts once the food had been stored for a certain length of time, showing that they retain information

- The primary purpose of the passage is to
- A. explain how the findings of a particular experiment have been interpreted and offer an alternative interpretation
 - B. describe a particular experiment and point out one of its limitations
 - C. present similarities between human memory and animal memory
 - D. point out a flaw in the argument that a certain capacity is uniquely human
 - E. account for the unexpected behavior of animal subjects in a particular experiment

- According to the passage, Clayton's experiment depended on the fact that scrub jays
- A. recall "when" and "where" information more distinctly than "what" information
 - B. are not able to retain information about a single past event for an indefinitely long period of time
 - C. choose peanuts over crickets when the crickets have been stored for a long period of time
 - D. choose crickets over peanuts whenever both are available

Common Topic 6

Astronomy / Stars / Galaxies / Black
Holes / Meteors / Asteroids

Line Suppose we were in a spaceship in free fall, where objects are weightless, and wanted to know a small solid object's mass. We could not simply balance that object against another of known weight, as we would on Earth. The unknown mass could be determined, however, by placing the object on a spring scale and swinging the scale in a circle at the end of a string. The scale would measure the tension in the string, which would depend on both the speed of revolution and the mass of the object. The tension would be greater, the greater the mass or the greater the speed of revolution. From the measured tension and speed of whirling, we could determine the object's mass.

(15) Astronomers use an analogous procedure to "weigh" double-star systems. The speed with which the two stars in a double-star system circle one another depends on the gravitational force between them, which holds the system together. This attractive force, analogous to the tension in the string, is proportional to the stars' combined mass, according to Newton's law of gravitation. By

Questions 35–38 refer to the passage.

35. It can be inferred from the passage that the two procedures described in the passage have which of the following in common?
- (A) They have been applied in practice.
(B) They rely on the use of a device that measures tension.
(C) Their purpose is to determine an unknown mass.
(D) They can only be applied to small solid objects.
(E) They involve attraction between objects of similar mass.
36. According to the passage, the tension in the string mentioned in lines 8–9 is analogous to which of the following aspects of a double-star system?
- (A) The speed with which one star orbits the other
(B) The gravitational attraction between the stars
(C) The amount of time it takes for the stars to circle

Line In 1994, a team of scientists led by David McKay began studying the meteorite ALH84001, which had been discovered in Antarctica in 1984. Two years later, the McKay team announced that ALH84001, (5) which scientists generally agree originated on Mars, contained compelling evidence that life once existed on Mars. This evidence includes the discovery of organic molecules in ALH84001, the first ever found in Martian rock. Organic (10) molecules—complex, carbon-based compounds—form the basis for terrestrial life. The organic molecules found in ALH84001 are polycyclic aromatic hydrocarbons, or PAHs. When microbes die, their organic material often decays into PAHs. (15) Skepticism about the McKay team's claim remains, however. For example, ALH84001 has been on Earth for 13,000 years, suggesting to some scientists that its PAHs might have resulted from terrestrial contamination. However, McKay's (20) team has demonstrated that the concentration of PAHs increases as one looks deeper into ALH84001, contrary to what one would expect from

Questions 39–44 refer to the passage.

39. The primary purpose of the passage is to
- (A) describe new ways of studying the possibility that life once existed on Mars
 - (B) revise a theory regarding the existence of life on Mars in light of new evidence
 - (C) reconcile conflicting viewpoints regarding the possibility that life once existed on Mars
 - (D) evaluate a recently proposed argument concerning the origin of ALH84001
 - (E) describe a controversy concerning the significance of evidence from ALH84001
40. The passage asserts which of the following about the claim that ALH84001 originated on Mars?
- (A) It was initially proposed by the McKay team of scientists.
 - (B) It is not a matter of widespread scientific

Line Milankovitch proposed in the early twentieth century that the ice ages were caused by variations in the Earth's orbit around the Sun. For some time this theory was considered untestable,
(5) 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
(10) 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
(15) 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

- (45) 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.
(50) 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.
(55)
(60)

Questions 70–75 refer to the passage above.

Line After evidence was obtained in the 1920s that
the universe is expanding, it became reasonable
to ask: Will the universe continue to expand
indefinitely, or is there enough mass in it for the
(5) mutual attraction of its constituents to bring this
expansion to a halt? It can be calculated that
the critical density of matter needed to brake the
expansion and “close” the universe is equivalent
to three hydrogen atoms per cubic meter. But the
(10) density of the observable universe—luminous matter
in the form of galaxies—comes to only a fraction
of this. If the expansion of the universe is to stop,
there must be enough invisible matter in the
universe to exceed the luminous matter in density
(15) by a factor of roughly 70.

Our contribution to the search for this “missing matter” has been to study the rotational velocity of galaxies at various distances from their center of rotation. It has been known for some time that

Questions 115–119 refer to the passage above.

115. The passage is primarily concerned with
- (A) defending a controversial approach
 - (B) criticizing an accepted view
 - (C) summarizing research findings
 - (D) contrasting competing theories
 - (E) describing an innovative technique
116. The authors’ study indicates that, in comparison with the outermost regions of a typical spiral galaxy, the region just outside the nucleus can be characterized as having
- (A) higher rotational velocity and higher luminosity
 - (B) lower rotational velocity and higher luminosity
 - (C) lower rotational velocity and lower luminosity

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

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

Has the predicted twin-peaked activity been observed for the actual yearly Geminid meteor shower? The

New observations about the age of some globular clusters in our Milky Way galaxy have cast doubt on a long-held theory about how the galaxy was formed. The Milky Way contains about 125 globular clusters (compact groups of anywhere from several tens of thousands to perhaps a million stars) distributed in a roughly spherical halo around the galactic nucleus. The stars in these clusters are believed to have been born during the formation of the galaxy, and so may be considered relics of the original galactic nebula, holding vital clues to the way of the formation took place. The conventional theory of the formation of the galaxy contends that roughly 12 to 13 billion years ago the Milky Way formed over a relatively short time (about 200 million years) when a spherical cloud of gas collapsed under the pressure of its own gravity into a disc surrounded by a halo. Such a rapid formation of the galaxy would mean that all stars in the halo should be very nearly the same age.

