

## **Chapter 5**

# **Reading Comprehension**

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# Reading Comprehension

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Questions 1–3 are based on the following reading passage.

While new census data reveals that unemployment numbers are more dire than was previously suspected, it is not clear that the forecast for American entrepreneurship is equally alarming. An article in a major national newspaper suggests that the contraction in hiring at existing companies might result in more new companies being founded. College graduates,

5 unable to find traditional jobs, instead opt to start their own businesses. Where a recession may seem an unpropitious time for such a historically risky endeavor, with no better options, would-be entrepreneurs have little to lose. Unfortunately, this situation does not necessarily impact the economy positively. Though the average number of new businesses started per year has been higher during the recession than it was before, the proportion of high-value businesses

10 founded each year has declined. So even if a business manages to stay solvent, it may not bring significant returns. Also, because of an inevitable dearth of angel investors and venture capitalists, many new entrepreneurs are putting their own money on the line. In certain ways, the choice between accepting a traditional job and starting a business is not unlike the choice between renting and buying property. The latter requires a significant initial outlay and carries

15 heavier risks, but the rewards can be equally substantial.

1. The primary purpose of the passage is to
  - (A) propose changes in the way the public generally interprets census data
  - (B) maintain that college students should form their own companies, especially during economic recessions

- (C) present a nuanced view of a contemporary economic issue
  - (D) evaluate the viability of low- versus high-value businesses under various environmental conditions
  - (E) draw an analogy between career decisions and real estate decisions, specifically the choice to rent or buy property
2. According to the passage, the reason that many college graduates are choosing to launch their own companies in the present economic climate is that
- (A) they are hampered by the difficulty of finding outside investors
  - (B) they cannot easily find positions typically open to workers of their experience
  - (C) the prevalence of low-value companies has increased
  - (D) they are forced to decide between renting and buying property
  - (E) forecasts of the unemployment rate are likely to become less dire in coming years

3. It can be inferred from the passage that over the course of the recent recession, the number of American high-value businesses founded per year
- (A) has fallen sharply
  - (B) has fallen moderately
  - (C) has risen sharply
  - (D) has risen moderately
  - (E) may have either fallen or risen

**Question 4 is based on the following reading passage.**

According to Mercy Amba Oduyoye in *Daughters of Anowa: African Women and Patriarchy*, the women of the Asante people of Ghana participated in war as nurses or as providers of supplies, but only those who had not yet reached or who were past childbearing age did so. If such women died in battle, they died “as individuals and not as potential sources of human life.” As such, many

5 old women engaged in valiant acts, sometimes sacrificing their own lives, to defend those they had given life to.

4. Which of the following can be inferred from the passage?
- (A) The deaths of Asante women of childbearing age were lamented more than were the deaths of other women.
  - (B) Older Asante women were more courageous than younger Asante women.
  - (C) Some of those who worked as nurses or as providers of supplies died in battle.
  - (D) Old women were accorded special status above other women and men.
  - (E) Men could not be considered potential sources of human life.

**Questions 5–7 are based on the following reading passage.**

The past decade has seen a statistically significant uptick in reports of the bacterial strains known as “super-bugs,” so called not because of enhanced virulence, but because of their resistance to many antimicrobial agents. In particular, researchers have become alarmed about NDM-1 (New Delhi metallo-beta-lactamase), which is not a single bacterial species, but a

5 transmittable genetic element encoding multiple resistance genes. A resistance “cocktail” such as NDM-1 could bestow immunity to a bevy of preexisting drugs simultaneously, rendering the bacterium nearly impregnable.

However, in spite of the well-documented dangers posed by antibiotic-resistant bacteria, many scientists argue that the human race has more to fear from viruses. Whereas

10 bacteria reproduce asexually through binary fission, viruses lack the necessary structures for reproduction, and so are known as “intracellular obligate parasites.” Virus particles called virions must marshal the host cell’s ribosomes, enzymes, and other cellular machinery in order to propagate. Once various viral components have been built, they bind together randomly in the cellular cytoplasm. The newly finished copies of the virus break through the cellular

15 membrane, destroying the cell in the process. Because of this, viral infections cannot be treated *ex post facto* in the same way that bacterial infections can, since antivirals designed to kill the virus could do critical damage to the host cell itself. In fact, viruses can infect bacteria (themselves complete cells), but not the other way around. For many viruses, such as that responsible for the common cold sore, remission rather than cure is the goal of currently

20 available treatment.

While the insidious spread of drug-resistant bacteria fueled by overuse of antibiotics in agriculture is nothing to be sneezed at, bacteria lack the potential for cataclysm that viruses have. The prominent virologist Nathan Wolfe considers human immunodeficiency virus (HIV), which has resulted in the deaths of more than thirty million people and infected twice that

25 number, “the biggest near-miss of our lifetime.” Despite being the most lethal pandemic in history, HIV could have caused far worse effects. It is only fortunate happenstance that this virus cannot be transmitted through respiratory droplets, as can the viruses that cause modern strains of swine flu (H1N1), avian flu (H5N1), and SARS.

5. The main purpose of the passage can be expressed most accurately by which of the following?
- (A) To contrast the manner by which bacteria and viruses infect the human body and cause cellular damage
  - (B) To explain the operations by which viruses use cell machinery to propagate
  - (C) To argue for additional resources to combat drug-resistant bacteria and easily transmissible pathogenic viruses
  - (D) To highlight the good fortune experienced by the human race, in that the HIV pandemic has not been more lethal
  - (E) To compare the relative dangers of two biological threats and judge one of them to be far more important
6. According to the passage, infections by bacteria
- (A) result from asexual reproduction through binary fission
  - (B) can be treated *ex post facto*
  - (C) can be rendered vulnerable by a resistance cocktail such as NDM-1
  - (D) are rarely cured by currently available treatments, but rather only put into remission
  - (E) mirror those by viruses, in that they can both do critical damage to the host cell
7. According to the passage, intracellular obligate parasites
- (A) are unable to propagate themselves on their own
  - (B) assemble their components randomly out of virions
  - (C) reproduce themselves through sexual combination with host cells
  - (D) have become resistant to antibiotics through the overuse of these drugs
  - (E) construct necessary reproductive structures out of destroyed host cells



**Questions 8–10 are based on the following reading passage.**

A supernova is a brief stellar explosion so luminous that it can briefly outshine an entire galaxy. While the explosion itself takes less than fifteen seconds, supernovae take weeks or months to fade from view; during that time, a supernova can emit an amount of energy equivalent to the amount of energy the sun is expected to radiate over its entire lifespan.

5 Supernovae generate enough heat to create heavy elements, such as mercury, gold, and silver. Although supernovae explode frequently, few of them are visible (from Earth) to the naked eye.

In 1604 in Padua, Italy, a supernova became visible, appearing as a star so bright that it was visible in daylight for more than a year. Galileo, who lectured at the university, gave several lectures widely attended by the public. The lectures not only sought to explain the origin of

10 the “star” (some posited that perhaps it was merely “vapour near the earth”), but seriously undermined the views of many philosophers that the heavens were unchangeable. This idea was foundational to a worldview underpinned by a central and all-important Earth, with celestial bodies merely rotating around it.

8. The primary purpose of the passage is to
- (A) give the history of supernovae
  - (B) describe a shift in thought as a result of a natural event
  - (C) juxtapose two opposing views about supernovae
  - (D) corroborate the view that the Earth is not central to the universe
  - (E) explain how science and philosophy interrelate

Consider each of the answer choices separately and indicate all that apply.

9. Which of the following can be inferred by the passage?

- ☐ Supernovae can take over a year to fade from view.
- ☐ Prior to 1604, no one had ever seen a supernova.
- ☐ Galileo convinced philosophers of the incorrectness of their views.

10. The author mentions which of the following as a result of the supernova of 1604?

- (A) The supernova created and dispersed the heavy elements out of which the Earth and everything on it is made.
- (B) Galileo explained the origin of the supernova.
- (C) The public was interested in hearing lectures about the phenomenon.
- (D) Galileo's lectures were opposed by philosophers.
- (E) Those who thought the supernova was "vapour" were proved wrong.

**Question 11 is based on the following reading passage.**

*A Small Place* is Jamaica Kincaid's memoir of growing up in Antigua as well as an indictment of the Antiguan government and Britain's colonial legacy in Antigua. Kincaid blames colonial rule for many of Antigua's current problems, including drug dealing and selling off land for tourist properties. Kincaid's critics question why, if the British are responsible for the Antiguan

government's corruption, the British government itself isn't more corrupt. Kincaid has responded that there must have been some good people among the British, but that they stayed home.

Consider each of the answer choices separately and indicate all that apply.

11. Based on the information in the passage, with which of the following would Kincaid be likely to agree?

- ☐ A government can bring about a degree of corruption abroad that the government itself does not suffer from at home.
- ☐ Britain has caused corruption in governments other than Antigua's through its former colonial empire.
- ☐ The British who colonized Antigua were more likely to be corrupt than the general British population.

**Questions 12–14 are based on the following reading passage.**

By 1784, Wolfgang Amadeus Mozart was internationally renowned as the composer of *The Marriage of Figaro*, and consequently received a commission from the Prague Opera House to compose another opera. The resulting product was *Don Giovanni*, which tells the tale of a criminal and seducer who nevertheless evokes sympathy from audiences, and whose behavior

fluctuates from moral crisis to hilarious escapade.

While *Don Giovanni* is widely considered Mozart's greatest

achievement, eighteenth century audiences in Vienna—Mozart’s own city—were ambivalent at best. The opera mixed traditions of moralism with those of comedy—a practice heretofore unknown among the composer’s works—resulting in a production that was not well-liked by conservative Viennese audiences.

10 Meanwhile, however, *Don Giovanni* was performed to much acclaim throughout Europe.

12. The primary purpose of the passage is to

- (A) relate the story of a somewhat likable antihero
- (B) discuss how a work of art was met by diverging responses
- (C) give a history of the work of Mozart
- (D) make a case for the renown of *Don Giovanni*
- (E) emphasize the moral aspects of a musical work

13. The author mentions the mixing of “traditions of moralism with those of comedy” (line 8) primarily in order to
- (A) explain a work’s lackluster reception among a particular group of people
  - (B) remind the reader of the plot of *Don Giovanni*
  - (C) highlight a practice common in contemporary opera
  - (D) argue for an innovative approach to opera
  - (E) undermine a previously presented assertion
14. It can be inferred from the passage that which of the following is true about the response of Viennese audiences to *Don Giovanni*?
- (A) The audiences preferred purely moralistic works.
  - (B) The response was unequivocally positive.
  - (C) They did not know that the composer was attempting to mix musical styles.
  - (D) The play’s moral themes were offensive to Viennese audiences.
  - (E) They preferred operas that followed existing stylistic conventions.

**Questions 15–17 are based on the following reading passage.**

In the 1960s, Northwestern University sociologist John McKnight coined the term redlining, the practice of denying or severely limiting service to customers in particular geographic areas, often determined by the racial composition of the neighborhood. The term came from the practice of banks outlining certain areas in red on a map; within the red outline,

5 banks refused to invest. With no access to mortgages, residents within the red line suffered low property values and landlord abandonment; buildings abandoned by landlords were then more likely to become centers of drug dealing and other crime, thus further lowering property values.

Redlining in mortgage lending was made illegal by the Fair Housing Act of 1968, which prohibited such discrimination based on race, religion, gender, familial

status, disability, or

10 ethnic origin, and by community reinvestment legislation in the 1970s.

However, redlining has sometimes continued in less explicit ways, and can also take place in the context of constrained access to health care, jobs, insurance, and more. Even today, some credit card companies send different offers to homes in different neighborhoods, and some auto insurance companies offer different rates based on zip code.

15 Redlining can lead to reverse redlining, which occurs when predatory businesses specifically target minority or low income consumers for the purpose of charging them more than would typically be charged for a particular service. When mainstream retailers refuse to serve a certain area, people in that area can fall prey to opportunistic smaller retailers who sell inferior goods at higher prices.

Consider each of the answer choices separately and indicate all that apply.

15. Which of the following can be inferred from the passage?

- ☐ Redlining ceased with the passing of the Fair Housing Act in 1968.
- ☐ Providing services based on zip code may be a form of redlining.
- ☐ Access to mortgages is related to higher property values.

16. Which of the following, not mentioned in the passage, would qualify as an example of reverse redlining as defined in the passage?

- (A) A bank refuses to offer mortgages to consumers in certain neighborhoods.
- (B) Residents of low-income neighborhoods are less likely to be hired for positions than residents of higher-income neighborhoods, even when the applicants have the same qualifications.
- (C) Police respond to reports of crimes more quickly in some neighborhoods than in others.
- (D) A grocery store in a low-income neighborhood sells low-quality produce for high prices, knowing that most residents do not have the ability to buy elsewhere.
- (E) An auto insurance company hires an African American spokesperson in a bid to attract more African American consumers.

17. Which correctly describes a sequence of events presented in the passage?

- (A) Subprime mortgages lead to widespread defaults, which lead to landlord abandonment.
- (B) Reverse redlining leads to landlord abandonment, which leads to the use of buildings for crime and drug dealing.
- (C) Landlord abandonment leads to redlining, which leads to crime and drug dealing.
- (D) Redlining leads to reverse redlining, which leads to constrained access to health care, jobs, insurance, and more.
- (E) Redlining leads to landlord abandonment, which leads to the use of buildings for crime and drug dealing.

**Question 18 is based on the following reading passage.**

Premastication is the practice of a mother pre-chewing food before feeding it, mouth-to-mouth, to her baby. While germophobic Western society eschews this practice, it is not only common in the developing world, but provides benefits to a developing baby. Babies are not born with digestive bacteria; they get some from passing through the birth canal, but continue

to encounter the beneficial bacteria during breastfeeding and while being handled, in general, by adults. Throughout most of human history, in fact, babies have received disease-fighting antibodies and digestive bacteria from the mother's saliva, transmitted via premasticated food. In some cultures, fathers also premasticate food for babies; sometimes even entire family groups will do this—a toddler at a family meal might wander from person to person, being fed

by many adults.

Consider each of the answer choices separately and indicate all that apply.

18. Based on the information in the passage, the author of the passage would most likely agree that

- ☐ germophobia can contribute to depriving babies of a health benefit
- ☐ premasticating food for babies is done only in the developing world
- ☐ adult saliva has benefits for babies in addition to the transmission of beneficial digestive bacteria



**Questions 19–22 are based on the following reading passage.**

Matisse and Picasso; Picasso and Matisse. Throughout the twentieth century, this pairing has been touted as the quintessential artistic rivalry. In *Matisse and Picasso*, Yve-Alain Bois follows Hubert Damisch in proposing that the interaction between Picasso and Matisse should be seen as a dynamic game rather than a static conflict of artistic polarities. Bois employs the

5 metaphor of chess, arguing that the game represents the artists' exchange as "a competitive rivalry and a complex temporality" that can be viewed both as a linear process and a simultaneous structure.

But the metaphor of a competitive sport, however complex and intellectually rich, is misleading. The two artists were engaged not just in competition (even friendly competition)

10 but also in friendly dialogue. The two men were more than rivals: they were colleagues, critics, teachers, and occasional friends. A better model, though perhaps one with less flash, is that of a simple conversation, with all the rich variation and shifts in motivation and tone that are possible.

Picasso's *Large Nude in a Red Armchair* marks the extremes of the artist's combativeness

15 towards Matisse. The painting is a clear parody of Matisse's earlier *Odalisque with a Tambourine*.

The composition of the figures is strikingly similar: a woman lounges in an armchair at the center of the painting, arm raised above her head, decorative wallpaper behind her. Both paintings feature vivid color contrasts, with green wallpaper, vivid reds, glaring yellows, and rich browns. But Picasso's painting, finished in 1929, mocks the achievements of Matisse's

20 earlier work. The sensuous, rich mood of Matisse's painting has been transformed in Picasso's work into something harsh and grotesque.

The other extreme of the dialogue between the two artists can be seen in Picasso's *Woman with Yellow Hair* and Matisse's response, *The Dream*. The exchange begins with Picasso's work, in 1931. The painting depicts a woman asleep on her arms, resting on a table. She is full, rich,

25 warm, and curved, her head and arms forming a graceful arabesque.

This image seems a direct attempt to master Matisse's style and to suggest to the older artist new directions for his work.

While there may well be an edge of competitiveness to the painting, a sense that Picasso was demonstrating his ability to do Matisse's work, it remains in large part a helpful hint.

Matisse, nearly a decade later, continues the conversation in a similar tone. In *The Dream* of

30 1940, he proposes a revision of Picasso's work. Again, a woman lies asleep on a table, her arm tucked beneath her head. Matisse accepts Picasso's basic suggestions for his style: sinuous curves, volumes, and shocking uses of color to express an effect. But Matisse also modifies the earlier work significantly. Color is no longer rigidly tied to form, as bits of fuchsia seep outside the thick black line marking the outline of the table and the patch of yellow on the woman's blouse refuses

35 to be contained by the drawn line. Matisse uses Picasso's same palette of red, purple, white, black, and yellow to create this revision, editing out only the garish green, as if to chide Picasso for the choice. The brilliant interplay of colors in Matisse's work is far more sophisticated and subtle than that offered by Picasso. "Thank you," Matisse seems to be saying, "but you missed a few spots."

19. The primary purpose of the passage is to
- (A) discuss the two best painters of an epoch
  - (B) evaluate a theory and endorse a revision
  - (C) compare selected works of two masters
  - (D) show that Matisse's work is more sophisticated
  - (E) illustrate how Picasso taught Matisse
20. The author would most likely agree with which of the following statements?
- (A) Artistic rivalries are more like Olympic competitions than professional sports.
  - (B) Artistic mastery is best demonstrated by employing multiple styles.
  - (C) Artists must be good conversationalists.
  - (D) Artistic rivalries can actually be reciprocally nourishing.
  - (E) Artistic rivalries generally last for decades.
21. According to the passage, which of the following describes *Woman with Yellow Hair*?
- (A) It was parody of a work by Matisse.
  - (B) Its colors were not rigidly tied to its form.
  - (C) Its color palette was larger than that of *The Dream*.
  - (D) It was a response to a work by Matisse.
  - (E) It was harsh and grotesque.
22. Which of the following, had it actually occurred during the artists' lifetimes, would further support the author's thesis?
- (A) A joint exhibition of the two artists' work
  - (B) A radio broadcast of the two artists discussing painting
  - (C) A movie that dramatized the competition between the two artists
  - (D) A play that depicted the two artists playing chess
  - (E) A painting of the two artists

**Questions 23–27 are based on the following reading passage.**

Timelines are one of the most commonplace classroom tools used to teach history. They present a concise chronology with dates and events listed in a linear narrative, forming a skeletal story of history. Despite their usefulness in allowing students to gain a cursory knowledge of many key moments in the past, their bare-bones, fact-centered structure is symptomatic of the myopic

5 character of curricula that emphasize the What, When, and Who and eclipse the significance of Why and How.

In the United States, by far the most common brand and format of timeline is the World Almanac for Kids US History Timeline—a banner set of 8 horizontal panels each with 8 events, beginning with Columbus’s voyage in 1492 and ending with Clinton’s election in 1993. This

10 timeline has photos accompanying it—about 5–6 per panel—next to most of the dates, and below each date is a 1–2 line description of an event that took place in that year. What immediately commands one’s attention when looking at this timeline are the dates themselves. Bolder and more prominently placed than anything else, they seem to be the most important feature of the timeline—even more so than the events’ descriptions. The way the dates line up in perfect order

15 presents the viewer with a rigid historical narrative, complete with a beginning and end.

To analyze any particular timeline, it is important to recognize what the timeline expresses implicitly. The first implicit message transmitted by the World Almanac for Kids U.S. History Timeline is that each event listed on the timeline’s face must hold some kind of particular historical significance to qualify as one of only 64 pieces of American history presented, though

20 no event's entry gives even a vague explanation as to why it merits this.

The second message

the timeline conveys, simply by hanging in the classroom, is that this version of history is an

"official" one. Third, that each of these events happened totally independently of one another.

Fourth, that, at most, only one significant event occurred in any given year. And finally, that

American history is entirely made up of wars and minor battles, punctuated by the occasional

25 presidential election and technological innovation. Now, certainly, one can easily surmise that

the timeline authors are not consciously promoting these implications, and instead assume

that the viewer will automatically acknowledge that it is not a comprehensive history but rather

a simple summary of selected events through time. The danger of using the timeline as

30 tool, of course, lies squarely in that assumption. a teaching

23. The author implies which of the following?
- (A) Dates are not important in history.
  - (B) Historical events are not interconnected.
  - (C) Implicit messages can be as important as explicit ones.
  - (D) A study of American history that does not include women and minorities is incomplete.
  - (E) American history is best thought of as a linear continuum of events.
24. The author's attitude toward timelines can best be described as
- (A) condescending and impertinent
  - (B) tolerant and bemused
  - (C) suspicious and resigned
  - (D) wary and critical
  - (E) negative and complacent
25. The author would most likely agree with all of the following EXCEPT:
- (A) There are more than 64 important events in American history.
  - (B) Some students ascribe importance to prominent graphic position.
  - (C) Timelines have some positive uses.
  - (D) Timelines have no subliminal effects.
  - (E) Demonstrating how events interconnect has merit.
26. According to the passage, a problem with timelines is
- (A) their prominent placement in classrooms
  - (B) their lack of context
  - (C) their infinite nature
  - (D) their factual inaccuracy
  - (E) their inclusion of photos
27. Which of the following could be substituted for the word "myopic" (line 5) without changing the meaning of the passage?
- (A) ignorant
  - (B) bigoted

- (C) purblind
- (D) astigmatic
- (E) mordant

**Questions 28–33 are based on the following reading passage.**

As queen of France, Marie Antoinette suffered what were likely the harshest criticisms ever laid against any queen or mistress in France’s long history. There were two major factors that combined to propagate this dark new level of acidic criticism—one was the blooming public sphere, and the second was the scandalous “Diamond Necklace Affair.”