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

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

Line In addition to conventional galaxies, the universe contains very dim galaxies that until recently went unnoticed by astronomers. Possibly as numerous as conventional galaxies, these galaxies have the same general shape and even the same approximate number of stars as a common type of conventional galaxy, the spiral, but tend to be much larger. Because these galaxies' mass is spread out over larger areas, they have far fewer stars per unit volume than do conventional galaxies. Apparently these low-surface-brightness galaxies, as they are called, take much longer than conventional galaxies to condense their primordial gas and convert it to stars—that is, they evolve much more slowly.

(5) (10) (15) (20)

These galaxies may constitute an answer to the long-standing puzzle of the missing baryonic mass in the universe. Baryons—subatomic particles that are generally protons or neutrons—are the source of stellar, and therefore galactic, luminosity, and so their numbers can be estimated based on how luminous galaxies are. However, the amount of helium in the universe, as measured by

Questions 82–86 refer to the passage.

82. According to the passage, conventional spiral galaxies differ from low-surface-brightness galaxies in which of the following ways?
- (A) They have fewer stars than do low-surface-brightness galaxies.
(B) They evolve more quickly than low-surface-brightness galaxies.
(C) They are more diffuse than low-surface-brightness galaxies.
(D) They contain less helium than do low-surface-brightness galaxies.
(E) They are larger than low-surface-brightness galaxies.
83. It can be inferred from the passage that which of the following is an accurate physical description of typical low-surface-brightness galaxies?
- (A) They are large spiral galaxies containing fewer

Line When asteroids collide, some collisions cause
an asteroid to spin faster; others slow it down. If
asteroids are all monoliths—single rocks—undergoing
random collisions, a graph of their rotation rates
(5) should show a bell-shaped distribution with statistical
“tails” of very fast and very slow rotators. If asteroids
are rubble piles, however, the tail representing the
very fast rotators would be missing, because any
loose aggregate spinning faster than once every few
(10) hours (depending on the asteroid’s bulk density)
would fly apart. Researchers have discovered that
all but five observed asteroids obey a strict limit on
rate of rotation. The exceptions are all smaller than
200 meters in diameter, with an abrupt cutoff for
(15) asteroids larger than that.

The evident conclusion—that asteroids larger than
200 meters across are multicomponent structures or
rubble piles—agrees with recent computer modeling
of collisions, which also finds a transition at that
(20) diameter. A collision can blast a large asteroid to bits,
but after the collision those bits will usually move
slower than their mutual escape velocity. Over several

Questions 537–540 refer to the passage.

537. The passage implies which of the following about the five asteroids mentioned in line 12?

- (A) Their rotation rates are approximately the same.
- (B) They have undergone approximately the same number of collisions.
- (C) They are monoliths.
- (D) They are composed of fragments that have escaped the gravity of larger asteroids.
- (E) They were detected only recently.

538. The discovery of which of the following would call into question the conclusion mentioned in line 16?

- (A) An asteroid 100 meters in diameter rotating at a rate of once per week
- (B) An asteroid 150 meters in diameter rotating at a rate of 20 times per hour

Astronomers theorize that a black hole forms when a massive object shrinks catastrophically under its own gravity, leaving only a gravitational field so strong that nothing escapes it. Astronomers must infer the existence of black holes, which are invisible, from their gravitational influence on the visible bodies surrounding them. For example, observations indicate that gas clouds in galaxy M87 are whirling unusually fast about the galaxy's center. Most astronomers believe that the large concentration of mass at the galaxy's center is a black hole whose gravity is causing the gas to whirl. A few skeptics have argued that the concentration of mass necessary to explain the speed of the whirling gas is not necessarily a black hole: the concentration in M87 might be a cluster of a billion or so dim stars.

The same hypothesis might have been applied to the galaxy NGC 4258, but the notion of such a cluster's existing in NGC 4258 was severely undermined when astronomers measured the speed of a ring of dust and gas rotating close to the galaxy's center. From its speed, they calculated that the core's density is more than 40 times the density estimated for any other

The skeptics mentioned in the first paragraph would be most likely to agree with the astronomers mentioned in the same paragraph about which of the following statements concerning the galaxy M87?

- A. The speed of the gas whirling around the center of M87 is caused by a dense object that is not a black hole.
- B. The concentration of mass at the center of M87 is probably a large cluster of dim stars.
- C. The presence of a black hole at the center of M87 is the most likely explanation for the speed of the gas whirling about the galaxy's core.
- D. The speed of the gas whirling around the center of M87 is caused by a large concentration of mass at the core of M87.
- E. The gravitational influence of a star cluster would not be strong enough to account for the speed of the gas whirling around the core of M87.

The passage asserts which of the following about the existence of black holes?

- A. Astronomers first speculated about the existence of black holes when they observed gas whirling around

Passage 36

This passage was excerpted from material published in 1996.

When a large body strikes a planet or moon, material is ejected, thereby creating a hole in the planet and a local deficit of mass. This deficit shows up as a gravity anomaly: the removal of material that has been ejected to make the hole results in an area in slightly lower gravity than surrounding areas. One would therefore expect that all of the large multi-ring impact basins on the surface of earth's moon would show such negative gravity anomalies, since they are, essentially, large holes in lunar surface. Yet data collected in 1994 by the Clementine spacecraft show that many of these Clementine basins have no anomalously low gravity and some even have anomalously high gravity. **Scientists** speculate that early in lunar history, when large impactors struck the moon's surface, causing millions of cubic kilometers of crustal debris to be ejected, denser material from the moon's mantle rose up beneath the impactors almost immediately, compensating for the ejected material

58. According to the passage, the gravitational compensation referred to in the highlighted text is caused by which of the following?
- (A) A deficit of mass resulting from the creation of hole in lunar surface
 - (B) The presence of material from the impactor in the debris created by its impact
 - (C) The gradual cooling and stiffening of the Moon's outer surface
 - (D) The ejection of massive amounts of debris from the moon's crust
 - (E) The rapid upwelling of material from the lunar mantle
59. The Passage suggests that if the scientists mentioned in the highlighted text are correct in their speculations, the large multi-ring impact basins on the Moon with the most significant negative gravity anomalies probably
- (A) were not formed early in the Moon's history
 - (B) were not formed by the massive ejection of crustal debris
 - (C) are closely surrounded by other impact basins with anomalously low gravity

Line **Io and Europa, the inner two of Jupiter's four largest moons, are about the size of Earth's moon and are composed mostly or entirely of rock and metal. Ganymede and Callisto are larger and roughly half ice.** Thus, these four moons are somewhat analogous to the planets of the solar system, in which the rock- and metal-rich inner planets are distinct from the much larger gas- and ice-rich outer planets.

(5) Jupiter's moons are, however, more "systematic": many of their properties vary continuously with distance from Jupiter. For example, Io is ice-free, Europa has a surface shell of ice, and while Ganymede and Callisto are both ice-rich, outermost Callisto has more.

(10) This compositional gradient has geological parallels. Io is extremely geologically active, Europa seems to be active on a more modest scale, and Ganymede has undergone bouts of activity in its geological past. Only Callisto reveals no geological

(15) activity. In similar fashion, Callisto's surface is very **heavily cratered from the impact of comets and asteroids;** Ganymede, like Earth's moon, is heavily cratered in parts; Europa is very lightly cratered; and

Questions 11–13 refer to the passage above.

11. According to the passage, the difference in the amount of cratering on Callisto's and Io's respective surfaces can probably be explained by the difference between these two moons with respect to which of the following factors?
- (A) Size
(B) Ice content
(C) The rate of bombardment by comets and asteroids
(D) The influence of Jupiter's other moons
(E) The level of geological activity
12. Which of the following best describes the purpose of the second paragraph of the passage?
- (A) To provide further evidence of the systematic variation in the characteristics of Jupiter's four largest moons
(B) To present a comprehensive theory to explain the relationship between the composition and geological activity of Jupiter's four largest moons

Passage 35

In the 1980's, astronomer Bohdan Paczynski proposed a way of determining whether the enormous dark halo constituting the outermost part of the Milky Way galaxy is composed of MACHO's (massive compact halo objects), which are astronomical objects too dim to be visible. Paczynski reasoned that if MACHO's make up this halo, a MACHO would occasionally drift in front of a star in the Large Magellanic Cloud, a bright galaxy near the Milky Way. The gravity of a MACHO that had so drifted, astronomers agree, would cause the star's light rays, which would otherwise diverge, to bend together so that, as observed from Earth, the star would temporarily appear to brighten, a process known as microlensing. Because many individual stars are of intrinsically variable brightness, some astronomers have contended that the brightening of intrinsically variable stars can be mistaken for microlensing. However, whereas the different colors of light emitted by an intrinsically variable star are affected differently when the star brightens, all of a star's colors are equally affected by microlensing. Thus if a MACHO magnifies a star's red light tenfold, it

55. It can be inferred from the passage that which of the following would constitute the strongest evidence of the microlensing of a star in the Large Magellanic Cloud?
- (A) The brightness of such a star is observed to vary at irregular intervals.
 - (B) The brightening of such a star is observed to be of shorter duration than the brightening of neighboring stars.
 - (C) The red light of such a star is observed to be brighter than its yellow light and its blue light.
 - (D) The red light, yellow light, and blue light of such a star are observed to be magnified temporarily by the same factor.
 - (E) The red light of such a star is observed to have increased tenfold.
56. According to the passage, Paczynski's theory presumes that if MACHO's constituted the Milky Way's dark halo, occasionally a MACHO would
- (A) drift so as to lie in a direct line between two stars in the outer Milky Way
 - (B) affect the light rays of a star in the Large Magellanic Cloud with the result that the star

Line

Most attempts by physicists to send particles faster than the speed of light involve a remarkable phenomenon called quantum tunneling, in which particles travel through solid barriers that appear to be impenetrable. If you throw a ball at a wall, you expect it to bounce back, not to pass straight through it. Yet subatomic particles perform the equivalent feat. Quantum theory says that there is a distinct, albeit small, probability that such a particle will tunnel its way through a barrier; the probability declines exponentially as the thickness of the barrier increases. Though the extreme rapidity of quantum tunneling was noted as early as 1932, not until 1955 was it hypothesized—by Wigner and Eisenbud—that tunneling particles sometimes travel faster than light. Their grounds were calculations that suggested that the time it takes a particle to tunnel through a barrier increases with the thickness of the barrier until tunneling time reaches a maximum; beyond that maximum, tunneling time stays the same regardless of barrier thickness. This would imply that once

Questions 541–543 refer to the passage.

541. The author of the passage mentions calculations about tunneling time and barrier thickness in order to
- (A) suggest that tunneling time is unrelated to barrier thickness
 - (B) explain the evidence by which Wigner and Eisenbud discovered the phenomenon of tunneling
 - (C) describe data recently challenged by Raymond Chiao and colleagues
 - (D) question why particles engaged in quantum tunneling rarely achieve extremely high speeds
 - (E) explain the basis for Wigner and Eisenbud's hypothesis
542. The passage implies that if tunneling time reached no maximum in increasing with barrier thickness, then
- (A) tunneling speed would increase with barrier

Common Topic 7

Biological Evolution

Animal / Human Evolution

Animal behavior / Fossils

Behavior based on Biological Evolution

Two opposing scenarios, the “arboreal” hypothesis and the “cursorial” hypothesis, have traditionally been put forward concerning the **origins of bird flight**. The “arboreal” hypothesis holds that bird ancestors began to fly by climbing trees and gliding down from branches with the help of incipient feathers: the height of trees provides a good starting place for launching flight, especially through gliding. As feathers became larger over time, flapping flight evolved and birds finally became fully air-borne. This hypothesis makes intuitive sense, but certain aspects are troubling. Archaeopteryx (the earliest known bird) and its maniraptoran dinosaur cousins have no obviously arboreal adaptations, such as feet fully adapted for perching. Perhaps some of them could climb trees, but no convincing analysis has demonstrated how Archaeopteryx would have both climbed and flown with its forelimbs, and there were no plants taller than a few meters **in** the environments where Archaeopteryx **fossils** have been found. Even if the animals could climb trees, this ability is not synonymous with gliding ability. (Many small animals, and even some goats and kangaroos, are capable of climbing trees but are not gliders.) Besides,

- The primary purpose of the passage is to
- A. present counterevidence to two hypotheses concerning the origins of bird flight
 - B. propose and alternative to two hypotheses concerning the origins of bird flight correct certain misconceptions about hypotheses concerning the origins of bird flight
 - C. dismiss counterevidence to two hypotheses concerning the origins of bird flight
 - D. refute a challenge to a hypothesis concerning the origins of bird flight
 - E. evaluate competing hypotheses concerning the origins of bird flight