5 Literacy rose greatly over the course of the 18th century and, not coincidentally, the annual output of printed publications tripled by the end of Louis XV’s reign and expanded exponentially throughout Louis XVI’s kingship. Royal censorship had also been greatly reduced by this time, and a massive “black market” for books and extremely popular underground publications flourished during this period. Also, coffeehouse culture and print culture collided during the

10 mid-to-late 1700s, giving Parisians open forums in which to share the gossips and criticisms circulating via the underground pamphlets.

Having endless numbers of pamphlets and an equally infinite number of readers eager to snap them up would be no good without a juicy story, however. This, of course, was exactly what the people received with the Diamond Necklace Affair. On August 11th, 1784, a social

15 climber named Rohan and a prostitute named Nicole Leguay met in the gardens of Versailles.

Nicole was a stunning look-alike of Marie Antoinette, and she was indeed believed to be the queen by Rohan that night. To get on Marie’s good side—a necessary evil for anyone with social ambitions at Versailles—Rohan was led to believe that if he procured a fabulously bejeweled necklace on her behalf, it would be a great favor.

20 The scam was revealed when jewelers Boehmer and Bossange inquired directly to Marie



Antoinette over payment for the grandiose diamond necklace. They presented her with an invoice that she had apparently signed (though it was actually a clever forgery). The queen was furious and had Rohan arrested and marched off to the Bastille. Yet, in addition to the countless aristocrats who sued to the king on Rohan's behalf, at one point over 10,000 people came to

25 the doors of the Bastille demanding Rohan's release. He was eventually acquitted, much to the queen's dismay.

The consequences of this affair were severe for Marie Antoinette. The mere fact that a common street prostitute—one who engages in underhanded, nocturnal dealings to obtain absurdly expensive jewelry—could be so easily mistaken by a nobleman for the queen of

30 France was incredibly damaging to the queen's already blackened reputation. Furthermore, as this hatred of the queen began to boil over, it became inevitable that it would spill onto the monarchy itself. Though Marie would always be the ultimate villainess, she could never be completely untangled from Louis and, thus, from the monarchy itself. She was not a mistress who could be surreptitiously cut away or a political advisor who could be dismissed. She was a

35 queen, and this fact had inescapable consequences.

28. The second paragraph of the passage serves to
- (A) elucidate further the mechanisms by which disdain for a public figure grew
  - (B) contrast two factors that spurred criticism of the queen
  - (C) explain the endemic corruption of the French court
  - (D) discuss the results of a famous scandal
  - (E) detail reasons for Marie Antoinette's unpopularity as well as the consequences
29. The passage implies that a significant proportion of the French aristocracy
- (A) was jealous of the queen's riches
  - (B) read coffee house pamphlets
  - (C) proved more loyal to Rohan than to the queen
  - (D) were less literate than the general populace
  - (E) became leaders of the Revolution
30. According to the passage, readership of books and pamphlets increased in the late 18th century because
- (A) the education of women nearly doubled the number of readers
  - (B) the literacy rate tripled during the reign of Louis XV
  - (C) there were more exciting scandals to write about than there had been in previous times
  - (D) government censorship had relaxed
  - (E) the number of coffee houses increased

Consider each of the answer choices separately and indicate all that apply.

31. According to the passage, Rohan
- ☐ committed forgery
  - ☐ had social ambitions
  - ☐ had support from the populace

Consider each of the answer choices separately and indicate all that apply.

32. The author suggests that Marie Antoinette

- ☐ caused problems for the monarchy
- ☐ never met Rohan
- ☐ had unlimited legal power

33. The author's tone could best be described as

- (A) arrogant and supercilious
- (B) prim and meretricious
- (C) thoughtful and disinterested
- (D) sober but lascivious
- (E) analytical but enthusiastic

**Questions 34–37 are based on the following reading passage.**

In John D’Emilio’s essay “Capitalism and Gay Identity,” D’Emilio argues that the emergence of industrial capitalism led to new opportunities for “free laborers” in the United States, leading to various beneficial changes in social conditions. The overarching themes emerge from D’Emilio’s argument about the effects of the onset of industrial capitalism: the new abundance

of independence, and choice for “free laborers.” He implies throughout that these— independence and choice—are the distinct new markers of the social conditions resultant from this economic shift.

D’Emilio argues that capitalism empowers laborers as “free” in the sense that they are free to look for jobs and to negotiate contracts and terms of labor. D’Emilio’s critics suggest

10 that he largely sidesteps the problems that confound free labor ideology and limit the ability of workers to openly negotiate contracts with employers and to accept or reject the conditions offered. The “contract negotiations” cited as a sign of freedom by D’Emilio are often hardly negotiations at all, but rather highly exploitative arrangements that workers have little ability to affect. From the first Lowell Girls all the way to the modern third world garment workers

15 described by Enloe’s “Blue Jeans and Bankers,” it is clear that for many

—particularly women, minorities, and immigrants—free labor has hardly been free at all.

Such critics also suggest that D’Emilio misrepresents the historical and continued significance of the home. The shift from a home-based to an industrial economy—though indeed very drastic—was hardly as absolute as D’Emilio suggests. Indeed, from nannying, to

20 housekeeping, to even the “home-based jobs” described in “Blue Jeans and Bankers,” labor is still a very active part of the home even today.

In the essay “The Approaching Obsolescence of Housework: A Working-Class Perspective,” Davis spends a great deal of time discussing the continuation of labor in the home in stark contrast to the assertions of D’Emilio. Where D’Emilio argues that industrial capitalism equated to

25 freedom from the home, Davis argues that it actually equated to thickening the bars that caged housewives to the home as productive and reproductive labor split further and more distinctly apart. Davis argues that women “were the losers in a double-sense: as their traditional jobs were usurped by the burgeoning factories, the entire economy moved away from the home, leaving many women largely bereft of significant economic roles.”

34. Which of the following statements is the best description of the structure of the passage?
- (A) A theory is described and supported by additional studies.
  - (B) A theory and a screed against it are provided.
  - (C) A theory is presented, followed by opinions that impugn it.
  - (D) A theory is discussed and its author's credentials questioned.
  - (E) A theory is presented and ridiculed.
35. In the second paragraph, the author mentions the Lowell Girls in order to
- (A) illustrate how industrial capitalism eroded women's economic position
  - (B) challenge an assertion about the importance of home-based economies
  - (C) rebut the arguments of D'Emilio's critics
  - (D) favorably contrast their position to that of Third World garment workers
  - (E) support an assertion that workers' autonomy is more myth than reality
36. The passage suggests that Davis would be most likely to agree with which of the following?
- (A) Industrial capitalism leads to independence and choice.
  - (B) Minorities in particular had little freedom of choice.
  - (C) People without economic roles are disadvantaged.
  - (D) Home-based jobs still account for a significant percentage of the overall economy.
  - (E) Domestic work should be paid.
37. Which of the following would provide the best title for the passage?
- (A) Industrial Capitalism and the Oppression of Labor
  - (B) D'Emilio, Enloe, and Davis: A Reconciliation
  - (C) A Rejection of D'Emilio's Account of "Free Labor"
  - (D) Women's Sacrifices for Industrial Capitalism
  - (E) Industrial Capitalism and Freedom for All

**Questions 38–40 are based on the following reading passage.**

Henri Matisse's *The Ochre Head* represents the artist's exuberant display of his new mastery of a technique once peculiar to Picasso. Matisse has learned to artfully separate color and drawing. The painting depicts a head and shoulders, a bouquet of red flowers in a dark blue vase sitting upon a bench, a framed drawing of a woman's head, and an unframed painting

5 or drawing, also of a woman. But what is most striking about the painting is the way Matisse has begun to allow his colors and his forms to play freely, even while they are coordinated. The ochre of the head runs out past the form. Bits of blue from the bench appear in the man's neckline or along his shoulder. The colors of the various frames and surfaces of the drawing on the wall overlap and refuse to be constrained by definite lines of form. Although this technique is not given

10 the kind of free reign Picasso allows it in his Cubist period or in works such as *Minotaur*, it is still a stunning development for Matisse. And he seems aware of this fact. The painting's composition references Picasso's *Still Life with Ancient Head* from 1925, signaling Matisse's awareness that he is borrowing from his younger colleague.

38. The author uses the word “peculiar” (line 2) to mean which of the following?

- (A) strange
- (B) abstract
- (C) unknown
- (D) unique
- (E) appealing

39. The main idea of the passage is to

- (A) describe an artistic work and its inspiration

- (B) describe how Matisse surpassed Picasso
- (C) describe how Matisse developed his style
- (D) describe a representative example of Matisse's work
- (E) describe the influence of Picasso on the art world

40. According to the passage, all of the following are true of *The Ochre Head* EXCEPT:

- (A) The artist avoided the constraint of coloring only between the lines.
- (B) Its arrangement is similar to that of a piece by Picasso.
- (C) It is considered among the best of Matisse's work.
- (D) Its use of technique is more constrained than that of *Minotaur*.
- (E) It depicts household objects.



**Questions 41–45 are based on the following reading passage.**

History textbooks in the United States are far too fact-based and even have the ability to make students feel as though all history is made up of “Quick-Facts” and diagrams, not dynamic events to be critically analyzed. Furthermore, it is often the case that textbooks are given undue authority in determining the curriculum; many teachers simply “teach the book.”

5 This is particularly disturbing when considering the fact that state committees for choosing textbooks often treat them, in the words of Sandra Wong, “more like encyclopedias of facts than as cultural products that convey values and perspectives” when deciding which ones to pick. In her article “Evaluating the Content of Textbooks: Public Interests and Professional Authority,” Wong discusses how textbook committees are rarely concerned with the actual substance of the writing

10 in the textbooks they evaluate, and are far more interested in things like “charts, illustrations, and introductory outlines.”

What, then, would be a better tool to use in the high school classroom than textbooks or timelines for creating an effective learning environment that could reflect the dynamic nature of historical study? Out of all the various alternatives—going to plays, hearing speakers, listening to

15 music, using interactive online resources, elucidating connections to students’ personal lives by going to local history museums or having students write autobiographical essays, etc.—the most promising is, by far, film. Movies are a magnificent way into history for even the most resistant naysayer of historical study. Film is a hugely popular medium with endless numbers of historically based works—everything from documentaries to dramas—that not only present facts, but

20 dramatize the human relations behind those facts.

The main critique presented against the use of historical film in the classroom is, of course, the existence of rampant inaccuracies and biases laced throughout these films, not to mention the agendas of the filmmakers themselves. However, some historians believe that these seeming flaws are actually part of the reason why film is an ideal teaching tool—not only does it allow

25 students to see history come to life, and thus interact with it dynamically, as well as make history immediately accessible to a modern audience because of the techniques used in filmmaking, but it can also foster deep critical thinking skills if instructors lead dialogues after film viewings about the inaccuracies, the biases, and all of the things that make the film not just a record of a historical event, but also a reflection of the modern moment.

41. Which of the following is not cited by the passage as an alternative method for historical study?

- (A) Listening to music
- (B) Attending a lecture
- (C) Volunteering at an archeology dig
- (D) Writing a personal statement
- (E) Watching a film

42. The purpose of the passage is to
- (A) support the film industry
  - (B) criticize government education policies
  - (C) advocate a new process for textbook adoption
  - (D) propose increased use of a particular didactic tool
  - (E) denigrate an established philosophy
43. According to the passage, a problem with state committee textbook selection is
- (A) the lack of education of the committee members
  - (B) misplaced priorities
  - (C) the dominance of larger states
  - (D) valuing perspectives instead of facts
  - (E) personal prejudices
44. The purpose of the last paragraph is to
- (A) acknowledge an insurmountable obstacle
  - (B) raise and undermine an objection
  - (C) reassert the need for alternative educational tools
  - (D) admit a flaw in a preferred alternative
  - (E) advocate more interactive instruction
45. The passage implies which of the following?
- (A) Students can benefit from exposure to inaccurate accounts of history.
  - (B) Students today prefer music to film.
  - (C) Students today are functional illiterates.
  - (D) Students today prefer charts to opinions.
  - (E) Students today should not be exposed to political agendas.

**Questions 46–47 are based on the following reading passage.**

From assemblages of found objects to bizarre video installations and digital interactive experiments, much of contemporary art has been criticized as cold, unapproachable, impersonal, and emotionless. One link between the immediately appealing, expressive paintings that are often the most popular museum attractions and the “brainy” constructivist school of art

5 pioneered in the early twentieth century is the notion of *gesture* as an expressive tool.

Mark di Suvero’s *Iroquois* (1983–1999) is composed of several industrial-sized I-beams. The materials are so heavy and large the artist used cranes and other construction tools to manipulate and connect the beams, all of which have been painted a bright red-orange. The result is an intruding work of almost architectural dimensions that one can immediately sense is

10 terribly heavy and somewhat precarious, yet stable and balanced. As one contemplates *Iroquois*, walking in and around its structure, backing away to see it from a distance, the linear forms become considerably more complex than one might presume. The tangled steel was obviously constructed with great care, yet each piece seems to threaten the viewer with its weight and size jutting out away from the central nexus, daring the entire form to topple over.

At the same time,

15 the piece seems to exude stability, balance, even serenity. *Iroquois* resonates with an energy born not of the physical quality of the sculpture, which is quite passive and stable, but rather of the *gestural* quality of the forms.

Consider each of the answer choices separately and indicate all that apply.

46. Which of the following can be inferred from the passage?

- ☐ Some of the most popular museum attractions are contemporary art installations.
- ☐ Expressive paintings have been considered “brainy.”
- ☐ Seemingly cold and cerebral art can nevertheless make use of certain expressive tools.

Consider each of the answer choices separately and indicate <u>all</u> that apply.
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47. Which of the following does the author assert about *Iroquois*?

- ☐ Paradoxically, it appears to be both stable and unstable.
- ☐ It uses gesture to evoke a sense of energy.
- ☐ Some interpret it as simpler than it really is.

**Questions 48–51 are based on the following reading passage.**

In his *Discourse on Inequality*, Rousseau posits that early social contract theories establish unjust social and political arrangements that provide only the appearance of legitimacy and equality.

In Rousseau's accounting, the beginnings of the social contract lie in the fears of the rich.

5 In a state of nature, one in which there is no government or law to control the interactions of people, the rich would have great difficulty protecting the property that they possess. Thus, the rich turn to the mechanism of the social contract to shore up the holdings Rousseau views as "hoarded." The concept of a social contract is appealing to the poor, because the poor fear death in a state of lawlessness and thus seek protection. To obtain assent to the contract, the

10 rich focus their rhetoric on a seeming equality of obligation by creating rules that apply equally to all members of society. This system, however, simply systematizes the "theft" the rich had perpetrated on the poor in the pre-law state of nature.

Rousseau then begins to develop his own vision of a social contract, through which he attempts to right these injustices. His first departure from earlier theorists is in the formation of

15 the sovereign. Rather than members of the state surrendering their rights to another person—an irrational course of action tantamount to surrendering oneself into slavery—they surrender their right to all members of the society and thus to no one. Rousseau refers to this sovereign as the "general will" and it has the task of legislating for the new civil society that is created in the contract.

20 Unlike early social contract theories, Rousseau's version conceives

of property rights that allow for rights of first occupancy to justify claims, rather than rights of the strongest. In this system, property can be taken only if it has not been previously occupied and only to the degree necessary for the subsistence of those taking it, measures intended as a check to the hoarding of property by force enshrined in earlier contract theory.

48. Which of the following societies would Rousseau be likely to endorse?
- (A) A society in which there is no government or law to control how people interact with each other.
  - (B) A society in which a primary leader is elected through a fair democratic process.
  - (C) A society in which there is only communal property, rather than private property.
  - (D) A society in which the social contract has been dismantled and replaced with rights of first occupancy.
  - (E) A society in which a homeless family could legally move into an empty house they did not purchase.
49. It can be inferred from the passage that Rousseau would believe which of the following of a society of men and women living without the primary structures of civilization?
- (A) Their wealth would inevitably be equally distributed across the population.
  - (B) Those with more wealth would be at risk of losing it to those with less.
  - (C) Property would not be hoarded by those who had the most power.
  - (D) The social contract would be created in order to protect and support the poor.
  - (E) Property would only be taken if it had not been previously occupied and was necessary for the subsistence of those taking it.
50. Select the sentence in the second paragraph that explains the mechanism by which a privileged group is able to secure widespread approval for the systematized “theft” it achieves through hoarding.
51. In the context in which it appears, “subsistence” (line 23) most nearly means
- (A) survival
  - (B) enrichment
  - (C) protection
  - (D) help
  - (E) opposition



**Questions 52–53 are based on the following reading passage.**

The African American writer and social critic James Baldwin grew up as an outsider to both the language and the culture of power, and yet achieved a balance between self-expression and the language of power. As a child in the 1930s, Baldwin felt acutely separated from a culture of power in which Hollywood movies portrayed an optimistic, capitalist, white America that dealt

5 with white issues and employed white actors. In “Congo Square,” Baldwin opens his essay with an important idea: “A child is far too self-centered to relate to any dilemma which does not, somehow, relate to him.” Watching the films of the dominant culture, Baldwin attempted to relate the information to his own life, connecting with it however he could. Rather than blindly accept the storylines in the movies, when Baldwin saw a staircase in *A Tale of Two Cities*, he thought,

10 “I knew about staircases.”

At the same time, Baldwin distrusted the culture of power: “The civilized ... do not intend to change the *status quo* ... these people are not to be taken seriously when they speak of the ‘sanctity’ of human life, or the ‘conscience’ of the civilized world.”

Consider each of the answer choices separately and indicate all that apply.

52. It can be inferred from the passage that Baldwin would agree with which of the following about a 1930s film that dealt only with African American issues and employed only African American actors?

- ☐ It would be significantly better than most Hollywood movies from the 1930s.
- ☐ It would suffer from the same kind of problems as the more typical 1930s Hollywood movies.
- ☐ It would be less likely than most other 1930s Hollywood movies to reinforce the predominant culture.

53. Baldwin's quotation from "Congo Square" is used primarily in order to illuminate what aspect of 1930s America?

- (A) The culture of power that Baldwin mistrusted
- (B) The fact that Hollywood movies were primarily optimistic and centered on white culture
- (C) The idea that America was hungry for a writer such as Baldwin, because its films focused only on white America
- (D) The alienating effect of films of the era on black children
- (E) The concept that children are incapable of deriving any educational value from films they can't relate to

**Questions 54–56 are based on the following reading passage.**

The Parthenon has long been regarded as one of the great architectural and artistic products of the High Classical Period. Yet, scholars have struggled to reach a consensus interpretation for the meaning of the Parthenon frieze. The study of this particular sculptural element of the Parthenon, a continuous band of sculpture that ran round the top of the building's

5 temple-chamber, has proven quite difficult.

Today only 423 feet of the original 524 survive, and of those, 247 feet are housed in the British Museum in London. Another large section is now in the Acropolis Museum in Athens, and still other pieces reside in exhibits throughout Europe, making it a difficult task to discuss, let alone experience the unified whole the designers wished the audience to witness—a key element

10 in deciphering any work of art.

Denied the opportunity to study the frieze as it existed in antiquity, scholars are faced with the burden of reconstructing the visual experience of the monument before they can even begin interpreting it. To do so, an inventory is taken of characters and figure-types represented on the frieze and their arrangement. Then this inventory is compared to historical precedents and

15 placed in its contemporary context in the hopes of using prior examples to decipher its meaning.

Considering the various fragments of the Parthenon frieze as a whole and comparing it to other Greek artworks, two aspects of the arrangement immediately strike the informed viewer.

First, it is clear that the frieze is meant to be thought of as a continuous whole. This is particularly interesting because it is completely unprecedented in Greek art. Continuous friezes on

20 the faces of Greek temples generally depicted single subjects, but if continued over all four sides of a building, the four stretches of the frieze would generally be thematically separate.

The second unique aspect of the Parthenon frieze has to do with the fundamental nature of Greek art: namely that all works of art prior to the Parthenon frieze depicted only scenes from myth and legend. Yet, in this relief, for the first time in the history of Greek art, we find mortals,

25 leading some scholars to the conclusion that what is depicted is a specific event that actually took place at a particular time and place.

54. In the context in which it appears, the word “informed” (line 18) most nearly means
- (A) assiduous
  - (B) artistic
  - (C) unique
  - (D) erudite
  - (E) scientific
55. Which of the following would be the best title for the above passage?
- (A) The Parthenon Frieze: An Insoluble Sculptural Mystery
  - (B) The Parthenon Frieze and Methods of Artistic Interpretation
  - (C) The Parthenon Frieze: Idiosyncratic Stonework
  - (D) Mortals in Greek Art
  - (E) The Parthenon Frieze: Continuity of Character
56. According to the passage, each of the following is true about the Parthenon EXCEPT:
- (A) It was constructed in the High Classical Period.
  - (B) It has been seen as a great work of art.
  - (C) It was featured on a temple-chamber.
  - (D) It is not known how it looked at the time of its construction.
  - (E) It contained a one-of-a-kind sculptural element.

**Questions 57–58 are based on the following reading passage.**

A single short story can suggest a desired response from the reader. It is a difficult task, though, to create a world within a single short story and then repeat this world again in other stories while maintaining a consistent flow of ideas. Many authors prefer to use the same setting, indeed, often the same characters in each story. Isabel Allende's *Diez Cuentos de Eva Luna*

comes to mind. In these stories, Allende uses the small town of Agua Santa as the setting for the entire collection.

*Woman Hollering Creek* is a collection of short stories by Sandra Cisneros. Rather than using the same characters or setting throughout the collection, Cisneros takes a different approach to relating her stories to one another. Much of the burden, in fact, is placed on the reader, for the

characters change each time, as does the setting. Furthermore, while the characters are largely Mexican American immigrant women, each character presents a distinct style and literary voice.

What these works have in common is more intuitive; mood, circumstance, time, tone, and imagery all play a role in creating the world in which the stories take place.