- The passage presents which of the following facts as evidence that tends to undermine the arboreal hypothesis?
- A. Feathers tend to become larger over time
 - B. Flapping flight is thought to have evolved gradually over time
 - C. Many small animals are capable of climbing trees.
 - D. Plants in Archaeopteryx's known habitats were relatively small
 - E. Leaping into the air does not provide as much

Although many lines of evidence indicate that birds evolved from ground-dwelling theropod dinosaurs, some scientists remain unconvinced. They argue that theropods appeared too late to have given rise to birds, noting that *Archaeopteryx lithographica*—the oldest known bird—appears in the fossil record about 150 million years ago, whereas the fossil remains of various nonavian maniraptor theropods—the closest known relatives of birds—date only to about 115 million years ago. But investigators have now uncovered bones that evidently belong to nonavian maniraptors dating to the time of *Archaeopteryx*. In any case, failure to find fossils of a predicted kind does not rule out their existence in an undiscovered deposit. Skeptics also argue that the fused clavicles (the “wishbone”) of birds differ from the unfused clavicles of theropods. This objection was reasonable when only early theropod clavicles had been discovered, but fossilized theropod clavicles that look just like the wishbone of *Archaeopteryx* have now been unearthed. Finally, some scientists argue that the complex lungs of birds could not have evolved from theropod lungs, an assertion that cannot be supported or falsified at

- The primary purpose of the passage is to
- A. compare the development of two hypotheses concerning the evolutionary origin of birds
 - B. suggest revisions to the standard theory of the evolutionary history of birds
 - C. evaluate the usefulness of fossil evidence in determining the evolutionary history of birds
 - D. challenge the theory that birds evolved from ground-dwelling theropod dinosaurs
 - E. respond to criticisms of the theory that birds evolved from ground-dwelling theropod dinosaurs

In the context of the passage, the phrase “fossils of a predicted kind” most likely refers to which of the following?

- A. Theropod fossils with fused clavicles
- B. Theropod fossils that are similar in structure to *Archaeopteryx* fossils
- C. Theropod fossils dating back more than 150 million years
- D. Fossils indicating the structure of theropod lungs
- E. Fossils indicating the structure of *Archaeopteryx* lungs

Scientists studying the physiology of **dinosaurs** have long debated whether dinosaurs were warm- or cold-blooded. Those who suspect they were warm-blooded point out that dinosaur bone is generally fibro-lamellar in nature; because fibro-lamellar bone is formed quickly, the bone fibrils, or filaments, are laid down haphazardly. Consistent with their rapid growth rate, warm-blooded animals, such as birds and mammals, tend to produce fibro-lamellar bone, whereas **reptiles**, which are slow-growing and cold-blooded, generally produce bone in which fibrils are laid down parallel to each other. Moreover, like the bone of birds and mammals, dinosaur bone tends to be highly vascularized, or filled with blood vessels. These characteristics, first recognized in the 1930's, were documented in the 1960's by de Ricqlès, who found highly vascularized, fibro-lamellar bone in several groups of dinosaurs. In the 1970's, Bakker cited these characteristics as evidence for the warm-bloodedness of dinosaurs. Although de Ricqlès urged **caution**, arguing for an intermediate type of dinosaur physiology, a generation of paleontologists has come to believe that dinosaur bone is mammalianlike.

The author of the passage would be most likely to agree that the “caution” urged by de Ricqlès regarding claims about dinosaur physiology was

- A. unjustified by the evidence available to de Ricqlès
- B. unnecessary, given the work done by Bakker and his followers
- C. indicative of the prevailing scientific opinion at the time
- D. warranted, given certain subsequent findings of other scientists
- E. influential in the recent work of Chinsamy

The primary purpose of the passage is to

- A. discuss the influence on other scientists of Bakker's argument concerning the warm-bloodedness of dinosaurs
- B. provide evidence that supports the claim that dinosaurs were cold-blooded
- C. challenge the contention that dinosaur bone tissue is innately fibro-lamellar
- D. evaluate the claim that dinosaur bone tissue provides evidence for the warm-bloodedness of dinosaurs
- E. resolve the disagreement between de Ricqlès and

Passage 18

A recent study has provided clues to predator-prey dynamics in the late Pleistocene era. Researchers compared the number of tooth fractures in present-day carnivores with tooth fractures in carnivores that lived 36,000 to 10,000 years ago and that were preserved in the Rancho La Brea tar pits in Los Angeles. The breakage frequencies in the extinct species were strikingly higher than those in the present-day species.

In considering possible explanations for this finding, the researchers dismissed demographic bias because older individuals were not overrepresented in the fossil samples. They rejected preservational bias because a total absence of breakage in two extinct species demonstrated that the fractures were not the result of abrasion within the pits. They ruled out local bias because breakage data obtained from other Pleistocene sites were similar to the La Brea data. The explanation they consider most plausible is behavioral differences between extinct and present-day

59. The primary purpose of the passage is to
 - (A) present several explanations for a well-known fact
 - (B) suggest alternative methods for resolving a debate
 - (C) argue in favor of a controversial theory
 - (D) question the methodology used in a study
 - (E) discuss the implications of a research finding
60. The passage suggests that, compared with Pleistocene carnivores in other areas, Pleistocene carnivores in the La Brea area
 - (A) included the same species, in approximately the same proportions
 - (B) had a similar frequency of tooth fractures
 - (C) populated the La Brea area more densely
 - (D) consumed their prey more thoroughly
 - (E) found it harder to obtain sufficient prey
61. The passage suggests that tooth fractures in Pleistocene carnivores probably tended to occur less frequently
 - (A) during periods in which more prey were available
 - (B) at sites distant from the La Brea area
 - (C) in older individual carnivores
 - (D) in the teeth of the largest individuals

Line Micro-wear patterns found on the teeth of long-extinct specimens of the primate species australopithecine may provide evidence about their diets. For example, on the basis of tooth micro-wear patterns, Walker dismisses Jolly's hypothesis that australopithecines ate hard seeds. He also disputes Szalay's suggestion that the heavy enamel of australopithecine teeth is an adaptation to bone crunching, since both seed cracking and bone (5) crunching produce distinctive micro-wear characteristics on teeth. His conclusion that australopithecines were frugivores (fruit eaters) is based upon his observation that the tooth micro-wear characteristics of east African (10) australopithecine specimens are indistinguishable from those of chimpanzees and orangutans, which are commonly assumed to be frugivorous primates. However, research on the diets of contemporary primates suggests that micro-wear (15) studies may have limited utility in determining the foods that are actually eaten. For example, insect eating, which can cause distinct micro-wear

Questions 95–101 refer to the passage.

95. According to the passage, Walker and Szalay disagree on which of the following points?
- (A) The structure and composition of australopithecine teeth
 - (B) The kinds of conclusions that can be drawn from the micro-wear patterns on australopithecine teeth
 - (C) The idea that fruit was a part of the australopithecine diet
 - (D) The extent to which seed cracking and bone crunching produce similar micro-wear patterns on teeth
 - (E) The function of the heavy enamel on australopithecine teeth
96. The passage suggests that Walker's research indicated which of the following about australopithecine teeth?
- (A) They had a diet consisting primarily of fruit.

- Line Conodonts, the spiky phosphatic remains (bones and teeth composed of calcium phosphate) of tiny marine animals that probably appeared about 520 million years ago, were once among the most controversial of fossils. Both the nature of the organism to which the remains belonged and the function of the remains were unknown. However, since the 1981 discovery of fossils preserving not just the phosphatic elements but also other remains of the tiny soft-bodied animals (also called conodonts) that bore them, scientists' reconstructions of the animals' anatomy have had important implications for hypotheses concerning the development of the vertebrate skeleton.
- (5)
- (10)
- (15)
- (20)
- (30) However, other paleontologists argued that many of the definitive characteristics of vertebrates, such as paired eyes and muscular and skeletal adaptations for active life, would not have evolved unless the first vertebrates were predatory. Teeth were more primitive than external armor according to this view, and the earliest vertebrates were predators.
- (35)
- (40) The stiffening notochord along the back of the body, V-shaped muscle blocks along the sides, and posterior tail fins help to identify conodonts as among the most primitive of vertebrates. The lack of any mineralized structures apart from the elements in the mouth indicates that conodonts were more primitive than the armored jawless fishes such as the ostracoderms. It now appears that the hard parts that first evolved in the mouth of an animal improved its efficiency as a predator, and that aggression rather than protection was the driving force behind the origin of the vertebrate skeleton.
- (45)

While the most abundant and dominant species within a particular ecosystem is often crucial in perpetuating the ecosystem, a "keystone" species, here defined as one whose effects are much larger than would be predicted from its appearance, also play a vital role. But because complex species interactions may be involved, identifying a keystone species by removing the species and observing changes in the ecosystem is problematic. It might seem that certain traits would clearly define a species as a keystone species; for example, *Pisaster ochraceus* is often a keystone predator because it consumes and suppresses mussel populations, which in the absence of this starfish can be a dominant species. But such predation on a dominant or potentially dominant species occurs in systems that do as well as in systems that do not have species that play keystone roles. Moreover, whereas *P. ochraceus* occupies an unambiguous keystone role on wave-exposed rocky headlands, in more wave-sheltered habitats the impact of *P. ochraceus* predation is weak or nonexistent, and at certain sites sand burial is responsible for eliminating mussels. Keystone status appears to depend on context, whether of particular geography or of such factors as

- The primary purpose of the passage is to
- A. point out some of the differences between dominant and keystone species
 - B. emphasize the complexity of the interactions that occur between two particular species
 - C. detail the effect of a particular habitat on the role occupied by a certain keystone species
 - D. illustrate the importance of community diversity for the perpetuation of an ecosystem
 - E. explain some considerations involved in determining whether a species occupies a keystone role

Which of the following, if true, would most clearly support the argument about keystone status advanced in the last sentence of the passage?

- A. A species of bat is primarily responsible for keeping insect populations within an ecosystem low, and the size of the insect population in turn affects bird species within that ecosystem.
- B. A species of iguana occupies a keystone role on certain tropical islands, but does not play that role on adjacent tropical islands that are inhabited by a greater number of animal species.
- C. Close observation of a savannah ecosystem reveals

Line Determining whether a given population of animals constitutes a distinct species can be difficult because no single accepted definition of the term exists. One approach, called the biological species concept, bases the definition on reproductive compatibility. According to this view, a species is a group of animals that can mate with one another to produce fertile offspring but cannot mate successfully with members of a different group. Yet this idea can be too restrictive. First, mating between groups labeled as different species (hybridization), as often occurs in the canine family, is quite common in nature. Second, sometimes the differences between two populations might not prevent them from interbreeding, even though they are dissimilar in traits unrelated to reproduction; some biologists question whether such disparate groups should be considered a single species. A third problem with the biological species concept is that investigators cannot always determine whether two groups that live in different places are capable of interbreeding.

Questions 54–57 refer to the passage.

54. The passage is primarily concerned with
- (A) describing the development of the biological species concept
 - (B) responding to a critique of reproductive compatibility as a criterion for defining a species
 - (C) considering two different approaches to identifying biological species
 - (D) pointing out the advantage of one method of distinguishing related species
 - (E) identifying an obstacle to the classification of biological species
55. The author of the passage mentions “groups that live in different places” (line 21) most probably in order to
- (A) point out a theoretical inconsistency in the biological species concept
 - (B) offer evidence in support of the biological

Researchers studying how genes control animal behavior have had to deal with many uncertainties. In the first place, most behaviors are governed by more than one gene, and until recently geneticists had no method for identifying the multiple genes involved. In addition, even when a single gene is found to control a behavior, researchers in different fields do not necessarily agree that it is a "behavioral gene." Neuroscientists, whose interest in genetic research is to understand the nervous system (which generates behavior), define the term broadly. But ethologists—specialists in animal behavior—are interested in evolution, so they define the term narrowly. They insist that mutations in a behavioral gene must alter a specific normal behavior and not merely make the organism ill, so that the genetically induced behavioral change will provide variation that natural selection can act upon, possibly leading to the evolution of a new species. For example, in the fruit fly, researchers have identified the gene *Shaker*, mutations in which cause flies to shake violently under anesthesia. Since shaking is not healthy, ethologists do not consider *Shaker* a behavioral gene. In contrast, ethologists do consider the gene *period (per)*, which controls the fruit-fly's

The passage suggests that neuroscientists would most likely consider *Shaker* to be which of the following?