57. The author of the passage would be most likely to agree with which of the following statements?

- (A) Short story collections depend on the reader to find the common thread that ties the stories together.
- (B) Isabel Allende uses the same setting for the majority of her fiction.
- (C) It is possible to create a coherent short story collection if the stories take place in different times and places.
- (D) Intuition is a more important aspect of Sandra Cisneros's writing than the characters or the setting.
- (E) The best short story collections feature some through line that the

reader can follow and that connects the various stories.

58. According to the passage, which of the following characterizes both short stories by Isabel Allende and short stories by Sandra Cisneros?

- (A) Similarities in tone among the stories
- (B) Similarities in time among the stories
- (C) Similarities in characters among the stories
- (D) Similarities in setting among the stories
- (E) None of the above

**Questions 59–60 are based on the following reading passage.**

During the 1960s and '70s, scientists were concerned and puzzled by a large gap in the human fossil record. The “aquatic ape theory” gained prominence as an explanation for this gap. This theory posited that primitive humans were forced toward a littoral lifestyle by competition for arboreal resources. Analogies were made to seal populations, who sleep on

land at night but spend most of their days in coastal waters. Proponents pointed to various physiological human attributes, such as bipedalism and the webbing between human toes, as extant adaptations.

However, the aspect of the theory that captured the public imagination and undoubtedly boosted its standing was the point that this hypothesis explained human hairlessness; as with

10 dolphins, this streamlining would facilitate swimming and diving.

Proponents noted that the remaining body hair would match the flow of water, and extreme advocates explained the gender difference in hair by suggesting that females much more rarely ventured out of the shallows and into the putatively more dangerous forests and savannahs.

Nonetheless, despite the popular stature of the theory, the scientific community almost

15 unanimously rejects it as mere conjecture not only because of the lack of supporting evidence

but also because its claims do not withstand scrutiny. While bipedalism does facilitate

swimming, it is even more of an advantage in terrestrial pursuits.

Further, biomechanical

analysis indicates that humans remain such inadequate swimmers that they could not so

succeed. As for hairlessness, critics point out that other semi-aquatic mammals actually have



20 dense fur and/or barrel shaped torsos for heat retention. Today, the theory, while still championed by a prominent writer but non-scientist, has no serious support among mainstream-trained paleoanthropologists.

59. The passage implies that, according to the theory, a male aquatic ape would most likely do which of the following?

- (A) Spend almost all of its time in the water
- (B) Spend its nights in the water, but its days partly on land
- (C) Spend its days partly in the water, but its nights partly on land
- (D) Spend its days mostly in the water, but its nights on land
- (E) Spend almost all its time on land

60. The author describes a remaining proponent of the theory as a “non-scientist” (line 21) in order to do which of the following?

- (A) Cast doubt upon her objectivity
- (B) Tout the superiority of common sense over academics
- (C) Cast doubt upon her expertise
- (D) Cast doubt upon mainstream paleoanthropologists
- (E) Illustrate the sexism of mainstream scientists

**Questions 61–62 are based on the following reading passage.**

The Tokugawa period (1603–1867) in Japan serves as a laboratory for organizational behavior historians for the same reason that Iceland works for geneticists— isolation removes extraneous variables. The Tokugawa shoguns brought peace to a land of warring feudal lords. To preserve that tranquility, the Tokugawa shogunate forbade contact with the outside world,

5 allowing only a few Dutch trading ships to dock at one restricted port. Domestically, in pursuit of the same goal, the social order was fixed; there were four classes—warriors [samurai], artisans, merchants, and farmers or peasants—and social mobility was prohibited. The ensuing stability and peace brought a commercial prosperity that lasted nearly two hundred years.

However, as psychologists, social historians, and Biblical prophets have all observed, in

10 varying ways, humans inevitably fail to anticipate unintended consequences. In the Tokugawa period, the fixed social hierarchy placed the samurai on top; they and the government were essentially supported by levies on the peasantry, as the other two classes were demographically and economically inconsequential. However, prosperity brought riches to the commercial classes and their numbers burgeoned. Eventually, their economic power dwarfed that of their supposed

15 superiors, the samurai. Simultaneously, the increasing impoverishment of the samurai adversely affected the finances of the peasantry and the government. By the early 19th century, this imbalance between social structure and economic reality eroded the stability of the society. This condition, in conjunction with increasing pressure for access from foreigners, such as Admiral Perry in 1853, led to the collapse of the shogunate in 1867. In short, the

success of this imposed

20 order led to its undoing through consequences that were beyond the ken of the founders.

61. The primary objective of the passage is to

- (A) compare the Tokugawa period to modern Iceland
- (B) demonstrate the folly of imposing a social order
- (C) show how American naval power ended Japan's isolation
- (D) illustrate how a society can model a common human failing
- (E) argue that commerce is more successful than militarization

62. Which of the following would provide further support for the main reason cited for the decline of the Tokugawa period?

- (A) A samurai becomes a successful merchant.
- (B) A successful artisan becomes a samurai.
- (C) A samurai must work as a bodyguard for an artisan.
- (D) A severe drought causes widespread famine.
- (E) A military invasion by American marines occurs.

**Questions 63–64 are based on the following reading passage.**

The War of the Spanish Succession, 1701–14, began as a quarrel over whether an Austrian Habsburg or French Bourbon would succeed the childless Charles II of Spain. The conflict eventually embroiled most of Europe, with Austria, England, Holland, and Prussia the major powers opposing France, Spain, and Bavaria. For centuries afterward, school children learned

5 of the Duke of Marlborough’s victory at Blenheim and the military brilliance of Prinz Eugen of Savoy, an independent territory east of France, as well as the opposing brightness of Louis XIV of France, known as the Sun King, who also built the famous palace at Versailles. Today, however, virtually all those names would elicit only blank stares.

Although this war and its personages have now vanished into obscurity, its effects greatly

10 affected the course of European and world history. The Treaty of Utrecht, which ended the war in 1714, ceded the Spanish island of Gibraltar to England. The “Rock of Gibraltar” became an invincible British fortress that controlled the Mediterranean and thus was of paramount importance in both world wars. Conversely, the same treaty elevated Prussia to a kingdom, thus setting in motion a chain of events that led to a unified Germany under a Prussian Kaiser

15 instead of one governed by the Austrians, arguably making the bloodshed that consumed the 20th century more likely.

63. The author implies that a possibly negative aspect of the Treaty of Utrecht was

- (A) awarding Gibraltar to the British
- (B) reducing the Duke of Marlborough to obscurity
- (C) elevating Prussia to a kingdom

- (D) failing to resolve the Spanish succession
- (E) providing the impetus for the eventual world wars

64. Which of the following must be true, according to the passage?

- (A) Not all of the important military personages were from major powers.
- (B) The battle of Blenheim was the most important engagement of the war.
- (C) England was the victorious power.
- (D) France was defeated in the war.
- (E) The transfer of Gibraltar was the most important result of the war.

**Questions 65–66 are based on the following reading passage.**

The term “free rider” originates from the idea of someone who rides public transportation without paying the fare. The “free rider problem” is what results when too many people do this: the transit system will go bankrupt. More broadly, the free rider is someone who uses or enjoys the benefits of something without paying, or takes more than his or her proper share of

5 a publicly shared good that is limited in supply. Free riders can cause others to curtail their own contributions, not wanting to be taken advantage of, or can result in the excessive depletion of the common resource.

In some cases, the free rider problem is viewed as a necessary cost of government. When citizens pay for national defense or environmental protection, everyone benefits, even those who

10 evade paying taxes.

Consider each of the answer choices separately and indicate all that apply.

65. Which of the following examples clearly match the definition of a free rider problem as described in the passage?

- ☐ The population of game birds in a state park declines sharply when hunting quotas are observed by only some hunters.
- ☐ A senior citizen pays less for a movie ticket than do the other people in the theater.
- ☐ A yearly school bake sale based on the honor system is suspended when too many people take food without paying.

66. The author of the passage would be most likely to agree with which of the following statements?

- (A) Free riders cannot be blamed for their actions, because they are an inevitable part of any government.
- (B) Free rider problems are not worth worrying about, because they are an inevitable part of any government.

- (C) There are at least some situations in which the free rider problem should not be viewed as an inevitable part of government.
- (D) National defense is a perfect example of why free rider problems need to be stamped out as quickly as possible.
- (E) Free riders are morally at fault and ought to be punished.

**Questions 67–68 are based on the following reading passage.**

In 2010, a team of biologists led by Svante Paabo announced evidence that modern humans interbred with Neanderthals some 60,000–100,000 years ago. These researchers compared the full sequence of Neanderthal DNA to that of five modern humans from China, France, sub-Saharan Africa, and Papua New Guinea, and looked for DNA shared by both Neanderthals

5 and non-African modern humans, but not by sub-Saharan Africans. Because Neanderthals and modern humans are known to have diverged hundreds of thousands of years before modern humans left Africa, Paabo attributed any such common DNA to interbreeding in Eurasia.

Paabo's team announced that the modern humans from China, France, and Papua New Guinea all have the same proportion of Neanderthal DNA, and inferred that interbreeding with

10 Neanderthals must have taken place before the ancestor population of those Eurasians divided.

Paabo maintained that these two events, the migration of modern humans out of Africa and the division of the Eurasian population, mark the interval during which the interbreeding must have taken place, and that for roughly forty thousand years of that window, Neanderthals and modern humans lived near one another in the Middle East.

15 The team's conclusions were answered with skepticism on a number of fronts. Critics

pointed out that an earlier report reached similar conclusions based on Neanderthal samples later found to be contaminated with DNA from modern humans.

Paleontologists and archaeologists

charged that the conclusion was unsupported by archaeological evidence. Further, Paabo's team

found evidence only of Neanderthal DNA in modern humans, not of modern human DNA in



20 Neanderthals, but critics claim that interbreeding would result in gene flow in both directions.

Consider each of the answer choices separately and indicate all that apply.

67. The passage implies that which of the following claims is true?

- ☐ Modern humans and Neanderthals share a common ancestor.
- ☐ Modern humans and Neanderthals interbred.
- ☐ Modern humans and Neanderthals lived near one another approximately 80,000 years ago.

Consider each of the answer choices separately and indicate all that apply.

68. The passage suggests which of the following is true of Paabo's critics?

- ☐ They doubt Paabo's integrity.
- ☐ They ignore DNA evidence.
- ☐ They sometimes appeal to archaeological evidence.

**Questions 69–70 are based on the following reading passage.**

Though an echo is a fairly simple acoustic phenomenon—a reflection of sound waves off some hard surface—it occurs only under very specific circumstances. Imagine a listener standing at the sound source. The reflecting object must be more than 11.3 meters away from the sound source, or the echo will return too soon to be distinguishable from the original

5 sound. A reflecting object more than about 170 meters, on the other hand, will rarely produce an audible echo, since sound dissipates with distance. Further, multiple surfaces each reflecting the same original sound to the same listener will likely not produce an echo, but a reverberation, a persistent sound gradually decreasing in amplitude until the listener can no longer hear it. Common though echoes are then, it is unsurprising that some sounds seem to produce no echo.

10 A centuries-old tradition holds that a duck’s quack does not echo. Scientists in the Acoustics Department of the University of Salford set out to test and explain this claim. They recorded a duck, Daisy, first in an anechoic chamber filled with sound-absorbing fiberglass wedges, then in an echo chamber with the acoustical properties of a small cathedral. The sound of the duck quacking in the anechoic chamber was clearly different from the sound of the duck quacking in

15 the echo chamber, but the researchers acknowledged that it would be very hard to recognize an echo in the latter recording without having very recently heard the former. Partly this is because a quack isn’t a single burst of sound, but fades in and out, so that the beginning of the echo might blend with the end of the original sound. Partly it is because a quack is just not very loud. The Salford researchers also speculate that most people may simply not encounter ducks in proximity

20 to reflectors such as buildings or mountains. A further complication, though one the researchers leave unremarked, is that people generally hear ducks in flocks, where one quack might be indistinguishable from the echo of another.

69. According to the passage, all of the following make an audible echo unlikely EXCEPT

- (A) a reflecting surface too close to the original sound
- (B) a reflecting surface too far from the original sound
- (C) multiple reflecting surfaces
- (D) multiple listeners
- (E) sound-absorbing materials

Consider each of the answer choices separately and indicate <u>all</u> that apply.
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70. The passage suggests that which of the following would propagate echoes?

- ☐ An anechoic chamber
- ☐ A cathedral
- ☐ A mountain

**Questions 71–72 are based on the following reading passage.**

“Falsifiability” is the term coined by Karl Popper for the idea that a hypothesis or theory addresses the observable world only insofar as it can be found false as the result of some observation or physical experiment. For instance, the proposition “all cats have fur” can easily be proven false with the observation of a single hairless cat. The proposition “the world will end in

5 the year 3035” is impractical to falsify, but still passes the test of falsifiability in that there exists the logical possibility that 3035 will come and go without the world ending. To the contrary, it is possible to posit that everything that happens is the will of Zeus. No matter what experiment we design—such as praying to Zeus to give us the answer or daring Zeus to strike us with lightning—we can always infer that the result is the will of Zeus. Such a proposition, as conceived here, is not

10 falsifiable. Popper claimed that a falsifiable theory is the only kind that can truly be scientific, or at least useful to the scientific community.

By that logic, we can also say that no theory should be formed that has no chance of being true. However, seeing as that kind of theory is much less likely to be formed, it is understandable that Popper does not devote that much time to the criterion of “confirmability.”

71. According to the passage, which of the following does not meet the criteria for falsifiability?

- (A) All birds are black.
- (B) Earth is the only planet in the universe with intelligent life.
- (C) It rains on Mars every day.
- (D) The sun will explode in 100,000 years.
- (E) No human being lives forever.

72. To which of the following is the author most likely to agree regarding “confirmability”?

- (A) It is a more important theory than falsifiability.
- (B) It does not have much practical, scientific use.
- (C) It applies to a broad range of theories.
- (D) It is an unreasonable idea.
- (E) Popper should have developed this idea along with falsifiability.

**Questions 73–76 are based on the following reading passage.**

A dictionary definition of the term “political” might read something like, “of or concerned with government, political parties, or politicians.” Such a definition is not precisely wrong, but rather is outdated and falls short by not accounting for what Nancy Fraser calls “the shift from a repressive model of domination to a hegemonic one.” If at some point we believed governments

5 to operate exclusively through law and the threat and enforcement of concrete punishment, such as imprisonment, monetary penalties, etc., and called this and everything that directly influenced it “politics,” we have now acknowledged the role of hegemony, which legitimizes law and supports the exercise of power.

This is significant because, under the first definition, the only cultural products that can be

10 said to be political must explicitly address issues of political partisanship or governance, while under the second definition, all cultural objects can be traced to a certain ideology—in accordance, negotiation, or opposition to hegemony—and therefore be political.

But we do not feel that we are discussing politics or viewing politics all the time, even if we are, according to our definition of “the political.” This is because even if all subject matter is

15 (at least potentially) political, not all talk is so. When conducting her

study on political talk, Nina Eliasoph focused not as much on what people talked about, but rather on how exactly they talked about things: “whether speakers ever assume that what they say matters for someone other than themselves, ever assume that they are speaking in front of a wider backdrop.” She cited Hanna Pitkin in concluding that “public-spirited conversation happens when citizens speak in terms of

20 ‘justice’.” To use an example from the theater, then, we can say that when a director decides to frame her production of *A Streetcar Named Desire* as the story of a woman who is losing her mind and does not get along with her aggressive brother-in-law, she is actively depoliticizing the story, whereas she is actively politicizing it if she decides to frame the narrative as one example of the devastating effects of an old bourgeois morality, a changing economic system, and the social

25 valuing of an abusive model of masculinity.

73. The second paragraph of the passage serves to
- (A) offer an alternative to the definitions previously presented
  - (B) discuss a revision of the definitions previously presented
  - (C) delineate the distinction between the definitions previously presented
  - (D) delineate an exception to the definitions previously presented
  - (E) describe the inadequacy of the definitions previously presented
74. The author cites *A Streetcar Named Desire* (line 21) in order to
- (A) provide a counterpoint to the thesis of the passage
  - (B) illustrate an aspect of the subject under discussion
  - (C) advocate politicizing a work of art
  - (D) illustrate the universality of politics
  - (E) illustrate a fallacy of a definition
75. According to a theory presented in the passage, a person is engaging in public interest conversation if that person discusses which of the following?
- (A) Justice
  - (B) Theater
  - (C) Sexism
  - (D) Economics
  - (E) Politicians
76. Select a sentence from the first or second paragraph that levels an explicit criticism.

**Questions 77–78 are based on the following reading passage.**

Explanationism is the idea that prediction is, in itself, insufficient to confirm a theory. To adequately confirm a theory, according to an explanationist, is to see how well it describes events and phenomena that have already been observed. Stephen Brush, a staunch explanationist, would say that a correct prediction does not necessarily confirm the truth of a theory; it could be the

5 case that a theory predicts something and yet does not provide the best explanation of it. Take, for example, the difference in the perspectives of Copernicus and Brahe on the solar system. Copernicus's model of the solar system was heliocentric, positing that all of the planets revolved around the sun. Brahe's theory stated that all of the planets revolved around the sun, *except* the earth, which was immobile, and that the sun actually revolved around the earth. Even if both

10 accurately predicted future movements of the planets, it is easy to see how Copernicus's theory has less of an "ad hoc" quality—and, of course, provides a superior explanation of the mechanisms of the solar system. It is certainly true that a theory can successfully predict a certain event, yet fail to provide an adequate explanation for why it happened, or perhaps even stumble on the prediction more by accident than by manner of understanding the mechanism behind the event.

15 A predictionist would argue that while a theory can provide a perfect explanation for something happening, a theory cannot be tested for understanding or explaining the underlying mechanism of a phenomenon unless it can also predict some event that confirms that exact mechanism at work. For instance, a physicist might study the formation of solids and posit that all solids will sink if they are placed in a liquid of the same element, because the solid is denser



20 than the liquid. Given this premise, we discover that the physicist's prediction is true, and even once he stages an experiment with ice and water, he will not be proven wrong, but rather will have discovered a unique property of solid water.

77. Which of the following best expresses the main idea of the passage?

- (A) Explanationism is a superior theory to predictionism.
- (B) Two very different ideas can both be used to successfully investigate scientific theories.
- (C) Copernicus's model of the solar system was more accurate than Brahe's due to explanationism.
- (D) One cannot posit a physical theory without predictive power or previous observations.
- (E) A predictionist and an explanationist will always diverge on whether a scientific theory is correct.

78. Which of the following most accurately states the author's reason for citing the Copernicus and Brahe models of the solar system?

- (A) It shows that a theory without predictive power can never be tested and verified.
- (B) It reveals that some theories can have more or less of an "ad hoc" quality.
- (C) It shows that two different theories can never yield the same predictions for future events.
- (D) It is used to support the idea that a more complicated model will always fail to a simpler model.
- (E) It provides an example of when a theory can correctly predict future events but not offer the best explanation.

**Questions 79–84 are based on the following reading passage.**

Subatomic particles can be divided into two classes: fermions and bosons, terms coined by physicist Paul Dirac in honor of his peers Enrico Fermi and Satyendra Bose. Fermions, which include electrons, protons, and neutrons, obey the Pauli exclusion principle, according to which no two particles can inhabit the same fundamental state. For example, electrons cannot circle the

5 nuclei of atoms in precisely the same orbits, loosely speaking, and thus must occupy more and more distant locations, like a crowd filling seats in a stadium. The constituents of ordinary matter are fermions; indeed, the fact that fermions are in some sense mutually exclusive is the most salient reason why two things composed of ordinary matter cannot be in the same place at the same time.

- 10     Conversely, bosons, which include photons (particles of light) and the hitherto elusive Higgs boson, do not obey the Pauli principle and in fact tend to bunch together in exactly the same fundamental state, as in lasers, in which each photon proceeds in perfect lockstep with all the

others. Interestingly, the seemingly stark division between fermionic and bosonic behavior can be bridged. All particles possess “spin,” a characteristic vaguely analogous to that of a spinning

15 ball; boson spins are measured in integers, such as 0 and 1, while fermion spins are always half-integral, such as  $\frac{1}{2}$  and  $1\frac{1}{2}$ . As a result, whenever an even number of fermions group together, that group of fermions, with its whole-number total spin, effectively becomes a giant boson. Within certain metals chilled to near absolute zero, for instance, so-called Cooper pairs of electrons form; these pairs flow in precise harmony and with zero resistance through the metal, which is thus said

20 to have achieved a superconductive condition. Similarly, helium-4 atoms (composed of 2 electrons, 2 protons, and 2 neutrons) can collectively display boson-like activity when cooled to a superfluid state. A swirl in a cup of superfluid helium will, amazingly, never dissipate.

The observation that even-numbered groups of fermions can behave like bosons raises the corollary question of whether groups of bosons can ever exhibit fermionic characteristics. Some

25 scientists argue for the existence of skyrmions (after the theorist Tony Skyrme who first described the behavior of these hypothetical fermion-like groups of bosons) in superconductors and other condensed-matter environments, where twists in the structure of the medium might permit skyrmions to form.

Consider each of the answer choices separately and indicate all that apply.

79. The example of “a crowd filling seats in a stadium” (line 6) is intended to

- ☐ expand upon one consequence of the Pauli exclusion principle
- ☐ illustrate a behavior of certain fermions
- ☐ describe how electrons circle the nuclei of atoms in concentric, evenly spaced orbits

80. The author’s primary purpose in writing this passage is to

- (A) explain the mechanism by which fermions can become bosons
- (B) describe the two classes of subatomic particles
- (C) provide examples of the different forms of matter
- (D) explain the concept of particle “spin”
- (E) argue that most matter is composed of one type of particle

81. Which of the following is not mentioned as a characteristic of bosons?

- (A) They can be composed of groups of fermions.
- (B) They are measured in integer spin.
- (C) They are the constituents of ordinary matter.
- (D) They tend to bunch together in the same fundamental state.
- (E) They lead to phenomena such as superconductors and superfluids.