- A. An example of a behavioral gene
- B. One of multiple genes that control a single behavior
- C. A gene that, when mutated, causes an alteration in a specific normal behavior without making the organism ill
- D. A gene of interest to ethologists but of no interest to neuroscientists
- E. A poor source of information about the nervous system

It can be inferred from the passage that which of the following, if true, would be most likely to influence ethologists' opinions about whether a particular gene in a species is a behavioral gene?

- A. The gene is found only in that species.
- B. The gene is extremely difficult to identify.
- C. The only effect of mutations in the gene is to make the organism ill.
- D. Neuroscientists consider the gene to be a behavioral gene.
- E. Geneticists consider the gene to be a behavioral gene.

Social learning in animals is said to occur when direct or indirect social interaction facilitates the acquisition of a novel behavior. It usually takes the form of an experienced animal (the demonstrator) performing a behavior such that the naïve animal (the observer) subsequently expresses the same behavior sooner, or more completely, than it would have otherwise. One example of social learning is the acquisition of preferences for novel foods.

Some experiments have suggested that among mammals, social learning facilitates the identification of beneficial food items, but that among birds, social learning helps animals avoid toxic substances. For example, one study showed that when red-wing blackbirds observed others consuming a colored food or a food in a distinctly marked container and then becoming ill, they subsequently avoided food associated with that color or container. Another experiment showed that house sparrows consumed less red food after they observed others eating red food that was treated so as to be noxious. Studies on non-avian species have not produced similar results, leading researchers to speculate that avian social

The primary purpose of the passage is to discuss the

- A. techniques used in certain experiments on social learning in birds
- B. reasons for the differences between social learning in birds and in mammals
- C. question of how social learning manifests itself in birds
- D. basis for a widespread belief about a difference in behavior between birds and mammals
- E. possible reasons why birds may or may not learn from each other in a particular way

According to the passage, which of the following is true of the experiments on domestic hens conducted by Sherwin's research team?

- A. Only a small number of observer hens appeared to learn to avoid food that was demonstrated by other hens to be noxious.
- B. Observer hens ingested food preferentially only after numerous instances of witnessing demonstrator hens preferentially ingest that type of food.
- C. Observer hens appeared unable to recognize when demonstrator hens found a particular food especially

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 (5) 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 (10) 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 (15) 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.

Although genetic mutations in bacteria and viruses can lead to epidemics, some epidemics are caused by bacteria and viruses that have undergone no significant genetic change. In analyzing the latter, scientists have

- (5) discovered the importance of social and ecological factors to epidemics. Poliomyelitis, for example, emerged as an epidemic in the United States in the twentieth century; by then, modern sanitation was able to delay exposure to polio until adolescence or adulthood, at (10) which time polio infection produced paralysis. Previously, infection had occurred during infancy, when it typically provided lifelong immunity without paralysis. Thus, the hygiene that helped prevent typhoid epidemics indirectly fostered a paralytic polio epidemic. Another

Line There are recent reports of apparently drastic
declines in amphibian populations and of extinctions
of a number of the world's endangered amphibian
species. These declines, if real, may be signs of a
(5) general trend toward extinction, and many
environmentalists have claimed that immediate
environmental action is necessary to remedy
this "amphibian crisis," which, in their view, is an
indicator of general and catastrophic environmental
(10) degradation due to human activity.

To evaluate these claims, it is useful to make a
preliminary distinction that is far too often ignored.
A declining population should not be confused with
an endangered one. An endangered population is
(15) always rare, almost always small, and, by definition,
under constant threat of extinction even without a
proximate cause in human activities. Its disappearance,
however unfortunate, should come as no great
surprise. Moreover, chance events—which may
(20) indicate nothing about the direction of trends in
population size—may lead to its extinction. The
probability of extinction due to such random factors

Questions 504–509 refer to the passage.

504. The primary purpose of the passage is to

- (A) assess the validity of a certain view
- (B) distinguish between two phenomena
- (C) identify the causes of a problem
- (D) describe a disturbing trend
- (E) allay concern about a particular phenomenon

505. It can be inferred from the passage that the author believes which of the following to be true of the environmentalists mentioned in lines 5–6?

- (A) They have wrongly chosen to focus on anecdotal reports rather than on the long-term data that are currently available concerning amphibians.
- (B) Their recommendations are flawed because their research focuses too narrowly on a single category of animal species.

Anole lizard species that occur together (sympatrically) on certain Caribbean islands occupy different habitats: some live only in the grass, some only on tree trunks, and some only on twigs. These species also differ morphologically: grass dwellers are slender with long tails, tree dwellers are stocky with long legs, and twig dwellers are slender ~~but~~ stubby-legged. What is striking about these lizards is not that coexisting species differ in morphology and habitat use (such differences are common among closely related sympatric species) but that the same three types of habitat specialists occur on each of four islands: Puerto Rico, Cuba, Hispaniola, and Jamaica. Moreover, the Puerto Rican twig species closely resembles the twig species of Cuba, Hispaniola, and Jamaica in morphology, habitat use, and behavior. Likewise, the specialists for other habitats are similar across the islands.

The presence of similar species on different islands could be variously explained. An ancestral species might have adapted to exploit a particular ecological niche on one island and then traveled over water to colonize other islands. Or this ancestral species might

- The primary purpose of the passage is to
- A. describe some unusual features of anole lizard species
 - B. account for a particular type of behavior found among anole lizard species
 - C. contrast two types of evidence that have been used to support a particular hypothesis concerning anole lizard species
 - D. explain how researchers resolved a particular scientific question concerning anole lizard species
 - E. examine different explanations for a particular trait common to certain anole lizard species

Which of the following best describes the purpose of the sentence in the highlighted text ("What is ... Jamaica")?

- A. It raises a question about why coexisting anole lizard species occupy the different types of habitats mentioned in the first sentence.
- B. It introduces a fact about anole lizard species that the passage will go on to explore.
- C. It identifies a particular aspect of anole lizard behavior that distinguishes anoles from other lizard

The sloth bear, an insect-eating animal native to Nepal, exhibits only one behavior that is truly distinct from that of other bear species: the females carry their cubs (at least part-time) until the cubs are about nine months old, even though the cubs can walk on their own at six months. Cub-carrying also occurs among some other myrmecophagous (ant-eating) mammals; therefore, one explanation is that cub-carrying is necessitated by myrmecophagy, since myrmecophagy entails a low metabolic rate and high energy expenditure in walking between food patches. However, although polar bears' locomotion is similarly inefficient, polar bear cubs walk along with their mother. Furthermore, the daily movements of sloth bears and American black bears—which are similar in size to sloth bears and have similar-sized home ranges—reveal similar travel rates and distances, suggesting that if black bear cubs are able to keep up with their mother, so too should sloth bear cubs.

An alternative explanation is defense from predation. Black bear cubs use trees for defense, whereas brown bears and polar bears, which regularly inhabit treeless environments, rely on aggression to protect their cubs.

- The primary purpose of the passage is to
- A. trace the development of a particular behavioral characteristic of the sloth bear
 - B. explore possible explanations for a particular behavioral characteristic of the sloth bear
 - C. compare the defensive strategies of sloth bear cubs to the defensive strategies of cubs of other bear species
 - D. describe how certain behavioral characteristics of the sloth bear differ from those of other myrmecophagous mammals
 - E. provide an alternative to a generally accepted explanation of a particular behavioral characteristic of myrmecophagous mammals

- The author mentions rhinoceroses and elephants (in the highlighted text) primarily in order to
- A. explain why sloth bears are not successful foragers in grassland habitats
 - B. identify the predators that have had the most influence on the behavior of sloth bears
 - C. suggest a possible reason that sloth bear cubs do not use tree-climbing as a defense

Until recently, zoologists believed that all species of phocids (true seals), a pinniped family, use a different maternal strategy than do otariids (fur seals and sea lions), another pinniped family. Mother otariids use a foraging strategy. They acquire moderate energy stores in the form of blubber before arriving at breeding sites and then fast for 5 to 11 days after birth. Throughout the rest of the lactation (milk production) period, which lasts from 4 months to 3 years depending on the species, mother otariids alternately forage at sea, where they replenish their fat stores, and nurse their young at breeding sites. Zoologists had assumed that females of all phocid species, by contrast, use a fasting strategy in which mother phocids, having accumulated large energy stores before they arrive at breeding sites, fast throughout the entire lactation period, which lasts from 4 to 50 days depending on the species. However, recent studies on harbor seals, a phocid species, found that lactating females commenced foraging approximately 6 days after giving birth and on average made 7 foraging trips during the remainder of their 24-day lactation period.

- It can be inferred from the passage that the females of all phocid species differ from the females of all otariid species in that the female phocids
- A. have shorter lactation periods
 - B. consume more food during lactation
 - C. consume a higher proportion of fat stores
 - D. forage for food occasionally during their lactation periods
 - E. deplete a smaller percentage of their fat stores during their lactation periods

- The primary purpose of the passage is to
- A. present evidence that several phocid species use the maternal fasting strategy
 - B. explain why the maternal strategy typically used by phocids is different from the maternal strategy used by otariids
 - C. argue that zoologists' current understanding of harbor seals' maternal strategy is incorrect
 - D. describe an unexpected behavior observed in harbor seals and propose an explanation that may account for that behavior
 - E. describe evidence concerning the maternal strategy of harbor seals and compare it with the maternal strategies of other pinniped species

Recently biologists have been interested in a tide-associated periodic behavior displayed by the diatom *Hantzschia virgata*, a microscopic golden-brown alga that inhabits that portion of a shoreline washed by tides (the intertidal zone). Diatoms of this species, sometimes called “commuter” diatoms, remain burrowed in the sand during high tide, and emerge on the sand surface during the daytime low tide. Just before the sand is inundated by the rising tide, the diatoms burrow again. Some scientists hypothesize that commuter diatoms know that it is low tide because they sense an environmental change, such as an alteration in temperature or a change in pressure caused by tidal movement. However, when diatoms are observed under constant conditions in a laboratory, they still display periodic behavior, continuing to burrow on schedule for several weeks. This indicates that commuter diatoms, rather than relying on environmental cues to keep time, possess an internal pacemaker or biological clock that enables them to anticipate periodic changes in the environment. A commuter diatom has an unusually accurate biological clock, a consequence of the

The passage suggests which of the following about the accuracy of the commuter diatom's biological clock?

- A. The accuracy of the commuter diatom's biological clock varies according to changes in the tidal cycle.
- B. The unusual accuracy that characterizes the commuter diatom's biological clock is rare among intertidal species.
- C. The commuter diatom's biological clock is likely to be more accurate than the biological clock of a species that is subject to less intense environmental pressures.
- D. The commuter diatom's biological clock tends to be more accurate than the biological clocks of most other species because of the consistency of the tidal cycle.
- E. The accuracy of the commuter diatom's biological clock tends to fluctuate when the diatom is observed under variable laboratory conditions.

The author of the passage compares the

A small number of the forest species of lepidoptera (moths and butterflies, which exist as caterpillars during most of their life cycle) exhibit regularly recurring patterns of population growth and decline—such fluctuations in population are known as population cycles. Although many different variables influence population levels, a regular pattern such as a population cycle seems to imply a dominant, driving force. Identification of that driving force, however, has proved surprisingly elusive despite considerable research. The common approach of studying causes of population cycles by measuring the mortality caused by different agents, such as predatory birds or parasites, has been unproductive in the case of lepidoptera. Moreover, population ecologists' attempts to alter cycles by changing the caterpillars' habitat and by reducing caterpillar populations have not succeeded. In short, the evidence implies that these insect populations, if not self-regulating, may at least be regulated by an agent more intimately connected with the insect than are predatory birds or parasites. Recent work suggests that this agent may be a virus. For many years, viral disease had been reported in declining populations of caterpillars, but population

Which of the following, if true, would most weaken the author's conclusion in the highlighted text?

- A. New research reveals that the number of species of birds and parasites that prey on lepidoptera has dropped significantly in recent years.
- B. New experiments in which the habitats of lepidoptera are altered in previously untried ways result in the shortening of lepidoptera population cycles.
- C. Recent experiments have revealed that the nuclear polyhedrosis virus is present in a number of predators and parasites of lepidoptera.
- D. Differences among the habitats of lepidoptera species make it difficult to assess the effects of weather on lepidoptera population cycles.
- E. Viral disease is typically observed in a large proportion of the Lepidoptera population.