82. Which of the following can be properly inferred from the passage?

- (A) An atom composed of two protons and a neutron would be considered a boson.
- (B) Skyrmions have been discovered in superconductors and other condensed matter environments.
- (C) Two electrons in an atom cannot circle the same nucleus at exactly the same distance.
- (D) A current through a superconducting wire will never dissipate.
- (E) Fermions cannot behave as bosons unless they are cooled to a temperature near absolute zero.

83. According to the passage, which of the following describes a difference between fermions and bosons?

- (A) Fermions cannot inhabit the same fundamental state, whereas bosons bunch together in the same state.
- (B) Fermions contain many more types of particles than bosons.
- (C) Fermions exist in groups, but bosons do not.
- (D) Fermions have integral spin values, whereas Bosons have half-integer spin.
- (E) Fermions do not obey the Pauli principle, whereas bosons do.

84. Based on the information in the passage about the Pauli exclusion principle, to which one of the following situations would this principle be most relevant?

- (A) Fermi Energy: The maximum energy that electrons in a solid will contain in order to avoid having identical energy levels
- (B) Particle Accelerators: Devices that will accelerate charged particles to very high speeds through the application of an external magnetic field
- (C) Quantum Entanglement: When particles interact physically and then become separated but still have interdependent properties
- (D) Double Slit Experiment: An experiment that revealed the particle and wave duality of photons
- (E) The Higgs Field: The field produced by the conjectured Higgs particle that would explain why matter has mass

**Questions 85–87 are based on the following reading passage.**

*Homo economicus*, or economic human, denotes the idea of human beings as rational, narrowly self-interested agents who, given total information about opportunities and possible constraints, seek to obtain the highest possible well-being for themselves at the least possible cost. In the late 19th century, a host of economists built mathematical models based on the

5 conception of real humans as *Homo economicus*.

Exponents of *Homo economicus* tend to acknowledge that total information is not possible in the real world; thus, breakdown in models based on the concept are due to imperfect information held by the self-interested economic actors. Amartya Sen has pointed out that *Homo economicus* ignores that people can and do commit to courses of action out of morality,

10 cultural expectations, and so forth. Veblen and Keynes allege that *Homo economicus* assumes far too great an understanding of macroeconomics on the part of humans. Tversky puts forth that

investors are not rational: they are unconcerned by small chances of large losses, but quite risk-averse regarding small losses. Bruno Frey points out that humans are often intrinsically motivated, and that such motivation explains heroism, craftsmanship, and other drives that do not fit neatly

15 into the model of a narrowly focused gain-seeker. Critics of the psychoanalytic tradition point out, somewhat obviously, that humans are frequently conflicted, lazy, and inconsistent.

Consider each of the answer choices separately and indicate all that apply.

85. Which of the following phenomena would exemplify Bruno Frey's critique of *Homo economicus*?

- ☐ A woodworker spends months on the delicate inlay of a door, knowing that his many hours of hard work will inevitably result in a higher price when he comes to sell the piece.
- ☐ A television journalist often travels to dangerous countries all over the world because he is contractually obligated to do so, and his ratings are higher the more dangerous his exploits appear to be.
- ☐ An economist dedicates her career to illustrating a fundamental flaw in a particular theory, though she knows there will be no tangible reward for her efforts.

86. Which of the following best describes the main idea of the passage?

- (A) *Homo economicus* is a useful, if theoretical, actor to use in the formation of mathematical models.
- (B) *Homo economicus* is a fundamentally flawed and thus theoretically useless construction, for a host of reasons.
- (C) *Homo economicus* is often criticized by those who don't fully understand its function in economic theory.
- (D) *Homo economicus* is a problematic construction, because it simplifies human motivations and is overly optimistic about human understanding.
- (E) *Homo economicus* fell out of favor with most economists in the 20th century due to its many incorrect assumptions about humanity.

Consider each of the answer choices separately and indicate all that apply.

87. Which of the following is a complaint leveled against the theory of *Homo economicus* posited by certain economists in the late 19th century?

- ☐ It assumes that the average person knows a lot more about the general workings of the economy than he or she actually does.
- ☐ It assumes that humans experience a proportional and linear emotional response to all risks and rewards.
- ☐ It assumes that the primary impetus behind human decision making



is not predicated on ethics or cultural mores.

**Questions 89–90 are based on the following reading passage.**

While critics contend that the views expounded on in *Against Method* are tantamount to scientific anarchism, its author Paul Feyerabend maintains that his views stem not from a desire to promote scientific chaos so much as from a recognition that many of the fundamental tenets of science—rationality, empiricism, and objectivity, for example—are as seriously flawed as the

5 “subjective” paths to truth that scientists are quick to repudiate. Feyerabend goes further by arguing that many methods that are now condemned in the scientific community played a critical role in historical moments of scientific progress. The fact that these methods helped science advance in the past indicates that scientists should think twice before they condemn them.

Much of *Against Method* is a case study of the events surrounding Galileo’s single-handed

10 rejection of the geocentric cosmological model in favor of the updated heliocentric model.

Feyerabend goes to lengths to point out that what ultimately allowed Galileo to succeed in convincing the Western world that the earth revolved around the sun (and not the other way around) was the use of methods most modern scientists would deem highly suspect. For example, in attempting to explain why the rotation of the earth did not cause a rock dropped from a

15 tower to follow a curved, rather than a straight, path, Galileo relied on several as-yet unproven hypotheses about the laws of motion, essentially begging the question for his own position.

Additionally, his published works display a rhetorical style that reads more like propaganda than like scholarly work. By showing that these methods were critical to a crucial scientific advancement, Feyerabend casts doubt on whether these “unscientific”

practices really deserve the  
20 criticism they so often garner.

88. Replacement of the word “repudiate” (line 5) with which of the following words would result in the LEAST change in meaning in the passage?

- (A) overrule
- (B) embrace
- (C) underscore
- (D) decry
- (E) debate

89. The passage implies that Feyerabend makes use of a case study primarily in order to

- (A) demonstrate that since a canonical example of scientific progress itself made use of practices now deemed unscientific, scientists ought to revise their account of what is and is not acceptable scientific practice
- (B) show that Galileo, in his attempt to prove that a rock dropped from a tower followed a straight, not a curved, path, was guilty of many of the same errors in reasoning that make science controversial today
- (C) underscore the notion that if science wants to keep thinking of itself as a field that is open to “subjective,” as well as “objective,” paths to truth, it needs to adopt some of the techniques that were prevalent in Galileo’s time
- (D) back up the claim that tautological reasoning is acceptable only when used in the service of supporting hypotheses that have yet to be proven
- (E) demonstrate that any endeavor in the philosophy of science that uses examples from history to support its claims is ultimately doomed to failure

**Questions 90–94 are based on the following reading passage.**

In traditional theater forms, the roles of performer and audience are completely separate, so that performance space can be said to encompass an actors' sphere and a spectators' sphere. Even when performers move out into the audience or when there is scripted audience interaction, spectators do not become performers. Finally, while stories may open up the imagination or excite

5 audiences, according to Augusto Boal, they discourage political action by providing catharsis. The passive spectator follows the play's emotional arc and, once the action concludes, finds the issue closed. Boal reminds us that our theater etiquette creates a kind of culture of apathy where individuals do not act communally, despite shared space, and remain distanced from art.

Workshop theater, such as Boal's Image Theatre and Forum Theatre, is a response to

10 that. In the workshop form, performance space is created for a select group of people, but the performers' sphere and the audience's sphere are collapsed: everyone is at once theater maker and witness. In Image Theatre, participants will come up with a theme or issue and arrange themselves into a tableau that depicts what that issue looks like in society today, versus what the ideal situation would be. They then try to transition from the current image to the ideal image

15 in a way that seems plausible to all the participants. Forum Theatre, on the other hand, creates a narrative skit depicting a certain problem. After the actors have gone through the action of the play once, a facilitator, known as the joker (like the one in a pack of cards), encourages those who have watched the story to watch it again and to stop it at any time to take the place of the protagonist. The aim is to find a solution to the problem, realizing

along the way all of the

20 obstacles involved. In Forum Theatre, just as in Image Theatre, there is not always a solution. The main goal of this form, then, is to engage in the action, to reflect, and to understand particular issues as being part of a larger picture, thus using art to re-cast what seem like private troubles in a public, political light.

The main reason Boal developed these workshop styles was to grant audiences agency so

25 that they may create ways to free themselves of oppression. Because he found theater audiences to be locked into a passive role—just like he found the oppressed coerced into a subservient role in relation to their oppressors—he created the “spect-actor,” or someone who simultaneously witnesses and creates theater.

90. The second paragraph of the passage serves to

- (A) elaborate on the topic of the first paragraph
- (B) provide a rationale for an artistic endeavor
- (C) discuss an artistic answer to a passive culture
- (D) explain the theater’s lack of appeal
- (E) evaluate two contrasting styles of theater

91. The author uses the word “agency” (line 25) to mean
- (A) profit
  - (B) organization
  - (C) publicity
  - (D) power
  - (E) hegemony
92. Which of the following would Boal consider a “spect-actor”?
- (A) A person who engages in political action
  - (B) An audience member who finds catharsis in a play
  - (C) Any person placed in a subservient role
  - (D) Any actor
  - (E) A participant in an Image workshop
93. According to Boal, all of the following are disadvantages of traditional theater forms EXCEPT:
- (A) Such productions prevent the actors from going into the audience.
  - (B) Such productions provide catharsis.
  - (C) Such productions discourage communal activity.
  - (D) Such productions obstruct political change.
  - (E) Such productions distance the audience from the art.
94. All of the following would be characteristic of a Forum workshop EXCEPT:
- (A) Productions begin with a narrative script.
  - (B) Different people often play the protagonist.
  - (C) Some performances do not achieve catharsis.
  - (D) Participants arrange themselves into a tableau.
  - (E) Performances are guided by a mediator.

**Questions 95–97 are based on the following reading passage.**

Stars create energy through the process of fusion. When a star explodes—a phenomenon called a supernova—so much energy is released that heavy metals such as iron and gold are formed, seeding surrounding hydrogen clouds. Newer stars therefore contain more heavy elements in their atmospheres. Heavy elements form the materials that make up our planet

5 (and even human bodies). It is believed that for a system of planets such as our solar system to form around a star during cloud contraction, the presence of these heavy elements in the cloud is a necessity.

A molecular cloud can become unstable and collapse by the force of gravity, overcoming outward thermal pressure of the constituent gases. At a given temperature and density, two

10 critical measures of size, Jeans mass and Jeans length, can be calculated. If the size of the cloud exceeds either of these critical values, gravity will ultimately win, and the probability of eventual cloud contraction is high.

However, some outside influence is still evidently required for a theoretically unstable cloud to initiate collapse. The natural rotation of a galaxy can slowly alter the structure of a cloud, for

15 instance. Surrounding supernovae can generate shockwaves powerful enough to affect the debris in other clouds, forcing the debris inward and possibly causing contraction to begin. One theory states that density waves propagating through spiral structures can also sufficiently stimulate clouds to cause contraction.

Consider each of the answer choices separately and indicate all that apply.

95. The author of the passage suggests that cloud contraction may begin in



which of the following ways?

- ☐ Through the process of fusion
- ☐ Explosions of stars within a close enough proximity, generating shockwaves that prompt contraction in nearby clouds
- ☐ Debris forced outwards from a cloud

96. Which of the following inferences about our solar system is best supported by the passage?

- (A) Life in the solar system depends on energy from the sun.
- (B) When the system reaches a particular size, it can become unstable and begin to collapse.
- (C) The natural rotation of the galaxy can alter the galaxy's structure.
- (D) It is believed to have been formed from materials "seeded" into hydrogen clouds.
- (E) It produced so much energy when it was formed that heavy elements were generated.

97. It can be inferred from the passage that which of the following inhibits interstellar cloud collapse?

- (A) Supernova explosions
- (B) Galactic rotation
- (C) Thermal pressure
- (D) Gravitational force
- (E) Density waves

**Question 98 is based on the following reading passage.**

The Norton-Polk-Mathis House in San Antonio displays an integrated design well-suited to the primary purpose of the building: to impress. This is evidenced by the fact that the building was designed with the street it faces in mind. Only the South façade is architecturally interesting or involved—the sides of the building are flat, featureless, and uninteresting. The

5 house was designed not only as a living area, but also as a structure to be seen from the street.

The building reflects typical Renaissance ideals of order and weight, and, while it is asymmetrical, it is well balanced and stable. The choice of materials also reflects the “re-discovery” of antiquity prevalent in the Italian Renaissance. The white stone lends an elegant simplicity to the building yet it radiates an air of strength and mass reminiscent of the Parthenon or the Athenian

10 temples—especially when juxtaposed with the other, seemingly fragile brick and wood homes of the neighborhood.

Consider each of the answer choices separately and indicate all that apply.

98. Which of the following can be inferred about the Norton-Polk-Mathis House?

- ☐ It was built during the Italian Renaissance.

- ☐ Its primary purpose was utilitarian in nature.
- ☐ It appears stronger than other nearby homes.

**Questions 99–100 are based on the following reading passage.**

After 22 years of observations in Shark Bay, Australia, behavioral biologist Janet Mann and her colleagues have discovered that certain bottlenose dolphins, known as spongers, form social networks, showing the first hints of culture among non-human animals. Spongers are dolphins that wear marine basket sponges on their beaks as hunting tools, using them to root around

5 on deep sandy bottoms and find fish concealed below the sand. Sponging is a complex hunting technique passed on from mother to offspring. A sponger must know where the sponges grow, how to pick the right sponge, how to remove the sponge intact from the ocean floor, and how and where to properly hunt.

Spongers typically live solitary lives, but over 22 years of observation, a pattern emerged.

10 The 28 female spongers formed cliques with other female spongers that were not necessarily genetically related to them. This behavior differs from other animal behavior where circumstances, such as genetics or food sources, dictate the formation of groups. The fact that these spongers chose to associate based upon similar, socially learned behaviors makes their cliques a cultural first among animals.

99. Which of the following expresses the main idea of the passage?

- (A) Sponging is a complex behavior used by some dolphins as a hunting technique.
- (B) Any study of animal behavior must take place over an extended period of time in order for patterns to emerge.
- (C) A small set of non-human animals has been found to form social networks.
- (D) Studying how animals form groups is important to our understanding of nature.

(E) Only humans can form social networks.

Consider each of the answer choices separately and indicate all that apply.

100. Which of the following can be properly inferred from the passage?

- ☐ Groups formed by genetic bonds or food supplies do not qualify as social networks.
- ☐ All spongers of Shark Bay, Australia, form social networks.
- ☐ Spongers can only be found in Shark Bay, Australia.

**Questions 101–102 are based on the following reading passage.**

For years, the idea that blind people can hear better than sighted people was considered something of an old canard. However, functional brain imaging now has allowed us to look inside the brains of blind people who possess what can only be termed cerebral superpowers—the ability to understand speech at up to 25 syllables per second, a speed that sounds like “noise”

5 to sighted people (a typical sighted person understands closer to 10 syllables per second). As it turns out, a brain region called V1, situated at the back of the skull and which normally only responds to light has actually been rewired in the brains of blind people—and now processes auditory information. This is truly a stunning example of the brain’s plasticity, a topic of cardinal importance in designing educational experiences and 10 materials to best engage the brains of

students.

Of course, in discussing the brain’s amazing plasticity, modern thinkers take for granted something that would have been shocking to thinkers from Aristotle (who posited a holistic, non-corporeal mind in *De Anima* in the 4th century, BC) through Descartes (who argued, in the 17th century, for mind-body dualism)—the idea that the mind is physically located in the brain and that

15 our intellect, personality, and selfhood are attributable to physical processes in the brain and can be altered by brain injuries.

101. According to the passage, the belief that blind people can hear better than sighted people
- (A) is untrue
  - (B) was not a matter of contention, but was then shown to be true
  - (C) was, for years, thought to be true, but is now up for debate

(D) is put forth by the scientific community, but this evidence is contested by many

(E) was, for years, thought by many to be false, and then was shown to be true

Consider each of the answer choices separately and indicate all that apply.

102. According to the passage, Aristotle would NOT have thought that

- ☐ the mind is separate from the body
- ☐ the mind exists in parts or modules, rather than as one entity
- ☐ blind people can hear better than sighted people

**Questions 103–104 are based on the following reading passage.**

The atrocities committed during the Second World War by the National Socialists are well known and have been meticulously documented by historians. Far less known, however, are the mass deportations that took place almost two years after the conclusion of the war, this time orchestrated by the Allied governments. In the years after 1945, over 12 million German-speaking

5 citizens of Czechoslovakia, Hungary, Romania, and Poland were dispossessed, packed into trains, and left to fend for themselves in a newly defeated and impoverished Germany. What allowed for this mass exile—the largest forced migration in history—was the confluence of political motivations on the part of the key players. The expelling countries of Eastern and Central Europe were especially keen on punishing Germans for the horrors of the war—though, of course, their

- 10 own German-speaking populations were hardly responsible for Germany's actions—and on increasing the ethnic homogeneity within their borders. The Allied powers, too, had something to gain. The Soviet Union, intent on capitalizing politically on Germany's defeat, aimed to irrevocably undermine relations between Germany and Poland, especially by ceding German territory to Poland and emptying it of its inhabitants. Britain, weary from the war, hoped the resulting mass
- 15 suffering would reinforce the completeness of Germany's defeat. And the United States, in turn, was attempting to cozy up to the nations of Eastern and Central Europe in the hopes of keeping them away from Soviet influence.

The result of the deportations, however, was the death of at least 500,000 people and Germany's acquisition of a homeless population far greater than that of any other industrialized



20 country. The death toll was not far worse, furthermore, only because the Soviets' ambition to cripple Germany was unsuccessful. Following the war, Germany underwent what is known as its "economic miracle," which made it possible to house, feed, and employ the mass of exiles. That this episode is practically excised from the history books in some countries, however, is surely corroboration of the platitude that history is written by the victors.

Consider each of the answer choices separately and indicate all that apply.

103. Which of the following can be inferred from the passage?

- ☐ Some events that occurred during World War II do not appear in history books.
- ☐ The Allied powers included the Soviet Union, Britain, the United States, and Poland.
- ☐ The Allied powers were not entirely unified on political matters.

Consider each of the answer choices separately and indicate all that apply.

104. Which of the following, if true, would weaken the claim that the Allied powers had something to gain from the deportations?

- ☐ The United States believed that the Eastern and Central European powers hoped to create more multicultural, ethnically mixed societies.
- ☐ The Soviet Union wanted to profit from post-war trade between Germany and Poland.
- ☐ Britain, weary of the killing during the war, pledged itself to preventing suffering.

**Questions 105–107 are based on the following reading passage.**

Quantum mechanics is a relatively new field of physics that was developed in the early 1900s. Although we classically think of a particle as a fixed object, quantum mechanics describes particles as waves using properties such as position and energy. The quantum mechanical wave describes the probability that the particle's properties take on certain values. Take, for example,

5 the analogy of rolling a six-sided die. For each roll there is a one-in-six chance that any single number will result. After rolling, however, only one single number will be observed. If the die is rolled enough times, one can deduce that the die has six sides and that each side is equally likely. However, one can never be completely sure, because rolling dice is probabilistic in nature.

Quantum mechanics states that the same is true of the position (and other properties) of a

10 particle. A particle trapped in a closed box has some finite probability of being at any location within the box. Open the box once and you'll find the particle at only one location. Open the box enough times and you'll see all the particle locations and the frequency at which they are

achieved. From this, one can deduce the original properties of the quantum mechanical wave, just as one could deduce the properties of the die.

- 15 The counterintuitive properties of quantum mechanics, that the attributes of a particle cannot be known in advance of measurement, initially provoked many strong philosophical debates and interpretations regarding the field. In fact, Einstein was deeply troubled by the idea of nature being probabilistic and commented famously that, “God does not play dice with the universe.” Over the last 70 years, however, irrefutable evidence has abounded that verifies the

20 truth of the theory of quantum mechanics.

105. Which of the following best expresses the main idea of the passage?

- (A) Particles are not fixed objects but rather exist in the form of waves.
- (B) Controversial theories are often found to be correct.
- (C) Quantum mechanics correctly postulates the probabilistic nature of particles.
- (D) Many questions still exist about the nature of particles and quantum mechanics.
- (E) Experiments can be designed to test the quantum mechanical nature of particles.

106. Based on the information in the passage, which of the following would best explain Einstein's motivation for stating that "God does not play dice with the universe"?

- (A) Einstein did not believe that particles should be governed by probability as in a game of dice.
- (B) Einstein believed that God should control the fate of the universe.
- (C) Einstein was opposed to the theory of quantum mechanics on the grounds that it violated causality.
- (D) Einstein's religious beliefs did not allow him to fully understand the theory of quantum mechanics.
- (E) Einstein believed that God created the universe such that particles would be modeled probabilistically as in quantum mechanics.

Consider each of the answer choices separately and indicate <u>all</u> that apply.
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107. Which of the following can be properly inferred based on the information in the passage?

- ☐ The location of a particle within a closed box cannot be known for certain without observing the particle.
- ☐ Properties such as position and energy of a particle can never be measured.
- ☐ Particles can be properly described as quantum mechanical waves.

**Questions 108–112 are based on the following reading passage.**

Invisible theater and guerrilla theater are two forms of street theater with similar origins but very different approaches. Both forms take place exclusively in public places, but invisible theater conceals its performative nature whereas guerrilla theater flaunts it. While invisible theater creates a performance space unbeknownst to its audience, guerrilla theater actively seeks the attention of

an audience by explicitly imposing a performance space onto a public place.

Starting in the early 1970s, Augusto Boal and fellow actors have staged scenes regarding social issues in public or semi-public places (e.g., restaurants), crafting their dialog and action to get a verbal reaction from bystanders. Because performers and non-performers remain distinct, invisible theater returns somewhat to the model set up by traditional theater. However, there are

10 a few key differences. The performance space is created in public places without the awareness of non-performers. For non-performers, being beyond the performative space allows them to avoid the etiquette of theatergoing and removes that “lens” that unavoidably emerges when we feel we are viewing art or performance. If people do not suspect that they are viewing art, however, they are free to engage with the action and concepts of an unfolding drama as if these actions and

15 concepts were real.

Boal has documented various successful instances of invisible theater in which non-performers actively listen, participate in public-spirited discussion, and even take unplanned public-minded action in response to the dialogue and events set up by invisible theater performers. Because onlookers think they are witnessing real life events, because the performers

20 are bold in their statements, because the scripted characters are very vocal about what they are doing and experiencing, invisible theater is able to instigate political conversation within an everyday context; it successfully creates public forums out of thin air.

Guerrilla theater creates surprise performances in public but is driven by the forceful imposition of “traditional” (if we can call anything about guerrilla theater “traditional”) theater. One

25 example includes two professors of Galway’s University College who dressed in their robes and went out to the street, questioning pedestrians and awarding diplomas to the ones least able to provide good answers, as a way to protest their university’s decision to grant Ronald Reagan an honorary doctorate in law.

A large part of the goal of guerrilla theater is to get publicized, its message echoed over and

30 over in our ever-expanding network of technology-interface mass media. Guerrilla theater knows it may antagonize its direct audience—it often hopes to, because conflict is more likely to be broadcast, and the goal of guerrilla theater is to get people talking publicly.

Consider each of the answer choices separately and indicate all that apply.

108. Which of the following can be inferred from the passage?

- ☐ When people are unaware that they are viewing a performance, they tend to act more naturally.
- ☐ Invisible theater is best described as improvisational.
- ☐ One measure of the success of a theatrical performance can be the actions taken by the audience once the performance is over.

109. The main point of the passage could best be described as

- (A) a discussion of two different but aligned artistic currents
- (B) an examination of which of two art forms is more effective at prompting political action
- (C) a synopsis of the evolution of theater
- (D) a presentation of two theatrical concepts that conceal their performative nature
- (E) an overview of artistic life in public places

Consider each of the answer choices separately and indicate all that apply.

110. Which of the following is true of both invisible theater and guerrilla theater?

- ☐ Both have a goal of encouraging discourse.
- ☐ Both impose performance space onto public location.
- ☐ Both antagonize their audience.

111. The passage implies that the Galway professors believed which of the following?

- (A) Guerrilla theater was superior to invisible theater.
- (B) Protesting an honor could result in the revocation of the award.
- (C) Granting Ronald Reagan a degree demeaned the intellectual standard of the university.
- (D) Handing out diplomas was a legal activity.
- (E) Ronald Reagan's foreign policy had deleterious effects.

Consider each of the answer choices separately and indicate all that apply.

112. Which of the following, if true, would undermine the principle of invisible theater?

- ☐ When people knowingly view art, their heightened attention increases their perception and involvement.
- ☐ Audience members watch a performance and later report to others what happened, still not knowing that the event was a theater piece.
- ☐ A lively debate about public issues is brought to a halt by the imposition of scripted characters inserting theatrical dialogue.



**Questions 113–117 are based on the following reading passage.**

Cells employ many strategies to avoid genetic mutation. From the high fidelity of DNA-synthesizing enzymes to the pro-death signaling that accompanies mutagenic stimuli such as UV radiation, cellular mechanisms that stymie genetic changes are ubiquitous throughout the natural world. These mechanisms are critical because widespread genomic changes would wreak

5 physiological havoc; indeed, malfunctions in molecular players that safeguard against mutagenesis, such as the protein p53, have been implicated in diseases such as cancer.

Yet despite the criticality of preventing and eliminating DNA mutations to avoid deleterious changes in cells, in specific contexts many organisms have also adapted beneficial mechanisms to induce genetic changes.

10 One such instance is observed in vertebrate immune systems: white blood cells such as T cells recognize invading pathogens through receptors on their surfaces. In order to recognize a wide variety of pathogens, these cells must generate a large repertoire of receptors. Relying only on a genetically encoded repertoire would be disadvantageously limiting—analogous to having only a few dozen language phrases with which to respond to the nearly infinite potential

15 combinations of words in a conversation. Instead, the repertoire is generated by a process of genetic recombination, in which T cells “cut-and-paste” the DNA encoding their microbe-recognizing receptors. Many of these genetic rearrangements produce cells bearing non-functional proteins; such unproductive cells are eliminated through senescence. Nevertheless, this seemingly haphazard process of programmed genetic mutation is crucial to generating immunological

20 diversity, as individuals with defects in this pathway exhibit clinical

immunodeficiency. How this process is regulated by T cells to prevent harmful mutations remains the subject of ongoing research.

Consider each of the answer choices separately and indicate all that apply.

113. Which of the following is true of genetic changes in cells?

- ☐ They can cause serious problems to body systems.
- ☐ They can provide benefits to the immune system.
- ☐ Some genetic mutation is regulated by T cells.

114. The phrase “seemingly haphazard” (line 19) is meant to indicate that

- (A) the process of programmed genetic mutation deserves further study
- (B) the production by T cells of “unproductive cells” is wasteful
- (C) genetic recombination may appear random, but is not
- (D) T cells are essential to proper immune system functioning
- (E) programmed genetic mutation can be dangerous to an organism

Consider each of the answer choices separately and indicate all that apply.

115. Which of the following can be inferred from the first paragraph of the passage?

- ☐ Pro-death signaling is a mechanism that hinders genetic changes.
- ☐ Cellular mechanisms that safeguard against mutagenesis are very common.
- ☐ Protein p53 may play a role in preventing cancer from forming.

116. The analogy regarding “a few dozen language phrases ... conversation” (lines 14–15) is meant to elucidate

- (A) why genetic recombination is important to T cell functioning
- (B) the need for numerous means of fighting cancer and other diseases caused by cell mutation
- (C) why white blood cells such as T cells rely on a genetically encoded repertoire
- (D) how language use is like “cutting and pasting”
- (E) the mechanism by which mutagenesis can compromise physiological functioning

Consider each of the answer choices separately and indicate all that apply.

117. In the analogy in the third paragraph, the “nearly infinite potential combinations of words in a conversation” represent

- ☐ pathogens
- ☐ receptors
- ☐ T cells

**Questions 118–119 are based on the following reading passage.**

Martin Haberman pulls no punches in his scathing critique of the insensitive and unjust treatment received by children in poverty in the public school system. He focuses the brunt of his criticism on teachers who have been insufficiently trained for the realities of the modern

school environment and whose prejudices, lack of deep content knowledge, and excessive focus

5 on order and discipline profoundly limit their effectiveness. Haberman writes, “the principles and theories we call child and adolescent development were all developed to explain the middle-class experience,” and that everyone else in public schools, including non-white, immigrant, or non-English-speaking children, are considered somehow anomalies, thus leading to the absurd situation in which a teacher completes teacher training and is put in front of a class of students

10 she considers to be made entirely of “exceptions.”

Consider each of the answer choices separately and indicate all that apply.

118. According to Haberman, a teacher's effectiveness can be compromised by

- ☐ insufficient attention to order and discipline
- ☐ insufficient knowledge of the material being taught
- ☐ personal bias

119. In the last line of the passage, the word "exceptions" is in quotes to make the point that

- (A) the idea of "exceptions" is crucial to effective education
- (B) the quote is taken verbatim from a teacher
- (C) students who perform well academically are an aberration, not the reverse
- (D) certain teachers inappropriately consider "non-white, immigrant, or non-English-speaking children" to be other than the norm
- (E) teachers versed in the principles and theories of child and adolescent development are actually the norm

**Questions 120–121 are based on the following reading passage.**

Naturalism, arising in the 19th century as a literary response to Darwin's account of evolution, focused on describing everyday reality but differed from realism in its attempts to provide a "scientific" foundation for its depictions of characters, stressing the influence of environment and heredity upon the individual psyche. Émile Zola, in particular, saw his craft as an

extension of the scientific method into the domain of art. The 19th century, perhaps in opposition to naturalism, saw the rise of the Decadent movement, embracing artifice over nature in writing, championed by Zola's erstwhile protégé, Joris-Karl Huysmans. The protagonist of his masterpiece, *À rebours* (literally, *Against the Grain*, but more commonly translated as *Against Nature*), removes

himself from society—viewing it as the product of a nature long surpassed by human ingenuity—

10 and surrounds himself exclusively with art, perfume, literature, and technology.

Consider each of the answer choices separately and indicate all that apply.

120. Which of the following can be inferred from the passage about perfume?

- ☐ Some followers of the Decadent movement considered it to be an example of human artifice.
- ☐ Some followers of the Decadent movement considered it to be superior to natural entities.
- ☐ Some followers of the Decadent movement enjoyed surrounding themselves with it.

Consider each of the answer choices separately and indicate all that apply.

121. Which of the following, if true, would undermine the claim that the Decadent movement was opposed to naturalism?

- ☐ Decadent authors intended to use literature as a vehicle for the scientific method.
- ☐ Decadent authors focused on the effects of environment on shaping character.
- ☐ Decadent authors elaborated on the way inherited traits influenced human behavior.

**Questions 122–123 are based on the following reading passage.**

For many years, biological scientists have sought to decipher cellular function by quantifying the degrees of protein and mRNA expression within populations of their cells of interest.

Classically, these measurements required combining many cells into a single sample and rupturing their membranes, thus exposing pooled quantities of the target molecule for detection. One

5 limitation of these techniques is the reliance on average measurements: it is impossible to distinguish a uniform population of cells expressing intermediate quantities of a molecule from a population composed of separate low and high expressers. The distinction has proven to be important, particularly in the context of drug targeting of cancer cells; prescribing a dose to hit the “average” cell may completely miss the more aggressive “one percent.”

10 The advent of single-cell measurement technology such as flow cytometry and RNA FISH has made it possible to capture not only a population’s average levels of a molecule, but also the distribution of the molecule’s expression within the population. As a result, researchers are increasingly investigating the sources and significance of variability within populations that were

previously assumed to be identical.

122. According to the passage, the limitation of combining many cells into one sample and then rupturing their membranes in order to detect a target molecule is that

- (A) variability exists within cell populations
- (B) some cells in the sample may contaminate others
- (C) this method cannot single out the cells that express more of a certain molecule
- (D) the rupture of cell membranes is implicated in the formation of cancer
- (E) it is preferable to capture a population's average levels of a molecule



Consider each of the answer choices separately and indicate all that apply.

123. Which of the following can be inferred from the passage regarding flow cytometry and RNA FISH?

- ☐ Both technologies allow researchers to quantify properties of individual cells.
- ☐ Using these technologies, it is impossible to distinguish a uniform population of cells expressing intermediate quantities of a molecule.
- ☐ Both technologies allow researchers to measure variability of molecule expression within cell populations.

**Questions 124–125 are based on the following reading passage.**

The Portuguese began to enter Angola in the 16th century, and over the next three hundred years slowly pushed into the interior of the sizable nation located in Southern Africa, finally achieving complete occupation by the 1920s. Following Angolan independence in 1975, and despite a bloody civil war that lasted until 2002, the Angolan economy has grown at a double-

5 digit pace since the 1990s, due largely to expansive mineral and petroleum reserves. Conversely, Portugal is now broke and in debt, its economy shrinking by full percentage points every year. In a grand stroke of irony, Portugal's Prime Minister Pedro Passos Coelho in 2011 suggested to Angola's President Jose Eduardo dos Santos that "We should take advantage of this moment ... to strengthen our bilateral relations." President dos Santos replied, "We are aware of Portugal's

10 difficulties and we are open and available to help." This "help" will likely come in the form of Angola's investment in Portuguese industries that the International Monetary Fund has ordered be privatized as a condition of a 78 billion dollar bailout. Already, the country that once mined Angola for slaves and raw material is now virtually helpless as Angola

purchases Lisbon's prime real estate, using much of it to build luxury resorts where Angolan officials go for holidays.

- 15 Despite the stunning reversal of fortune, Angola is not without its difficulties. Corruption is rampant, and Angola has one of the highest levels of income inequality in the world—in the capital city of Luanda, hamburgers go for 50 dollars and designer jeans cost twice what they do in London or New York, while two-thirds of the population lives on less than 2 dollars a day.

124. Which of the following is not stated as a component of Portugal and Angola's historical relationship?

- (A) Portuguese traders sold Angolan slaves.
- (B) Raw material was taken from Angola by the Portuguese.
- (C) The two nations were at war.
- (D) The Portuguese increasingly dominated Angola over a period of several hundred years.
- (E) Angola achieved independence from Portugal in the 20th century.

125. The “grand stroke of irony” (line 7) is best described as
- (A) two countries dedicated to strengthening bilateral relations share economic problems
  - (B) a former colonial possession is now being called upon to assist its former possessor
  - (C) slavery has ended, and yet people still live in poverty
  - (D) the cost of living in Luanda is very high, and yet most people are poor
  - (E) the Portuguese economy was once thriving and is now dwindling

**Questions 126–128 are based on the following reading passage.**

For as long as humans have been philosophizing about the mind, virtually every thinker has conceived of the mind as a unitary entity. In fact, such a view was crucial to both Aristotle’s and Descartes’s view that the mind (or the soul) survived death. Surely the self cannot be subdivided; surely one cannot have half a mind?

- 5     Indeed, the final evidence that one can, in fact, have “half a mind” came in the 1960s, from the famous studies for which Roger Sperry was awarded the Nobel Prize in 1981 for his discoveries about the functional specialization of the cerebral hemispheres. Working with epileptics who had been treated via the cutting of the *corpus callosum*, or division between the two hemispheres, Sperry was able to observe “odd behavior” in these patients—each half of the brain could gain
- 10 new information, but one hemisphere was entirely unaware of what the other had learned or experienced.

Restak, in *The Modular Brain*, posits that the brain is not centrally organized (some prior theories of mind had actually posed the existence of a “director” in the brain, begging the question of who directs the director’s brain) but, alternatively, that different parts of the brain control

15 different abilities, and that those “modules” can operate independently.

As we can easily see

from patients with brain damage, there is no “unified mind and personality”—part of ourselves,

centered in different parts of the brain, can change or be obliterated entirely as a result of

physical changes to the brain. Consider the case of Phineas Gage, a rail worker who, in 1848, while

attempting to compress explosive powder with a tamping rod, literally blew a hole in the front of

20 his brain. While Gage was ultimately able to function fairly normally, his personality was markedly

changed; he became boorish and irresponsible. Gage’s case was well documented, allowing

modern reconstructions to show that his injury affected areas of the brain that we now know to

be related to moral sensibilities and their expression. That is, Phineas Gage literally lost one (or

more) of the modules in his modular brain system.

126. The case of Phineas Gage is presented as evidence that

(A) the modular brain system has a central “director”

(B) people who lose parts of the brain are usually able to function normally

(C) brain injury is a serious risk in certain types of work

(D) splitting the *corpus callosum* can result in marked changes in personality

(E) aspects of personality can be physically located within the brain

Consider each of the answer choices separately and indicate all that apply.

127. In lines 13–14, the phrase “begging the question of who directs the director’s brain” is meant to emphasize that

- ☐ the problem of a “director” in the brain is recursive
- ☐ whether there is such a “director” of the brain is an open question
- ☐ Restak has both asked and answered a question about the brain’s organization

Consider each of the answer choices separately and indicate all that apply.

128. Which of the following can be inferred about thinkers who conceive of the mind as a unitary entity?

- ☐ They believe that the mind survives death.
- ☐ Their views are incompatible with modular brain theory.
- ☐ They are unaware that certain aspects of personality are known to be controlled by certain areas of the brain.

**Questions 129–131 are based on the following reading passage.**

Most mental health disorders and cases of drug abuse tend to diminish a person’s ability to recognize other people’s feelings. A recent study in Norway suggests, however, that these effects can be bolstered by a nasal spray puff of the brain hormone oxytocin, which is known to increase feelings of calm and social bonding. Although oxytocin is already prescribed for certain disorders

5 that affect social function, such as autism, these treatments are often tried in isolated cases, leaving the overall effects of the drug without evaluation.

The Norwegian experiment focused on 40 students, each of whom was given either a control dose of salt water or the drug oxytocin. After the nasal dose, the students were shown faces of happy, angry, or neutral expressions, some of which were subtler than others. The researchers

10 found that after a nasal spray dose of oxytocin, the students' awareness of the expressions was intensified. Further, the experiment showed that the oxytocin had the greatest effect on those who were least able to evaluate emotions properly when given the control.

Although the results of this study seem promising, Leknes, the lead scientist in the investigation, cautions that the hormone would not be a "cure-all" for mental illness or drug

15 addiction. Rather, he suggests, the hormone might help some individuals better interpret the social cues from the world around them.

129. The author of the passage would most likely agree with which of the following statements about the brain hormone oxytocin?
- (A) Its overall effects require further evaluation.
  - (B) In the future, it will be used to cure mental illness and drug addiction.
  - (C) It is not useful for people who are already able to interpret social cues.
  - (D) Its effects on the brain are unknown.
  - (E) It is more effective when dosed via nasal spray than orally.
130. The passage lends the most support to which of the following conclusions about the nasal spray study of oxytocin?
- (A) The results of the study are inconclusive because a sample set of 40 students is not substantial.
  - (B) The nasal spray of oxytocin increased feelings of calm and social bonding for the students.
  - (C) Many students were unable to recognize the expressions shown to them when given only the control dose of salt water.
  - (D) The students who might need oxytocin most are the ones who appear most responsive to the hormone.
  - (E) The subtler the expression, the more difficult it was for the students to identify.
131. Which of the following is not mentioned in the passage regarding the Norwegian study on oxytocin?
- (A) The study showed that oxytocin made students more able to distinguish faces from one another.
  - (B) Leknes was the lead scientist in the investigation.
  - (C) A control dose of salt water was used to gauge normal student ability to recognize facial expressions.
  - (D) Students who participated in the study were shown happy, angry, or neutral expressions.
  - (E) Oxytocin had the greatest effect on students who were least able to evaluate emotions properly when given the control dose.

**Questions 132–134 are based on the following reading passage.**

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The cosmic microwave background is a uniform 2.7 Kelvin radiation that permeates the entire universe. Although it was postulated almost 50 years before, Penzias and Wilson discovered the cosmic microwave background accidentally in the 1970s. Working at Bell Labs, these two scientists were using a radio telescope to observe distant stars. They found, however, that no

5 matter where they pointed their telescope they observed an approximately 3 Kelvin background signal. After convincing themselves that this signal was real and not some artifact of their instrument, they consulted with a team at Princeton University that had been searching for the cosmic microwave background. The Princeton team confirmed what Penzias and Wilson had found. Apparently, Penzias and Wilson had accidentally stumbled upon the oldest observable relic of the

10 early universe.

Why does the cosmic microwave background exist and permeate all of space? Just an instant after the Big Bang, all matter in the universe was so energetic, or hot, that it existed as free particles known as “quarks.” In the fractions of a second following, the universe expanded and cooled until the quarks lost enough energy to form electrons, protons, and neutrons, the building

15 blocks of ordinary matter. Photons, the smallest particles of light, also filled the universe and were so energetic that they “bounced” off electrons, keeping the electrons and protons from forming atoms. After approximately 400,000 more years, the photons lost enough energy that atoms could form readily. Without any lone electrons off of which photons could “bounce,” the photons began streaming unimpeded all through the universe, mostly unchanged but for one exception. Due to

20 the further expansion and cooling of the universe, these photons have cooled to just 2.7 degrees



above absolute zero. It was these same photons that Penzias and Wilson observed approximately 13.6 billion years later here on Earth.

132. Which of the following most accurately expresses the author's intent in writing the passage?

- (A) To describe the discovery and reason for the cosmic microwave background
- (B) To explain how science discoveries can be made accidentally
- (C) To argue that the cosmic microwave background is the oldest observable relic of the universe
- (D) To defend the work of Penzias and Wilson
- (E) To support the theory of the Big Bang using the cosmic microwave background

133. According to the passage, which of the following events occurred first after the Big Bang?
- (A) The universe expanded and cooled until atoms formed.
  - (B) Photons streamed unimpeded through space.
  - (C) All matter existed as particles known as “quarks.”
  - (D) The cosmic microwave background cooled to 2.7 Kelvin.
  - (E) Atomic nuclei, composed of protons and neutrons, formed.
134. According to the passage, with which of the following would the author most likely agree regarding the discovery of Penzias and Wilson?
- (A) It was not as important as the signal for which they were originally searching.
  - (B) The telescope belonging to Penzias and Wilson was more sensitive than that of the Princeton team.
  - (C) Penzias and Wilson would not have discovered the cosmic microwave background if it had been more than 3 Kelvin in temperature.
  - (D) Penzias and Wilson did not initially understand the implications of their results.
  - (E) Penzias and Wilson did not believe that their signal was real when they took their discovery to the Princeton team.

**Questions 135–136 are based on the following reading passage.**

American composer and conductor John Philip Sousa viewed the increasing popularity of the phonograph with deep dismay. He suggested that it would “reduce the expression of music to a mathematical system of megaphones, wheels, cogs, disks, cylinders, and all manner of revolving things, which are as like real art as the marble statue of Eve is like her beautiful, living, breathing

5 daughters.” Such “mechanical” music was not sincere, according to Sousa: “The nightingale’s song is delightful because the nightingale herself gives it forth. The boy with a penny whistle and glass of water may give an excellent imitation, but let him persist, he is sent to

bed as a nuisance.”

Sousa further decried a “decline in domestic music,” noting the decline of musical instrument purchases and predicting that when music comes so easily out of a phonograph, mothers will

10 not bother to sing lullabies to their babies. He opined that when music is so readily playable, musical and vocal instruction as a normal part of education will fall out of fashion, the “tide of amateurism” receding, and music will become the province of machines and professional singers only. “What of the national throat?” asked Sousa. “Will it not weaken? What of the national chest? Will it not shrink?”

Consider each of the answer choices separately and indicate all that apply.