It can be inferred from the passage that the mortality caused by agents such as predatory birds or parasites was measured in an attempt to

- A. develop an explanation for the existence of lepidoptera population cycles
- B. identify behavioral factors in lepidoptera that affect

Passage 20

More selective than most chemical pesticides in that they ordinarily destroy only unwanted species, biocontrol agents (such as insects, fungi, and viruses) eat, infect, or parasitize targeted plant or animal pests. However, biocontrol agents can negatively affect nontarget species by, for example, competing with them for resources: a biocontrol agent might reduce the benefits conferred by a desirable animal species by consuming a plant on which the animal prefers to lay its eggs. Another example of indirect negative consequences occurred in England when a virus introduced to control rabbits reduced the amount of open ground (because large rabbit populations reduce the ground cover), in turn reducing underground ant nests and triggering the extinction of a blue butterfly that had depended on the nests to shelter its offspring. The paucity of known extinctions or disruptions resulting from indirect interactions may reflect not the infrequency of such mishaps but rather the failure to look for or to detect them: most organisms likely to be adversely affected by indirect

5. The passage is primarily concerned with
 - (A) explaining why until recently scientists failed to recognize the risks presented by biocontrol agents
 - (B) emphasizing that biocontrol agents and chemical pesticides have more similarities than differences
 - (C) suggesting that only certain biocontrol agents should be used to control plant or animal pests
 - (D) arguing that biocontrol agents involve risks, some of which may not be readily discerned
 - (E) suggesting that mishaps involving biocontrol agents are relatively commonplace
6. According to the passage, which of the following is a concern that arises with biocontrol agents but not with chemical pesticides?
 - (A) Biocontrol agents are likely to destroy desirable species as well as undesirable ones.
 - (B) Biocontrol agents are likely to have indirect as well as direct adverse effects on nontarget species.
 - (C) Biocontrol agents may change in unforeseen ways and thus be able to damage new hosts.
 - (D) Biocontrol agents may be ineffective in destroying targeted species.

Over the last 150 years, large stretches of salmon habitat have been eliminated by human activity: mining, livestock grazing, timber harvesting, and agriculture as well as recreational and urban development. The numerical effect is obvious: there are fewer salmon in degraded regions than in pristine ones; however, habitat loss also has the potential to reduce genetic diversity. This is most evident in cases where it results in the extinction of entire salmon populations. Indeed, most analysts believe that some kind of environmental degradation underlies the demise of many extinct salmon populations. Although some rivers have been recolonized, the unique genes of the original populations have been lost. Large-scale disturbances in one locale also have the potential to alter the genetic structure of populations in neighboring areas, even if those areas have pristine habitats. Why? Although the homing instinct of salmon to their natal stream is strong, a fraction of the fish returning from the sea (rarely more than 15 percent) stray and spawn in nearby streams. Low levels of straying are crucial, since the process provides a

- E. describe how environmental degradation can cause changes in salmon populations that extend beyond a numerical reduction
- It can be inferred from the passage that the occasional failure of some salmon to return to their natal streams in order to spawn provides a mechanism by which
- A. pristine streams that are near polluted streams become polluted themselves
 - B. the particular adaptations of a polluted stream's salmon population can be preserved without dilution
 - C. the number of salmon in pristine habitats decreases relative to the number in polluted streams
 - D. an environmentally degraded stream could be recolonized by new salmon populations should the stream recover
 - E. the extinction of the salmon populations that spawn in polluted streams is accelerated

Grassland songbirds often nest in the same grassland-wetland complexes as waterfowl, particularly in a certain part of those complexes, namely, upland habitats surrounding wetlands. Although some wildlife management procedures directed at waterfowl, such as habitat enhancement or restoration, may also benefit songbirds, the impact of others, especially the control of waterfowl predators, remains difficult to predict. For example, most predators of waterfowl nests prey opportunistically on songbird nests, and removing these predators could directly increase songbird nesting success. Alternatively, small mammals such as mice and ground squirrels are important in the diet of many waterfowl-nest predators and can themselves be important predators of songbird nests. Thus removing waterfowl-nest predators could affect songbird nesting success through subsequent increases in small-mammal populations.

In 1995 and 1996, researchers trapped and removed certain waterfowl nest predators, primary raccoons and striped skunks, then observed subsequent survival rates for songbird nests. Surprisingly, they observed

According to the passage, which of the following is true about the role played by ground squirrels in the ecology of grassland-wetland complexes?

- A. While not important in the diet of raccoons or striped skunks, ground squirrels are a significant source of food for other waterfowl-nest predators.
- B. Whereas ground squirrels are typically important as predators of songbird nests, their opportunistic predation on waterfowl nests also has an observable effect on waterfowl nesting success.
- C. Although most waterfowl-nest predators prey on small mammals such as mice and ground squirrels, populations of ground squirrels tend to increase quickly enough to compensate for this level of predation.
- D. Although ground squirrels have been known to prey on songbird nests, a larger portion of their diets is usually provided by predation on waterfowl nests.
- E. Since larger predators tend to prefer small mammals to songbird eggs as a food source, a large population of ground squirrels plays an important role in controlling opportunistic predation on songbird nests.

Carotenoids, a family of natural pigments, form an important part of the colorful signals used by many animals. Animals acquire carotenoids either directly (from the plants and algae that produce them) or indirectly (by eating insects) and store them in a variety of tissues. Studies of several animal species have shown that when choosing mates, females prefer males with brighter carotenoid-based coloration. Owens and Olson hypothesize that the presence of carotenoids, as signaled by coloration, would be meaningful in the context of mate selection if carotenoids were either rare or required for health. The **conventional view** is that carotenoids are meaningful because they are rare: healthier males can forage for more of the pigments than can their inferior counterparts. Although this may be true, there is growing evidence that carotenoids are meaningful also because they are required: they are used by the immune system and for detoxification processes that are important for maintaining health. It may be that males can use scarce carotenoids either for immune defense and detoxification or for attracting females. Males that are more susceptible to disease and parasites will have to use their carotenoids to boost

Information in the passage suggests that which of the following is true of carotenoids that a male animal uses for detoxification processes?

- A. They were not acquired directly from plants and algae.
- B. They cannot be replenished through foraging.
- C. They cannot be used simultaneously to brighten coloration.
- D. They do not affect the animal's susceptibility to parasites.
- E. They increase the chances that the animal will be selected as a mate.

The passage suggests that relatively bright carotenoid-based coloration is a signal of which of the following characteristics in males of certain animal species?

- A. Readiness for mating behavior
- B. Ability to fight
- C. Particular feeding preferences
- D. Recovery from parasite infestation
- E. Fitness as a mate

According to the "conventional view" referred to in the highlighted text of the passage, brighter carotenoid-