135. Which of the following, if they occurred, would contradict Sousa's arguments?

- ☐ A private school that once demanded two semesters of vocal instruction as a requirement for graduation now offers the same classes as electives.
- ☐ A young boy in an isolated rural area during the Great Depression hears a professional bluegrass band for the first time on a phonograph, and it inspires him to ask his grandfather to teach him to play the family banjo.
- ☐ A modern recording artist comments that, because of her terrible stage fright, her live performances are less genuine than the recordings she is able to produce when she feels comfortable in the studio.

136. In the context in which it appears, "national chest" (line 15) most nearly refers to

- (A) the performances of professional singers
- (B) the U.S. Treasury
- (C) the phonograph
- (D) the vocal abilities of amateur American singers
- (E) musical instruments found in American homes

**Questions 137–138 are based on the following reading passage.**

In thermodynamics, an idealized blackbody is an object that reflects zero incident electromagnetic radiation, absorbing all such radiation instead and consequently warming up. The blackbody emits just as much energy per unit time as it absorbs; the electromagnetic spectrum of the emitted energy, however, is completely determined by the temperature of the blackbody

5 and by no other properties thereof, such as material composition or structure. In contrast, reflected radiation undergoes no fundamental change in its original

spectral characteristics,  
other than a possible Doppler shift created by the motion of the reflector  
relative to an observer.

Researchers have recently discovered that a microscopic “forest” of  
vertically aligned single-wall  
carbon nanotubes of varying heights applied to a surface has extremely  
low reflectance across a

10 wide range of wavelengths of visible light, the closest scientists have  
come thus far to creating a  
perfectly dark material.

137. Which sentence in the passage states the variables that define the  
electromagnetic spectrum of a blackbody?

Consider each of the answer choices separately and indicate all that apply.

138. Which of the following can be properly inferred from the passage?

- ☐ An object that reflects incident electromagnetic radiation is not an idealized blackbody.
- ☐ Reflected radiation always exactly matches the spectral characteristics of the original incident radiation.
- ☐ A microscopic “forest” of vertically aligned single-wall carbon nanotubes of varying heights applied to a surface will absorb all incident electromagnetic radiation.

**Questions 139–141 are based on the following reading passage.**

For many years, most physicists supported one of two cosmological theories: the steady-state universe, and the Big Bang. The theory of the steady-state universe states that the universe has always existed exactly as we observe it at present, whereas the Big Bang theory postulates that the universe was conceived from a singularity in space-time that has expanded into the

5 current universe. The validity of either theory was not tested until 1929, when Edwin Hubble famously discovered what is now known as Hubble’s Law.

Hubble’s experiment is now a famous benchmark in modern physics. Hubble, using the Mount Wilson Observatory, observed a class of stars known as Cepheid variables, luminous stars that blink and flicker with a rate that depends on their distance from the observer. Using

10 this relation and over years of observation, Hubble calculated the distance to many of these variable stars. Milton Humason, a fellow astronomer, helped Hubble to calculate the stars’ relative velocities to Earth. When Hubble combined the two data sets he found an interesting relationship: all the stars appeared to be moving away from us! In fact, the speed at which they were moving

increased with an increasing distance from Earth.

- 15 Hubble realized, from this small set of data, that the earth was a part of the expanding universe. As the universe expands outward in all directions, any observer from a fixed vantage point will look out and see everything running away from them. The further away any two points are, the more the expansion affects them, and the faster they appear to be moving away from each other. Hubble's result was the first experimental proof that we do not live in a steady-state
- 20 universe, but rather a dynamic and expanding one.

139. Which of the following best expresses the main idea of the passage?

- (A) Edwin Hubble discovered Hubble's Law, a benchmark in modern physics.
- (B) Hubble discovered that the universe is expanding, disproving the theory of the steady-state universe.
- (C) Before 1929, most physicists supported one of two theories of the universe.
- (D) All objects in space are receding from each other because of the expansion of the universe.
- (E) Modern physics would not have progressed without Hubble's discovery of the expanding universe.

140. Which of the following is not mentioned in the passage regarding Hubble's experiment in which he deduced Hubble's Law?

- (A) It used years of data on Cepheid variable stars.
- (B) Hubble accumulated data using the Mount Wilson Observatory and help from a fellow astronomer.
- (C) Hubble found that all the observed stars appeared to be moving away from Earth.
- (D) Hubble deduced the distance to Cepheid variable stars based on the rate at which they blinked and flickered.
- (E) Hubble deduced the velocity of Earth to find the stars' absolute velocities.

Consider each of the answer choices separately and indicate all that apply.

141. Which of the following can be properly inferred from the passage?

- ☐ The steady-state universe theory does not allow for an expanding universe.
- ☐ The closer any two points in the universe are, the less expansion affects them, and the slower they appear to be moving apart.
- ☐ After Hubble's discovery of the expanding universe, the Big Bang was the only cosmological theory that could be valid.



**Questions 142–144 are based on the following reading passage.**

Homer's *The Odyssey* is an epic poem that put a popular oral myth into writing for the first time. *The Histories* is an attempt by its author Herodotus to provide an unbiased account of historical conflicts in the Hellenistic world. These two works share two important motifs: the interference of the gods in the events of the mortal world, and the concept of a predetermined

5 and unavoidable destiny. One might assume that these two themes are one and the same—a predetermined fate set forth by the gods. However, Homer's and Herodotus's gods are presented as acting in a political fashion—each one acting within certain boundaries to accomplish his or her own agenda. As such, the wills of the gods do not coincide to allow for the formulation of a cohesive “master plan.” Instead of destiny created by the gods, Homer and Herodotus present fate

10 as something beyond the gods—a driving force under which the actions of gods and mortals lead to the realization of destiny. In *The Odyssey* and *The Histories*, the idea of gods with limited power leads to a conception of fate wherein the gods act not as the creators of destiny, but as agents of its fulfillment.

142. Which of the following, if true, would most strongly support the assumption rejected by the argument of the passage?
- (A) The gods pursue their agendas by conferring with other gods to ensure that their agendas serve a common goal.
  - (B) The agendas of gods and mortals frequently coincide with the demands of fate.
  - (C) Homer and Herodotus disagree strongly about the motives and agendas of the gods, as well as about the nature and severity of their conflicts.
  - (D) Destiny would be fulfilled regardless of what activities gods and mortals engaged in.

- (E) In both Homer and Herodotus, gods and mortals frequently examine their motives and goals and are capable of making their own decisions about what to do.

143. The author most likely uses the term “unbiased” (line 2) to convey which of the following ideas?

- (A) The historical conflicts are presented in a way that precludes religious explanation.
- (B) The historical conflicts are presented in a way that does not favor any particular party to the conflicts.
- (C) The subjects of the histories are not restricted to any particular ethnic, social, religious, or geographical group.
- (D) The historical conflicts are explained entirely by reference to the actions of the people and states involved in them.
- (E) The histories are written in such a way as to challenge the sensibilities of their readers.

Consider each of the answer choices separately and indicate all that apply.

144. Which of the following can be inferred about the gods in *The Odyssey* and *The Histories*?

- ☐ There are limits to what the gods can accomplish.
- ☐ The gods, like human beings, pursue their own interests.
- ☐ The gods do not control the final outcomes of their actions.

**Questions 145–147 are based on the following reading passage.**

The goal of a sunscreen chemical is simple—to prevent harmful UVB (and in some cases UVA) radiation from penetrating the skin. There are two main ways in which this goal can be accomplished—by reflecting (physically blocking) ultraviolet light or by absorbing UV light. Sunscreen chemicals are therefore put into two groups based on which method they employ;

5 they are classified as either *physical blockers* or *chemical absorbers*. Physical blockers, the most common of which is titanium dioxide, scatter all radiation in the UVB and UVA range. Titanium dioxide reflects light waves in the 290–770 nm range. However, the vast majority of commercial sunscreens are chemical absorbers.

Chemical absorbing sunscreens work on the principle of photo-excitation of electrons. They

10 absorb photons of light of specific wavelengths and use the energy to promote electrons between energy levels. When the electrons later return to the ground energy state, they emit light at longer wavelengths (lower energies). Chemical species that exhibit this behavior are called chromophores. The specific wavelength absorbed by a given chromophore is determined by the discrete quantal amounts of energy that are required to excite electrons between the energy levels or its

15 molecules. Since the primary objective of an absorbing sunscreen is to

absorb UVB light (290–320 nm), the best sunscreens are those that absorb most heavily in this range. The chromophores that most readily fit this requirement are those with conjugated pi-bonding systems.

145. Which of the following best summarizes the distinction between physical blockers and chemical absorbers?

- (A) Physical blockers darken their target light waves while chemical absorbers lighten them.
- (B) Physical blockers convert their target light waves into radiation while chemical absorbers convert them into a different kind of radiation.
- (C) Physical blockers disperse their target light waves while chemical absorbers convert them into light with a longer wavelength.
- (D) Physical blockers scatter their target light waves while chemical absorbers convert them into radiation.
- (E) Physical blockers prevent light waves from reaching the skin while chemical absorbers absorb them into the skin.

146. Based on the passage, which of the following can be inferred about the chromophores referred to in the final sentence of the passage?

- (A) If exposed to light with wavelengths of approximately 300 nm, they will scatter the radiation.
- (B) If exposed to light with wavelengths in the 290–320 nm range, they will lower the energy level of some of their constituent electrons.
- (C) If exposed to light waves in the 290–770 nm range, they will absorb the photons and emit them as light of longer wavelengths.
- (D) If exposed to light with wavelengths of approximately 300 nm, some electrons in their component molecules will switch to higher energy levels.
- (E) If exposed to light waves in the 290–320 nm range, they will promote the discrete quantal amounts of energy that are required to excite electrons between energy levels.

147. Select the sentence in the second paragraph that explains the physical feature on the basis of which one could select a chromophore for a sunscreen that would protect against UVA radiation.

**Questions 148–150 are based on the following reading passage.**

The story of *Sir Gawain and the Green Knight* has its foundation in Arthurian legend as formulated and passed down by the pagan oral tradition. In its written form, however, the tale bears the marks of Christian influence—it contains numerous scriptural and doctrinal references to Christianity. Since the author of *Sir Gawain and the Green Knight* is unknown, it is difficult to

5 determine with any certainty the extent to which he was responsible for the incorporation of Christianity into the legend. For all we know, the story may have been “Christianized” in its oral form long before the poet set it into writing. The poet himself supports this possibility by writing in the opening lines that he will tell “anew” the tale “as I heard it in hall.” If this is the case (and even if it is not), it is distinctly possible that the heroes of the Arthurian tradition represent in

10 the written form a pagan interpretation of Christian ideals, rather than an externally imposed Christianization of pagan codes of behavior.

While it could certainly be argued that the poet portrays Sir Gawain as a good Christian hero in an attempt to infuse the story with Christian values, the critical tone of the narrative seems to suggest a different conclusion—that by critically editorializing the paganized form of Christianity

15 embodied by Sir Gawain, the poet is trying to correct what he sees to be the flaws of that form.

From the perspective of this conclusion it is clear that the poet only “Christianizes” the traditional legend to the extent that he *criticizes* the pagan interpretation of Christianity that is inherent in the behavior of its heroes.

Those who would argue that the poet intends to portray Sir Gawain as the perfect Christian

20 hero would point to the descriptions of his chivalric qualities. The poet does indeed describe Gawain's Christian virtues generously; he even makes a special aside early in the second fit to describe the significance of the pentangle embossed on Gawain's shield, and to explain "why the pentangle is proper to that peerless prince." The author then delves into a lengthy enumeration of Gawain's Christian virtues. What is more, the fact that he uses the pentangle—a pagan symbol—to

25 do so would seem to suggest that the author does indeed intend to add a Christian interpretation to the pagan legend he is retelling. Viewed in its larger context, however, this passage takes on a different significance. In further examination of the poet's descriptions of Sir Gawain, it becomes apparent that the knight's seemingly perfect Christian behavior is superficial. A contrast can be observed between his "Christian" words and actions and his decidedly un-Christian motives.

30 One theory is that, by emphasizing this contrast, the poet intends to denounce the pagan "misunderstanding" of the Christian message.

Consider each of the answer choices separately and indicate all that apply.

148. Which of the following can be inferred about the pagan and Christian origins of *Sir Gawain and the Green Knight*?

- ☐ As an orally-handled-down tale, it was pagan, but as a written tale, it was Christian.
- ☐ Sir Gawain was a knight in King Arthur's court.
- ☐ *Sir Gawain and the Green Knight* contains both Christian and pagan elements, although it is not clear that either perspective is dominant.

149. Which of the following can be inferred from the author's interpretation of the Christian aspects of the poem, presented in the third paragraph?

- (A) Pagans and Christians differ in their interpretations of the Christian symbolism in the story.
- (B) A pagan cannot have motives that are acceptable from a Christian perspective.
- (C) A pagan story cannot be used to convey a Christian attitude.
- (D) Christianity was absent in Arthurian stories before such stories were written down.
- (E) Being a good Christian involves having both the right actions and the right motives.

150. Which of the following, if true, would most undermine the "theory" mentioned in the final sentence of the passage?

- (A) Sir Gawain is portrayed as disingenuous in his exercise of "Christian virtues."
- (B) Another character in the story is also associated with pagan symbols and is praised straightforwardly for her Christian virtues.
- (C) Sir Gawain, in the story, prays to God to help him in battle.
- (D) Another character in the story is associated with pagan symbols but is portrayed as having no Christian virtues whatsoever.
- (E) A group of people in the story are portrayed as "barbarians" who are neither pagan nor Christian.



**Questions 151–152 are based on the following reading passage.**

Various tales in Herodotus's *The Histories* display a circular means of the realization of fate.

In one story involving the birth of Cyrus and his rise to power in Asia, Herodotus tells us that the Median king Astyages was having disturbing dreams about his daughter Mandane. We are told that his first dream, in which Mandane's urine flooded all of Asia, was interpreted ominously by

5 the Magi. As a consequence, when the time came to marry Mandane off, Astyages made what turned out to be a fatal mistake. While there were plenty of wealthy and powerful Medes eligible for marriage, "his fear of the dream made him refuse to marry her to any of them; instead, he gave her to a Persian called Cambyses, whom he found to be of noble lineage and peaceful behavior, although he regarded him as the social inferior by far of a Mede of the middle rank."

10 Essentially, Astyages altered what would be a normal treatment of the marriage in order to marry his daughter to someone less threatening. This attempt to avoid the prophesy of the first dream backfired however, and when Mandane became pregnant, Astyages had another foreboding dream. This second dream was interpreted to mean that Mandane's son would rule in Astyages's place. Herodotus tells us that "[the prophecy of the second dream] was what Astyages was

15 guarding against" when he again took action, telling his advisor Harpagus to kill the baby. This plan backfired as well since Harpagus refused to kill the baby, leading to a complicated chain of events whereby the child—later to be named Cyrus—survived and returned to conquer his grandfather's kingdom. In this story, Astyages's downfall is depicted as resulting directly from two major mistakes—marrying Mandane to Cambyses and telling Harpagus to kill their offspring. These

20 mistakes in turn are shown to be motivated by fear of the prophesies of his downfall. Had not some divine force planted the dreams in his head, he would not have taken the steps necessary to fulfill those prophesies. Through this circular path, destiny is unavoidably realized.

Consider each of the answer choices separately and indicate all that apply.

151. Which of the following can be inferred from the passage about Astyages's view of the Median socio-political structure?

- ☐ As a result of his first dream, Astyages believed the threat his daughter posed to him could be through her husband.
- ☐ Astyages believed that it is always best to observe the recommendations of the Magi.
- ☐ Astyages believed that a Persian noble was less of a threat to his position than a Median noble.

152. Which of the following, if true, would most strongly undermine the claim that Astyages's downfall proceeded from two major mistakes?
- (A) Mandane's son would have conquered his grandfather's kingdom regardless of who his father was.
  - (B) Astyages's first dream was in fact a warning against allowing his daughter to marry.
  - (C) Harpagus would not have killed the baby regardless of whether he knew the prophecy.
  - (D) Mandane's husband would have deposed Astyages if he had known why his son was killed.
  - (E) Astyages's dreams were better interpreted as advising him not to do anything out of the ordinary.

**Questions 153–155 are based on the following reading passage.**

Nineteenth century painter Albert Bierstadt's view of his artistic skill as a vehicle for self-promotion was evident in his choices of style and subject matter. From the debut of his career with the exhibition of *Lake Lucerne* (1856), he developed a fixed style that was most easily recognizable for its size—the largest of the 636 paintings on display at the exhibition, it was over

5 three meters wide. This, coupled with the artist's ability to represent the optimistic feeling in America during the westward expansion, is what led to Bierstadt's explosive growth in popularity during the 1860s. Bierstadt deliberately appealed to those rich patrons—railroad tycoons and financiers—whose nearest substitute to making the arduous journey out West was to purchase a hyperbolized replica of a Western vista.

- 10 But trends following the Civil War produced a drastic shift away from the adventurous optimism of the pre-war era and toward a more subdued appreciation for the details of American life. In this new social context, the paintings now seemed too decadent, too gaudy, for the new

philosophy taking root in the country following the horrors of war. As one commentator in 1866

put it, Bierstadt's work "may impose upon the senses, but does not affect the heart." In a sense,

15 then, that same American pride upon which Bierstadt had capitalized to advance his success was now, in its fickleness, the source of his downfall.

153. According to the passage, the new philosophy taking root in America after the Civil War would be best described as

- (A) justifiable pessimism
- (B) somber realism
- (C) restrained minimalism
- (D) prideful idealism
- (E) stubborn dogmatism

154. The passage quotes the commentator (lines 14–15) primarily in order to
- (A) challenge a prevailing thesis
  - (B) point out an erroneous assertion
  - (C) provide expert testimony
  - (D) highlight a controversy
  - (E) offer evidence supporting a claim
155. All of the following are mentioned as contributors to Bierstadt's success EXCEPT
- (A) the dimensions of his paintings
  - (B) his ability to convey auspicious feelings
  - (C) subdued appreciation for the details of American life
  - (D) catering to the preferences of the wealthy
  - (E) portrayals of exaggerated landscapes

## **Chapter 6**

# **Logic-Based Reading Comprehension**

*In This Chapter...*

[\*Logic-Based Reading Comprehension\*](#)

[\*Logic-Based Reading Comprehension Answers\*](#)

## Logic-Based Reading Comprehension

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1. The school board has responded to the new school lunch guidelines by replacing fried potatoes with fruit in a standard meal option that used to consist of a hamburger, fried potatoes, and milk. However, the guidelines specifically require that vegetables, not fruits, be included in every meal.

The information above most strongly supports which of the following conclusions?

- (A) Fruit provides just as much health value to students as vegetables.
  - (B) Students are more likely to eat fruit than vegetables.
  - (C) The school board is not following the new school guidelines.
  - (D) The school board is responsible for the health of the student population.
  - (E) The new school lunch guidelines are unnecessarily strict.
2. While many people think of the lottery as a harmless way to have fun and possibly win some money, buying lottery tickets is a form of gambling. Therefore, public officials shouldn't buy lottery tickets.

The argument above relies upon which of the following assumptions?

- (A) Individuals who play the lottery are less likely to win a big payout than they are to be killed in a car crash.
  - (B) Some public officials are guilty of much more serious offenses than gambling.
  - (C) Public officials shouldn't gamble.
  - (D) Many public officials are easily tempted to violate rules governing their positions.
  - (E) Most lottery winners are not made as happy by their winnings as they expected.
3. Some say that Saddlebrook College provides the best value in our state. Yet, students at our state's Tunbridge College pay less, enjoy newer buildings and smaller class sizes, and earn larger incomes after graduation.

The information above, if true, most strongly supports which of the following judgments?

- (A) Tunbridge College provides the best value in our state.
- (B) Tunbridge College has more stringent entrance requirements than



Saddlebrook College, and thus attracts students of a higher caliber.

- (C) It is not true that Saddlebrook College provides the best value in our state.
- (D) Student income after graduation is a valid means of judging the value of a college education.
- (E) Students at Tunbridge College report higher rates of satisfaction than students at Saddlebrook College.

4. Studies have long shown that people who drive red cars receive more speeding tickets from the police than do those who drive cars of other colors. Researchers have thus concluded that the color of a car influences its driver's behavior.

The researchers' conclusion depends upon which of the following assumptions?

- (A) Drivers of black cars receive the second-most speeding tickets.
- (B) Red cars do not attract more attention from the police than do cars of other colors.
- (C) Police officers do not drive red cars.
- (D) Red cars do not receive any more parking tickets, on average, than do cars of other colors.
- (E) Drivers of red cars who are ticketed for speeding are able to appeal their tickets more often than drivers of other color cars.

5. The recent decline in the employment rate was spurred by predictions of slow economic growth in the coming year. However, those predictions would not have affected the employment rate if major industries had not lacked capital reserves. So if major industries increase their capital reserves, the employment rate will not decline in the future.

Which of the following, if true, casts the most doubt on the validity of the argument above?

- (A) Major industries foresaw the drop in employment.
- (B) Some major industries had appreciable capital reserves.
- (C) An increase in labor costs could adversely affect the employment rate.
- (D) The government could pass legislation mandating that major industries set aside a fixed amount as capital reserves every year.
- (E) The drop in the employment rate was more severe this year than last.

6. New methods of math education in this country do a disservice to our children. In the lower grades, math instruction should focus on the basic skills that students will need to solve complex problems in higher grades. Learning basic math skills is like learning the scales and chords that one will later use to master complicated concertos and symphonies. Increasingly, math educators in this country seem to have it backward, emphasizing in higher grades the same narrow, skills-based approach that students learned in lower grades rather than the analytical tools that they will need to solve complex math problems.

Which of the following, if true, would most seriously weaken the conclusion drawn above?

- (A) While music courses are often included in elementary school curricula, such classes are rarely taught in high school.
  - (B) On international tests of complex math skills, high school students in this country performed worse than they used to relative to their counterparts from countries in which problem solving is emphasized in higher grades.
  - (C) When presented with a math problem to solve, students in higher grades are more likely to arrive at different answers than students in lower grades.
  - (D) Older students tend to receive higher grades in math than younger students do.
  - (E) Universities report a steady increase in the percentage of high school applicants from this country who qualify to take courses such as engineering that require advanced math.
7. **The fight against the drug trade in Country X should focus for the time being on tightening the country's borders and targeting major smugglers.** Wiping out poppy fields in rural areas means inflicting even greater hardship on an economically depressed farming population. **Rather, the United Nations and the government of Country X must carefully rebuild agricultural infrastructure in areas where the economy depends on these poppy fields.**

What purpose do the two boldface sentences serve in the passage?

- (A) The first is the conclusion drawn by the speaker; the second is the alternative to that conclusion.
- (B) The first is a short-term solution to a problem; the second is a long-term solution to the same problem.

- (C) The first presents a problem; the second poses an ideal solution to the problem.
- (D) The first presents a popular solution to a problem; the second presents a solution preferred by the author.
- (E) The first presents an argument; the second presents evidence to support the argument.

8. In the 18th and 19th centuries, it was believed by many in coastal cities of the United States that the waterfront was an undesirable location for residential buildings. As a result, much of the waterfront in these cities was never developed aesthetically and instead was left to industry and commerce. Today, however, waterfront properties are generally seen as prestigious, as evidenced by the large sums paid for homes along the beach front. A developer who wishes to make a large profit would be wise to buy urban waterfront lots and erect residential buildings on them.

Which of the following, if true, most strongly supports the claim made about urban waterfront properties?

- (A) People today have more money, relatively speaking, to spend on real estate than they did in previous centuries.
  - (B) Homeowners will be willing to spend large sums on residential properties in traditionally industrial or commercial districts.
  - (C) Many urban waterfront lots are available for purchase.
  - (D) Many coastal cities are encouraging developers to rehabilitate the waterfront through tax incentives.
  - (E) Properties in interior residential districts in coastal cities are significantly more expensive than those along the waterfront.
9. Psychiatric research has shown that receiving high-quality outpatient care, rather than being confined to an institution, produces the best quality of life for people who are mentally ill. Responding to this research, Congress in 1963 passed a law that released 95% of the mentally ill patients who had been confined to institutions. In 1983, however, researchers discovered that, on average, mentally ill people in the United States were faring worse than ever.

Which if the following, if true, best resolves the paradox in the above passage?

- (A) More people were diagnosed with psychiatric disorders in 1983 than in 1963.
- (B) In 1983, men who had been released from mental institutions fared worse than their female counterparts.
- (C) A number of psychiatric medications were discovered between 1963 and 1983, including some early antidepressants.
- (D) Congress never supplied the funding that would have been necessary to provide high-quality outpatient care to the newly

released patients.

- (E) Most of the released patients who were doing badly in 1983 suffered from one of three mental illnesses.

10. In response to the increasing cost of producing energy through traditional means, such as combustion, many utility companies have begun investing in renewable energy sources, chiefly wind and solar power, hoping someday to rely on them completely and thus lower energy costs. The utility companies claim that although these sources require significant initial capital investment, they will provide stable energy supplies at low cost. As a result, these sources will be less risky for the utilities than nonrenewable sources, such as gas, oil, and coal, whose prices can fluctuate dramatically according to availability.

The claim of the utility companies presupposes which of the following?

- (A) The public will embrace the development of wind and solar power.
  - (B) No new deposits of gas, oil, and coal will be discovered in the near future.
  - (C) Weather patterns are consistent and predictable.
  - (D) The necessary technology for conversion to wind and solar power is not more expensive than the technology needed to create energy through combustion.
  - (E) Obtaining energy from nonrenewable sources, such as gas, oil and coal, cannot be made less risky.
11. Inorganic pesticides remain active on the surfaces of fruits and vegetables for several days after spraying, while organic pesticides dissipate within a few hours after application, leaving the surface of the sprayed produce free of pesticide residue. Therefore, when purchasing from a farm that uses inorganic pesticides, one must be careful to wash the produce thoroughly before eating it to prevent the ingestion of toxins. But one need not worry about ingesting pesticides when purchasing from farms that use only organic pesticides.

The argument above assumes which of the following?

- (A) All produce that has been treated with inorganic pesticides must be labeled as such at the point of sale.
- (B) Produce from farms that use organic pesticides reaches the consumer within hours after it is picked or harvested.
- (C) No farm uses both organic and inorganic pesticides.
- (D) Organic pesticides are incapable of penetrating the skin of a fruit or vegetable.
- (E) The use of either type of pesticide does not increase the cost of



produce.

12. Unlike juvenile diabetes, which is a genetic condition present from birth, type 2 diabetes is acquired later in life, generally as a result of obesity and inactivity. The number of cases of type 2 diabetes has been steadily increasing in the United States since 1970, indicating to many researchers that the U.S. population is becoming increasingly heavy and sedentary. If the government wishes to stem the spread of the disease, it should educate the public about the dangers of an inactive, calorie-laden lifestyle and promote healthful diets and exercise.

Which of the following, if true, provides the strongest reason to believe that the proposed education program will not be effective?

- (A) School health programs already educate middle-school students about the issue.
  - (B) The public already has access to this information through the Internet.
  - (C) Food companies encourage the public to indulge in unhealthy snacks.
  - (D) The government has not set aside money for such a program.
  - (E) Healthful foods and exercise programs are beyond the financial means of many people.
13. Every year, many people become ill because of airborne mold spores in their homes. After someone becomes ill, specialists are often hired to eradicate the mold. These specialists look in damp areas of the house, since mold is almost always found in places where there is substantial moisture. If one wishes to avoid mold poisoning, then, one should make sure to keep all internal plumbing in good condition to prevent leakage that could serve as a breeding ground for mold.

Which of the following is an assumption on which the argument depends?

- (A) Mold itself does not create moisture.
- (B) Most homeowners know enough about plumbing to determine whether theirs is in good condition.
- (C) Mold cannot grow in dry areas.
- (D) No varieties of mold are harmless.
- (E) Mold spores cannot be filtered from the air.

14. To prevent overcrowding, last month the town zoning board limited the number of new buildings that can be constructed in the town in any given year. The board claims that doing so will preserve open spaces and lessen the strain on municipal resources such as schools and garbage disposal. Critics of the changes argue that the plan will harm the community or, at the very least, will fail in its purpose.

Which of the following, if true, most supports the claims of the critics of the plan?

- (A) Other towns have had mixed success with similar zoning plans.
  - (B) No new schools have been built in the town in ten years.
  - (C) Property taxes in the town are higher than in neighboring towns.
  - (D) Under the zoning plan, new apartment buildings would be exempt from the limits on new construction.
  - (E) The nearest garbage dump is several miles away from the town.
15. Because of a rare type of fungus that killed off many cacao trees in Brazil, there was an unusually meager harvest of cacao beans this year. The wholesale price of cocoa solids and cocoa butter has increased significantly and is unlikely to fall in the foreseeable future. As a result, the retail price of chocolate is certain to increase within six months.

The answer to which of the following questions would provide information relevant to evaluating the argument above?

- (A) Has the price of cocoa solids and cocoa butter remained steady during other periods of poor harvest?
- (B) Are consumers willing to spend more for chocolate?
- (C) Have the prices of other ingredients in chocolate decreased recently?
- (D) What percentage of cacao trees in Brazil were affected by the fungus?
- (E) Can the fungus be eliminated within the next six months?

16. Two years ago, the cost of the raw material used in a particular product doubled after an earthquake disrupted production in the region where the material is mined. Since that time, the company that makes the product has seen its profit margins decline steadily. Aiming to improve profit margins, the company's head of engineering has decided that he must find a new source for the raw material.

Which of the following, if true, would cast the most doubt on the validity of the head of engineering's decision?

- (A) New competitors have entered the market every six months for the past two years, resulting in price wars that have progressively driven down revenues across the market.
  - (B) Although the earthquake occurred two years ago, the region's mines have still not recovered to pre-earthquake production capacity.
  - (C) There are several other regions in the world where the raw material is mined, but those regions do not produce as much of the raw material as the current source region.
  - (D) The company could use a completely different raw material to make its product.
  - (E) Recent advances in mining technology will make mining the raw material much more efficient and cost-effective in the future.
17. According to a recent research study, more than 90% of graduates of the private high schools in a certain county continue their education in college. By contrast, only 65% of graduates of the public high schools subsequently pursue college education. Therefore, if parents in the county wish to increase the likelihood that their children will attend college, they should send them to private rather than public schools.

Which of the following statements, if true, would most seriously weaken the argument above?

- (A) Graduates of private schools typically score higher on standardized tests and other tests of academic achievement.
- (B) While private schools are typically very expensive, attendance of public school is free for the residents of the county.
- (C) In comparison with graduates of private schools, a substantially greater proportion of public school graduates receive need-based financial aid for their college education.
- (D) In comparison with private schools, public schools provide more

opportunities for student involvement in sports and other athletic activities, which almost always increase the likelihood of students' acceptance to colleges.

- (E) Since most public schools are located in rural areas of the county populated primarily by farmers, nearly 30% of students from public high schools choose to pursue farming occupations rather than apply to colleges.

18. Due to high jet fuel costs, airline carriers are looking for new ways to increase revenues and thereby counteract declining profits. Airline A has proposed increasing the number of passengers that can fit on its airplanes by creating several standing room only “seats” in which passengers would be propped against a padded backboard and held in place with a harness. This proposal, since it relates to passenger safety, cannot be implemented without prior approval by the Federal Aviation Administration.

The above statements, if true, indicate that Airline A has made which of the following conclusions?

- (A) The addition of standing room only “seats” will generate more revenue than the cost of ensuring that these seats meet safety standards.
  - (B) The Federal Aviation Administration will approve Airline A’s specific proposal.
  - (C) The revenue generated by the addition of standing room only “seats” is greater than the current cost of jet fuel.
  - (D) There are no safer ways in which Airline A can increase revenues.
  - (E) Passenger safety is less important than increasing revenue.
19. A recent development in the marketplace for consumer technology goods has been the premium placed on design—products with innovative and appealing designs relative to competing products can often command substantially higher prices. **Because design innovations are quickly copied by other manufacturers though,** many consumer technology companies charge as much as possible when it comes to their new designs to extract as much value as possible from their new designs. But large profits generated by the innovative design will give competitors stronger incentives to copy the designs. **Therefore, the best strategy to maximize overall profit from an innovative new design is to charge less than the greatest possible price.**

In the argument above, the two portions in boldface play which of the following roles?

- (A) The first is an assumption that assists a course of action criticized by the argument; the second provides a consideration to support the argument’s recommended position.
- (B) The first is a consideration that helps explain the appeal of a certain strategy; the second presents an alternative strategy endorsed by the argument.

- (C) The first is an assumption that justifies a specific strategy; the second is that strategy.
- (D) The first is a consideration presented to demonstrate that a particular strategy will not apply; the second is a factor cited to support the argument's main position.
- (E) The first is a factor used to justify a particular strategy; the second is a factor against that strategy.

20. Smoking is a known cause of certain serious health problems, including emphysema and lung cancer. Now, an additional concern can be added to the list of maladies caused by smoking. A recent study surveyed both smokers and nonsmokers, and found that smokers are significantly more anxious and nervous than nonsmokers.

Which of the following is an assumption on which the argument rests?

- (A) Anxiety and nervousness can lead to serious health problems.
- (B) Anxiety and nervousness do not make individuals more likely to start smoking.
- (C) Equivalent numbers of smokers and nonsmokers were surveyed for the study.
- (D) Smokers are aware of the various health problems attributed to smoking, including lung cancer and emphysema.
- (E) Smokers who had smoked a cigarette immediately before responding to the survey were more anxious and nervous than smokers who had not smoked for several hours.

21. The number of new cases of tuberculosis diagnosed in Country X increased dramatically this year. The country's news media have speculated that the sharp increase in new cases is the result of the tuberculosis outbreak that occurred in neighboring Country Y last year. Health officials in Country X have therefore proposed that all visitors from Country Y must submit to a medical examination before entering Country X.

Which of the following, if true, most strongly suggests that the proposed medical examinations will not help curb the spread of tuberculosis in Country X?

- (A) Country Z, which also neighbors Country Y, has not experienced an increase in cases of tuberculosis.
- (B) Current medical technology is not capable of detecting all carriers of tuberculosis.
- (C) Country X does not have the resources to examine all visitors from Country Y.
- (D) Tuberculosis is not spread through human contact.
- (E) Citizens of Country Y will not travel to Country X if the proposal is implemented.



22. The people of Prohibitionland are considering banning the service of alcoholic beverages in restaurants to curb unruly behavior on the part of its residents. Proprietors of restaurants in Prohibitionland are protesting the ban on the grounds that it will reduce their revenues and profits. However, several provinces in Prohibitionland enacted restrictions on alcoholic beverages last year, and the sales taxes paid by the restaurants in those provinces rose by an average of 50%. In contrast, the sales taxes paid by restaurants located in areas of Prohibitionland that did not have any restrictions rose by an average of 30%.

Which of the following, if true, supports the restaurant proprietors' economic stance against the ban?

- (A) In the provinces that restricted alcoholic beverages, there was a short-term negative impact on restaurant visitation in the beginning of last year.
  - (B) The sales tax in Prohibitionland is lower on food and beverages than it is on other consumer goods, such as clothing.
  - (C) The consumption of alcoholic beverages in Prohibitionland has been on a gradual decline the last 20 years.
  - (D) The restrictions on alcoholic beverages enacted last year allowed for the service of alcohol beginning around dinner time each evening.
  - (E) Overall sales tax revenue did not increase at a substantially higher rate in the provinces that enacted the restrictions on alcoholic beverages than in the rest of Prohibitionland last year.
23. Serious individual art collectors are usually discreet when making significant purchases or sales related to their collections. At art auctions, for example, these collectors often place anonymous bids for major artwork. Therefore, the whereabouts of most of the world's most valuable artwork are probably unknown.

Each of the following, if true, would weaken the conclusion above EXCEPT:

- (A) The value of a piece of art is purely subjective.
- (B) Serious art collectors usually publicize their new artwork several months after making a purchase.
- (C) Museums own the vast majority of the world's most valuable artwork.
- (D) Of all the individuals in the world who own extremely valuable

artwork, only a few are considered serious art collectors.

- (E) The private collections of most serious individual art collectors are often displayed in public settings.

24. Last January, in an attempt to lower the number of traffic fatalities, the state legislature passed its “Click It or Ticket” law. Under the new law, motorists can be pulled over and ticketed for not wearing their seat belts, even if no additional driving infraction was committed. Lawyers and citizens groups are already protesting the law, saying it unfairly infringes on the rights of the state’s drivers. Law enforcement groups counter these claims by stating that the new regulations will save countless additional lives.

Which of the following inferences is best supported by the passage above?

- (A) Prior to the “Click It or Ticket” law, motorists could not be stopped simply for not wearing a seat belt.
- (B) The “Click It or Ticket” law violates current search and seizure laws.
- (C) Laws similar to “Click It or Ticket” have effectively reduced traffic fatalities in a number of states.
- (D) The previous seat belt laws were ineffective in saving lives.
- (E) Law enforcement groups, rather than citizens groups, should determine how to best ensure the safety of motorists.

25. Calorie restriction, a diet high in nutrients but low in calories, is known to prolong the life of rats and mice by preventing heart disease, cancer, diabetes, and other diseases. A 6-month study of 48 moderately overweight people, who each reduced their calorie intake by at least 25%, demonstrated decreases in insulin levels and body temperature, with the greatest decrease observed in individuals with the greatest percentage change in their calorie intake. Low insulin level and body temperature are both considered signs of longevity, partly because an earlier study by other researchers found both traits in long-lived people.

If the above statements are true, they support which of the following inferences?

- (A) Calorie restriction produces similar results in humans as it does in rats and mice.
- (B) Humans who reduce their calorie intake by at least 25% on a long-term basis will live longer than they would have had they not done so.
- (C) Calorie intake is directly correlated to insulin level in moderately overweight individuals.

(D) Individuals with low insulin levels are healthier than individuals with high insulin levels.

(E) Some individuals in the study reduced their calorie intake by more than 25%.

26. Recent research has indicated that married people are not only happier than unmarried people, but also healthier. This study has been widely reported by the media, with most commentators concluding that being married is good for one's health and attitude.

The conclusion of the media commentators depends on which of the following assumptions?

- (A) The longer people are married, the happier and healthier they become.
  - (B) Married couples who had a large, extravagant wedding are happier than those who had a small, simple ceremony.
  - (C) Married people cannot get depressed.
  - (D) Single people with depression or health problems are just as likely to get married as are other single people.
  - (E) Some marriages are more harmonious than others.
27. For nearly a century, physiologists erroneously believed that a **buildup of lactic acid in muscle tissue was responsible for the soreness that many people experience after strenuous exercise**. The acid, they claimed, is the waste produced by metabolic activity in the muscle and reaches "threshold" levels, causing soreness, when the muscle has depleted its oxygen supply. **Researchers have recently discovered, however, that lactic acid is actually the fuel that powers muscular activity**. Therefore, the cause of muscle soreness remains unknown.

In the argument above, the portions in boldface play which of the following roles?

- (A) The first is an assertion that the author accepts as true; the second is a consideration in support of that assertion.
- (B) The first is an assertion that the author accepts as true; the second describes a situation that the author posits as contrary to that assertion.
- (C) The first is an assertion that the author argues against; the second is evidence presented as contrary to the author's argument.
- (D) The first is evidence that the author believes is no longer valid; the second is additional evidence that the author uses to support his main point.
- (E) The first is a claim that the author believes to be invalid; the second is the author's main point.

28. An oil field prospector and developer reported a large oil deposit in southwestern Texas. As a result, a large oil and gas company purchased the field with the intention of drilling oil wells in the area soon afterwards. However, the company found that the oil deposit was actually much smaller than the prospector had indicated. Thus, the methods that the prospector had used to determine the size of the oil deposit must have been inaccurate.

Which of the following is an assumption on which the argument depends?

- (A) The company's methods of measuring the size of the oil deposit were determined by a third party to be more accurate than those used by the prospector.
- (B) The prospector did not purposefully fabricate or misrepresent the size of the oil deposit.
- (C) Though smaller than originally thought, the oil deposit contained enough oil to make drilling commercially feasible.
- (D) The prospector did not explore other oil fields and use the same methods to determine the magnitude of the oil present, if any.
- (E) The company had successfully drilled for oil in other large oil fields in Texas throughout the early 20th century.

29. According to a recent study on financial roles, one-third of high school seniors say that they have "significant financial responsibilities." These responsibilities include, but are not limited to, contributing to food, shelter, or clothing for themselves or their families. At the same time, a second study demonstrates that a crisis in money management exists for high school students. According to this study, 80% of high school seniors have never taken a personal finance class even though the same percentage of seniors has opened bank accounts and one-third of these account holders has bounced a check.

Which of the following conclusions can be properly drawn from the statements above?

- (A) High schools would be wise to incorporate personal finance classes into their core curricula.
- (B) At least one-third of high school seniors work part-time jobs after school.
- (C) The number of high school seniors with significant financial responsibilities is greater than the number of seniors who have bounced a check.

- (D) Any high school seniors who contribute to food, shelter, or clothing for themselves or their families have significant financial responsibilities.
- (E) The majority of high school students have no financial responsibilities to their families.

30. Federal law prohibits businesses from reimbursing any employees for the cost of owning and operating a private aircraft that is used for business purposes. Thus, many companies in the United States themselves purchase private aircraft. The vast majority of the business aviation fleet is owned by small and mid-size businesses, and flights are strictly for business purposes, with mostly mid-level employees on board. These companies and their boards of directors are in full compliance with the law and with what is best for their businesses.

Which of the following can be most properly inferred from the statements above?

- (A) The federal law in question costs businesses money.
- (B) Most executives would rather fly on company owned planes than on commercial airlines.
- (C) Large businesses usually have their executives fly first or business class on commercial flights.
- (D) Upper-level executives are less often in compliance with the law.
- (E) By not receiving any reimbursement for these flights, the mid-level executives on board are complying with the law.

31. Experts estimate that insurance companies' tardiness in paying doctors for legitimate medical claims adds approximately 10% in overhead costs for physicians. Insurance companies counter that the tardiness sometimes results from billing errors made by the doctors themselves. Since dealing with these billing errors costs the insurance companies time and money, it is clear that insurance companies do not have a significant economic incentive to delay claim payments to doctors.

Which of the following pieces of information, if true, weakens the conclusion above?

- (A) Some doctors who submit accurate bills to insurance companies still receive tardy payments.
- (B) The cost to the insurance companies to process incorrect bills from doctors' offices is roughly equivalent to the increased costs that physicians accrue as a result of tardy payments from insurance companies.
- (C) A rising proportion of medical claims submitted by doctors to insurance companies are deemed illegitimate by those insurance companies.



- (D) The billing errors made by doctors' offices are typically very minor, such as the submission of a claim with an outdated patient home address.
- (E) The overhead costs incurred by doctors as a result of delayed insurance payments result in an increase in the premiums paid by consumers to health insurance companies that far exceeds any increase in the fees paid to doctors by insurance companies.

32. Farmers in developing countries claim that the U.S. government, through farm subsidies, is responsible for the artificially low global price of wheat. Because the U.S. government buys whatever wheat American farmers are unable to sell on the open market, American farmers have no incentive to modulate the size of their crops according to the needs of the global market. As a result, American farmers routinely produce more wheat than the global market can absorb and the global price of wheat is kept low. Without these subsidies, the farmers in developing economies claim, American farmers would produce only the amount of wheat that they could sell on the open market and the global price of wheat would rise.

Which of the following, if true, most weakens the claims of the farmers in developing countries regarding the price of wheat?

- (A) Wheat that is not processed for consumption is often used for certain industrial applications.
- (B) Non-governmental buyers of wheat and wheat products are able to predict how much wheat they will need several years in advance.
- (C) The U.S. government offers similar subsidies to soybean farmers, though the global price of soybeans is significantly higher than that of wheat.
- (D) Other countries, such as Canada and Russia, are likely to produce more wheat if the United States were to reduce its output.
- (E) The price of sorghum, a crop for which the U.S. government offers no subsidies, is lower than that of wheat.

33. Researchers studying the spread of the Black Plague in 16th-century England claim that certain people survived the epidemic because they carried a genetic mutation, known as Delta-32, that is known to prevent the bacteria that causes the plague from overtaking the immune system. To support this hypothesis, the researchers tested the direct descendants of the residents of an English town where an unusually large proportion of people survived the plague. More than half of these descendants tested positive for the mutation Delta-32, a figure nearly three times higher than that found in other locations.

The researchers' hypothesis is based on which of the following assumptions?

- (A) Delta-32 does not prevent a carrier from contracting any disease other than the plague.
- (B) The plague is not similar to other diseases caused by bacteria.

- (C) Delta-32 did not exist in its current form until the 16th century.
- (D) No one who tested positive for Delta-32 has ever contracted a disease caused by bacteria.
- (E) The plague does not cause genetic mutations such as Delta-32.

34. Implementing extensive wireless networks in cities would be a practical way to meet the needs of city households, schools, and businesses. Rural communities have found that wireless networks are both more reliable and cheaper than land-based networks.

Which of the following would most likely be cited by a supporter of the argument?

- (A) Urban areas do not pose additional problems for the effective operation of wireless networks.
  - (B) Wireless networks work far better where population density is low.
  - (C) Iceland, a very rural country, successfully uses wireless networks.
  - (D) The expense of wireless transmission in areas with large buildings is much higher than in areas without such buildings.
  - (E) Poor neighborhoods have less access to internet services than do educators or businesses.
35. Studies have shown that **people who keep daily diet records are far more successful at losing weight than people who don't keep track of what they eat**. Researchers believe that many weight-loss efforts fail because people eat more calories than they intend to consume. One study followed a group of patients who reported that they could not lose weight when consuming only 1,200 calories a day. **The study found that the group consumed, on average, 47% more calories than it claimed and exercised 51% less**. In contrast, when dieters record what they eat, their actual consumption more closely matches their reported consumption.

The two boldface portions in the argument above are best described by which of the following statements?

- (A) The first is a conclusion reached by researchers; the second is evidence that this conclusion is correct.
- (B) The first is an explanation of why a certain theory is thought to be true; the second is an example of research results that support this theory.
- (C) The first is an example illustrating the truth of a certain theory; the second is a competing theory.
- (D) The first is a premise upon which the researchers base their opinion; the second illustrates that their opinion is correct.
- (E) The first introduces a theory that the researchers have disproved; the second is the basis for the researchers' argument.

36. The anticipated retirement of tens of thousands of baby boomers will create an unprecedented opportunity to move significant numbers of people into career-track jobs at family-supporting incomes. Major industries, from health care and construction to automotive repair, will soon face deep shortages of workers as a result of projected growth and boomer retirements. Fortunately, many of these jobs have relatively low barriers to entry and could be filled by out-of-work young people. To achieve this result, the city government should convene employers and educators to determine how best to create paths of upward mobility in these fields.

Which of the following, if true, most weakens the argument?

- (A) Immigration reform will limit the pool of available workers.
  - (B) Government efforts have been shown to affect employment trends only rarely.
  - (C) The best available positions require skills not possessed by the vast majority of the unemployed.
  - (D) A small proportion of baby boomers will not retire as soon as is anticipated.
  - (E) Many out-of-work young people are unaware of these looming employment opportunities.
37. The “Doppler effect” refers to the universally perceived change in the apparent pitch of a sound when that sound is approaching or receding from the listener. Specifically, whenever the distance between the listener and the source of the sound is decreasing, the sound will be perceived by the listener as higher than its true pitch; whenever that distance is increasing, the sound will be perceived by the listener as lower than its true pitch. If the distance between the listener and the source is not changing, the listener will perceive the true pitch of the sound.

If the above principle holds, which of the following should be observed as an eastward-traveling train is approached by a westward-traveling train that is blowing its horn?

- (A) Passengers in the eastbound train should hear the true pitch of the horn; passengers in the westbound train will hear a sound lower than the true pitch.
- (B) Passengers in the westbound train should hear the true pitch of the horn; passengers in the eastbound train will hear a sound lower than the true pitch.

- (C) Passengers in the eastbound train should hear the true pitch of the horn; passengers in the westbound train will hear a sound higher than the true pitch.
- (D) Passengers in the westbound train should hear the true pitch of the horn; passengers in the eastbound train will hear a sound higher than the true pitch.
- (E) Passengers in both trains should hear a sound that is higher than the true pitch.

38. The popular notion that a tree's age can be determined by counting the number of internal rings in its trunk is generally true. However, to help regulate the internal temperature of the tree, the outermost layers of wood of the Brazilian ash often peel away when the temperature exceeds 95 degrees Fahrenheit, leaving the tree with fewer rings than it would otherwise have. So only if the temperature in the Brazilian ash's environment never exceeds 95 degrees Fahrenheit will its rings be a reliable measure of the tree's age.

Which of the following is an assumption on which the argument above depends?

- (A) The growth of new rings in a tree is not a function of levels of precipitation.
  - (B) Only the Brazilian ash loses rings because of excessive heat.
  - (C) Only one day of temperatures above 95 degrees Fahrenheit is needed to cause the Brazilian ash to lose one ring.
  - (D) The internal rings of all trees are of uniform thickness.
  - (E) The number of rings that will be lost when the temperature exceeds 95 degrees Fahrenheit is not predictable.
39. Celiac disease results from an inability of the digestive tract, specifically the small intestine, to absorb gluten, a protein found in wheat, barley, and certain other grains. The body's immune system attacks the gluten as if the protein were a harmful pathogen, often resulting in serious damage to the intestinal lining. People who suffer from celiac disease must eliminate gluten from their diets. Symptoms of the disease include abdominal cramps, bloating, and anemia.

If the statements above are true, which of the following assertions can be made on the basis of them?

- (A) Anyone who suffers from celiac disease will experience anemia.
- (B) Eliminating gluten from one's diet will cure celiac disease.
- (C) People experiencing abdominal cramps, bloating, and anemia have celiac disease.
- (D) Gluten is found only in grains.
- (E) The human body cannot always recognize harmless substances.

40. All languages that have exactly six basic color terms describe the same six colors—black, white, red, green, blue, and yellow—corresponding to the primary neural responses revealed in studies of human color perception. In addition, all languages that have only three basic color terms distinguish among black, white, and red. This evidence shows that the way in which the mind recognizes differences among colored objects is not influenced by culture.

Which of the following, if true, most seriously weakens the argument above?

- (A) While languages differ in their number of basic color terms, no language has been conclusively determined to have more than 11 such terms.
  - (B) Every language contains mechanisms by which speakers who perceive subtle differences in hue can describe those differences.
  - (C) Among cultures employing only three color terms, the word red typically encompasses not only objects that would be called red in English but also those that would be called yellow.
  - (D) Several languages, such as Vietnamese and Pashto, use a single term to mean both blue and green, but speakers of such languages commonly refer to tree leaves or the sky to resolve ambiguous utterances.
  - (E) In a study of native speakers of Tarahumara, a language that does not distinguish between blue and green, respondents were less able to identify distinctions among blue and green chips than native speakers of Spanish, which does distinguish between blue and green.
41. In an attempt to discover the cause of malaria, a deadly infectious disease common in tropical areas, early European settlers in Hong Kong attributed the malady to poisonous gases supposed to be emanating from low-lying swampland. **Malaria, in fact, translates from the Italian as “bad air.”** In the 1880s, however, doctors determined that *Anopheles* mosquitoes were responsible for transmitting the disease to humans. **The female of the species can carry a parasitic protozoa that is passed on to unsuspecting humans** when a mosquito feasts on a person’s blood.

What functions do the two statements in boldface fulfill with respect to the argument presented above?

- (A) The first follows from a mistaken conclusion about a topic in question; the second explicates the correct explanation of that topic.



- (B) The first provides an initial conjecture; the second presents evidence that contradicts that conjecture.
- (C) The first serves to illuminate a contested assumption; the second offers confirmation of that assumption.
- (D) The first identifies the cause of an erroneous conclusion; the second develops a premise to support the correct conclusion.
- (E) The first provides detail about the original, and incorrect, school of thought; the second provides the judgment later found to be true.

42. Government restrictions have severely limited the amount of stem cell research companies in the United States can conduct. Because of these restrictions, many scientists previously based in the United States and specializing in the field of stem cell research have signed long-term contracts to work for foreign companies. Recently, Congress has proposed lifting all restrictions on stem cell research.

Which of the following conclusions can most properly be inferred from the information above?

- (A) At least some foreign companies that conduct stem cell research work under fewer restrictions than some United States companies do.
  - (B) Because scientists previously based in the U.S. are under long-term contracts to foreign companies, there will be a significant influx of foreign professionals into the United States.
  - (C) In all parts of the world, stem cell research is dependent on the financial backing of local government.
  - (D) In the near future, U.S. companies will no longer be at the forefront of stem cell research.
  - (E) If restrictions on stem cell research are lifted, many of the scientists previously based in the United States will break their contracts to return to U.S. companies.
43. If life exists elsewhere in the solar system, scientists suspect it would most likely be on Europa, an ice covered moon orbiting Jupiter. However, NASA recently scrapped an unmanned science mission to Europa and reassigned most of the employees involved in the project to another project that concerns landing an astronaut on Mars. Polls show that Americans are far more fascinated by space travel than they are by discovering life elsewhere in the universe. Critics argue that NASA's decision-making process places a greater emphasis on public interest than it does on the importance of scientific research.

Which of the following, if true, would most strengthen NASA's contention that the critics are misinformed?

- (A) In 2013, NASA spent 30% of its total budget on developing a space shuttle that can travel to Mars. In 2018, that figure is expected to drop to 0%.
- (B) Studies have shown that Congress traditionally determines NASA's budget based on its perception of public interest in NASA's projects.
- (C) Some scientists are convinced that a mission to Europa would add

immeasurably to our understanding of the universe; others believe that we will gain little insight from exploring Europa.

- (D) A new telescope that has been developed in Tokyo allows scientists to look at Europa in ways never possible before and promises to yield more information than the planned mission was designed to provide.
- (E) Most Americans feel that a shuttle to Mars is the next logical step in the development of a system that will eventually allow humans to travel to places as far away as Europa and beyond.

44. Dengue fever is a viral infection transmitted by the *Aedes* mosquito, whereas malaria is a parasitic infection transmitted by the *Anopheles* mosquito. Since both types of mosquito are prevalent on Nicaragua's "Mosquito Coast," anyone with a compromised immune system should not travel to this region, particularly during the rainy season.

All of the following, if true, strengthen the argument EXCEPT:

- (A) Medicines taken to prevent or treat malaria can cause serious health complications for people with weak immune systems.
  - (B) The Nicaraguan government is trying to reduce the number of mosquitoes on the Mosquito Coast.
  - (C) A compromised immune system has difficulty fighting either viral or parasitic infections.
  - (D) During the rainy season, the populations of both *Aedes* and *Anopheles* mosquitoes multiply in the Mosquito Coast.
  - (E) The most effective chemical insect repellent has been shown to cause brain damage upon repeated application to the skin.
45. In 2001, the Peruvian government began requiring tourists to buy expensive permits to hike the remote Inca Trail, which goes to the ancient city of Machu Picchu. The total number of permits is strictly limited; in fact, only 500 people per day are now allowed to hike the Inca Trail, whereas before 2001, visitors numbered in the thousands. The Peruvian government argues that this permit program has successfully prevented deterioration of archaeological treasures along the Inca Trail.

Which of the following, if true, most strengthens the argument above?

- (A) Since 2001, tourist guides along the Inca Trail have received 50% to 100% increases in take-home pay.
- (B) Villages near Machu Picchu have experienced declines in income, as fewer tourists means fewer sales of craft goods and refreshments.
- (C) Many of the funds from the sale of Inca Trail permits are used to staff a museum of Incan culture in Peru's capital city, Lima, and to hire guards for archaeological sites without permit programs.
- (D) Since 2001, Incan ruins similar to Machu Picchu but not on the Inca Trail have disintegrated at a significantly greater rate than those on the trail.
- (E) The total number of tourists visiting Peru has risen substantially since 2001, even as the number of tourists hiking the Inca Trail has

remained constant.

46. The Farmsley Center for the Performing Arts, designed by a world-renowned architect, was built 10 years ago in downtown Metropolis. A recent study shows that, on average, a person who attends a performance at the Farmsley Center spends \$83 at downtown businesses on the day of the performance. Citing this report, the chairman of the Farmsley Center's Board of Trustees claims that the Farmsley Center has been a significant source of the economic revitalization of downtown Metropolis.

Which of the following, if true, most strongly supports the chairman's contention?

- (A) The Metropolis Chamber of Commerce honored the Farmsley chairman this year for his contributions to the city.
  - (B) Restaurants near the Farmsley Center tend to be more expensive than restaurants in outlying areas.
  - (C) The Farmsley Center is the only building in Metropolis designed by a world-renowned contemporary architect.
  - (D) For major theater companies on national tours, the Farmsley Center is the first choice among venues in downtown Metropolis.
  - (E) Many suburbanites visit downtown Metropolis on weekends in order to see performances at the Farmsley Center.
47. One retirement account option allows a worker to save money without paying taxes, but requires the worker to pay taxes on funds withdrawn from the account upon retirement. A second option requires the worker to pay taxes upfront, but allows the worker to withdraw funds tax-free upon retirement. Assuming that the total amount available in the worker's retirement account at retirement is higher than the total amount contributed prior to retirement, workers can expect to pay less in taxes overall if they choose the second option.

Which of the following pieces of information would be most useful in determining whether the conclusion is valid for an individual worker?

- (A) The amount of money the worker will contribute to the retirement plan over his or her career
- (B) The amount that tax rates will increase in the future
- (C) Whether inflation will be lower than the retirement account's annual earnings
- (D) How the worker's tax bracket in retirement compares to his or her tax bracket while still employed

(E) The dollar value of the worker's account upon retirement

48. In a recent poll, 71% of respondents reported that they cast votes in the most recent national election. Voting records show, however, that only 60% of eligible voters actually voted in that election.

Which of the following pieces of evidence, if true, would provide the best explanation for the apparent discrepancy?

- (A) The margin of error for the survey was plus or minus five percentage points.
- (B) 15% of the survey's respondents were living overseas at the time of the election.
- (C) Prior research has shown that people who actually do vote are also more likely to respond to polls than those who do not vote.
- (D) Many people who intend to vote are prevented from doing so by last-minute conflicts on election day or other complications.
- (E) Some people confused the national election with other recent elections when responding to the poll.

49. Scientists recently documented that influenza spreads around the world more efficiently in the modern era due to commercial air travel. Flu symptoms are severe enough that the ill would likely cancel or reschedule air travel, but an infected person can travel across the globe before the first signs appear. Further, if symptoms develop while someone is on a plane, the infected person's cough can spread the virus easily in the enclosed and closely packed environment.

Which of the following would best minimize the role air travel can play in the spread of influenza during a pandemic?

- (A) Installing air filtration systems in the planes to kill any flu virus particles flowing through the filters.
- (B) Requiring air travelers to receive flu vaccinations far enough in advance of the trip to provide protection against the disease.
- (C) Refusing to allow children, the elderly, or others who are especially vulnerable to flu to travel by air during a pandemic.
- (D) Requiring all air travelers to wash their hands before boarding a plane.
- (E) Conducting medical examinations during the boarding process and prohibiting passengers with flu symptoms from flying.



50. Male CEOs of major corporations are, on average, three inches taller than the average male. When data from the general population are analyzed and corrected for gender and age, a clear pattern emerges: for every extra inch of height, a person's annual salary increases by approximately \$789. Citing these data, a prominent journalist claims that most employers have an unconscious bias in favor of tall people.

Which of the following considerations, if true, would most seriously undermine the journalist's argument?

- (A) On average, a woman is shorter than her husband and earns less than he does.
- (B) Socioeconomic status has been shown to have a strong positive correlation to both height and educational attainment.
- (C) Professional basketball players, who are some of the tallest people in the labor force, have high incomes.
- (D) Human resources professionals, who make many hiring decisions, are on average no taller than the general population.
- (E) A tall person's tenure in a paid position is typically shorter than is the tenure of a person of average height.

51. Traditionally, public school instructors have been compensated according to seniority. Recently, the existing salary system has been increasingly criticized as an approach to compensation that rewards lackadaisical teaching and punishes motivated, highly qualified instruction. Instead, educational experts argue that, to retain exceptional teachers and maintain quality instruction, teachers should receive salaries or bonuses based on performance rather than seniority.

Which of the following, if true, most weakens the conclusion of the educational experts?

- (A) Some teachers believe that financial compensation is not the only factor contributing to job satisfaction and teaching performance.
- (B) School districts will develop their own unique compensation structures that may differ greatly from those of other school districts.
- (C) Upon leaving the teaching profession, many young teachers cite a lack of opportunity for more rapid financial advancement as a primary factor in their decisions to change careers.
- (D) A merit-based system that bases compensation on teacher performance reduces collaboration, which is an integral component

of quality instruction.

- (E) In school districts that have implemented pay-for-performance compensation structures, standardized test scores have dramatically increased.

52. Network executives have alleged that television viewership is decreasing due to the availability of television programs on other platforms, such as the internet, video-on-demand, and mobile devices. These executives claim that **declining viewership will cause advertising revenue to fall so far that networks will be unable to spend the large sums necessary to produce programs of the quality now available.** That development, in turn, will lead to a dearth of programming for the very devices that cannibalized television's audience. However, technology executives point to research that indicates that **users of these devices increase the number of hours per week that they watch television** because they are exposed to new programs and promotional spots through these alternative platforms. This analysis demonstrates that networks can actually increase their revenue through higher advertising rates, due to larger audiences lured to television through other media.

In comparing the executives' arguments, the portions in boldface play which of the following roles?

- (A) The first is an inevitable trend that weighs against the argument; the second is that argument.
  - (B) The first is a prediction that is challenged by the argument; the second is a finding upon which the argument depends.
  - (C) The first clarifies the reasoning behind the argument; the second demonstrates why the argument is flawed.
  - (D) The first acknowledges a position that the technology executives accept as true; the second is a consequence of that position.
  - (E) The first restates the argument through an analogy; the second outlines a scenario in which that argument will not hold.
53. According to a study of more than 50,000 Norwegian smokers, smokers who reduced their nicotine intake from cigarettes, even by up to 50%, did not achieve significant health benefits. The mortality rate for those who cut back on cigarettes was not lower than that for heavier smokers; moreover, the rate of cardiovascular disease was similar across all subsets of smokers in the study. As a result, the sponsors of the study claim that reducing nicotine intake does not improve one's health.

Which of the following, if true, most seriously jeopardizes the findings of the study described above?

- (A) The majority of study participants minimized their nicotine withdrawal symptoms through the use of skin patches and chewing

gum that provide nicotine to the body.

- (B) Many of the study's participants periodically dined in restaurants in which smoking was permitted.
- (C) The study's participants started smoking at different ages and had varied initial nicotine intake.
- (D) Quitting smoking entirely results in a marked reduction in the ill effects of smoking.
- (E) Men and women who smoked pipes and cigars were excluded from the study.

54. In developed countries, such as Canada, the percentage of the population diagnosed with clinical depression is much greater than that in developing countries. Researchers hypothesize that this difference is due to the increased leisure time afforded to residents of developed countries.

The hypothesis of the researchers depends on which of the following assumptions?

- (A) Clinical depression is a genetically transmitted malady.
  - (B) Access to accurate diagnostic procedures for depression is equal for residents of developing and developed countries.
  - (C) Most activities characterized as “leisure time” in developed countries are inherently boring.
  - (D) Certain medications that effectively treat clinical depression are not readily available in developing countries.
  - (E) Few residents of developing countries dedicate any of their time to leisure.
55. Most cable television companies currently require customers to subscribe to packages of channels, but consumer groups have recently proposed legislation that would force the companies to offer à la carte pricing as well. Subscribers would pay less, argue the consumer groups, because they could purchase only the desired channels. However, the cable industry argues that under the current package pricing, popular channels subsidize less-popular ones, providing more options for viewers. For this reason, the industry claims that it is always cheaper for the consumer to purchase many bundled channels than to buy them individually.

Which of the following would be most important to determine before deciding whether to require cable television companies to offer à la carte pricing in order to reduce consumer costs?

- (A) Whether the total number of channels offered to consumers would decrease, along with programming diversity, as a result of the à la carte pricing structure
- (B) Whether advertising revenue for the cable television companies would decrease as a result of the à la carte pricing structure
- (C) Whether a large number of consumers would, in fact, significantly reduce the number of channels purchased if given the option of purchasing them individually
- (D) Whether the number of cable television consumers has been

declining as a result of new avenues of content delivery, such as the Internet

- (E) Whether à la carte subscribers would be required to have new television-set-top boxes

56. A certain pharmaceutical firm recently developed a new medicine, Dendadrine, that provides highly effective treatment of severe stomach disorders that were previously thought untreatable. However, the company spent nearly \$5 billion to research and develop the new medicine. Given the size of the market for Dendadrine and the amount of the initial investment, the company would need to sell Dendadrine at a price that is at least five times greater than its variable costs just to break even. Yet company management claims that Dendadrine will soon become the major driver of the firm's profits.

Which of the following statements best reconciles the management's claim with the evidence about the expenditures associated with the development of Dendadrine?

- (A) The pharmaceutical firm expects to be granted patent protection for Dendadrine; drugs under patent protection typically sell at prices that are approximately 10 times their variable costs.
- (B) The development of some pharmaceutical products involves substantial initial expenditures on research, testing, and approval.
- (C) In clinical tests, Dendadrine has proven far more effective at treating severe stomach disorders than any prior available treatments, without any serious side effects.
- (D) No competitors are developing or planning to develop new medicines that might compete with Dendadrine in the marketplace.
- (E) Millions of people suffer from severe stomach disorders, representing an estimated one to two billion dollars every year in revenue.