To facilitate development of telephone service in a rural province, the national government pays the provincial government a subsidy for each long-distance call going into the province. A corporation has offered to base a national long-distance telephone service in the province, allowing long-distance calls to be made without any charge to the callers, if the provincial government splits its subsidy with the corporation. The corporation argues that since all calls would be routed through the province, the provincial government would profit greatly from this arrangement.

The corporation's prediction about the effects its plan would have, if adopted, relies on which of the following assumptions?

- Without the plan, all long-distance telephone service in the province would involve at least some charges to callers.
- The national government's subsidy would apply not only for calls made to phones in the province, but also to at least some long-distance calls that are merely routed through the province.
- The provincial government would be interested in splitting its subsidy with the corporation only if doing so would yield significant profits for the province.
- The national government's subsidy for any long-distance call into the province is calculated as a fixed percentage of the charge to the caller.
- In order for the arrangement to be profitable for the province, the province must receive more from the increased subsidy than it pays the corporation.

People's supply of willpower is not infinite; psychologists have found that successfully accomplishing one task requiring self-control leads to less persistence on a second, seemingly unrelated task. But that finite supply can become larger, because, like a muscle, willpower grows with use: a recent study showed that people who followed a physical exercise program for two months reported studying more, watching less television, and doing more housework after those two months.

The reasoning above makes which of the following assumptions?

- Studying, watching television, and doing housework should be considered tasks unrelated to one another.
- The people in the study did not watch less television than the average person before the study took place.
- People's supply of willpower cannot be increased by means other than repeatedly exercising that willpower.
- The exercise program followed by the people in the study required more willpower than did whatever exercise they engaged in before the study.
- Prior to the study, the people in the study had unsuccessfully attempted to demonstrate more self-control over their studying, television watching, or housework.

The extinct earliest known ancestor of the cheetah, a large cat now found only in Africa, lived only in what is now western North America when the two continents were conjoined, as fossil skeletons found in North America but nowhere else indicate. That ancestor shared certain skeletal features with the cheetah but with no other cat.

If all of the information above is true, which of the following hypotheses does it most strongly support?

- The cheetah, because of certain distinctive skeletal features, is an efficient predator.
- The outward appearance of an animal can be reconstructed from its skeletal structure.
- The cheetah's skeletal structure has remained unchanged since prehistoric times.
- The ancestor of the cheetah had relatively few nonskeletal features in common with the modern cheetah.
- The cheetah or an ancestor of it migrated to what is now Africa from what is now North America.

In a ten-year study, one group of volunteers was given a medical screening for disease X every year, whereas an otherwise similar group of the same size was only screened for disease X at the end of the study. Nine percent of the first group were diagnosed with disease X during the study and received treatment, but only six percent of the second group were diagnosed with disease X when they received the screening at the end of the study. The researchers concluded that during the ten-year period, disease X must have disappeared without medical treatment in some individuals in the second group.

In order to evaluate the strength of the researcher's reasoning, it would be most helpful to know which of the following?

- Whether there were statistically significant lifestyle differences between the individuals who were diagnosed with disease X and those who were not
- How many people volunteered for the study because they knew that they had an especially high risk for disease X
- How long it takes to be treated for disease X
- Whether volunteers were told what disease they were being screened for
- How frequently on average the medical screening used in the study produces erroneous diagnoses of disease X

In the late nineteenth century, the highly esteemed Italian botanist Arcangeli made a claim that at that time was considered "unbelievable" but that has been verified by subsequent research. It concerned the curious little arum lily *Arisarum proboscideum*, known as the mousetail plant. Its flower cluster develops inside a cylindrical, vertical chamber whose upper part is bent over and ends in a dark-colored, slender, drawn-out, and curved tip, the "mousetail." The chamber is completely closed except for an elliptical window that faces earthward.

A small flying insect, coming up from the forest floor and entering the chamber through the window, is immediately confronted by the flower cluster's appendix—a structure that extends into the bent part, well above the flowers that make up the cluster. In this case the appendix is not hard and smooth as it is in many arum lilies but spongy and full of little depressions. It is also off-white in color so that the overall visual impression it gives is deceptively like that of the underside of the cap of a *Boletus* mushroom. Arcangeli claimed that the plant's pollinators were fungus gnats—insects that normally breed in decaying mushrooms. The mousetail plant fools them so successfully that the females deposit their eggs—which will not be able to survive—on the appendix. Before the gnats can find their way out of the chamber, they also accidentally contact the flowers, transferring pollen.

Fungus mimicry turns out to be a fairly widespread pollination strategy. Most of the fungus mimics are forest dwellers, which remain close to the ground and produce dark purple or brown flowers with pale or translucent patterns. To the human nose at least they are either scentless or musky in odor. Usually the flowers are simple urn- or kettle-shaped traps containing structures that closely resemble the gills or pores of mushrooms. Another element in their fungus mimicry is their exudation of moisture during the period when the flower is active. Fungus gnats of both sexes are involved in the pollination and are misled by a combination of fungus-like features—odor, color, shape, texture, and humidity.

The passage most strongly supports the inference that the relationship between fungus gnats and *Arisarum proboscideum* is

- harmful to both of the species
- beneficial to both of the species
- beneficial to the gnat species but harmful to *Arisarum proboscideum*
- beneficial to the gnat species but neither harmful nor beneficial to *Arisarum proboscideum*
- beneficial to *Arisarum proboscideum* but not to the gnat species

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The passage most strongly supports which of the following inferences about flower-cluster appendixes?

- Arcangeli did not hypothesize that they might play a role in attracting fungus gnats to *Arisarum proboscideum.*
- In some species of arum lilies, their texture does not mimic that of the undersides of mushrooms.
- In *Arisarum proboscideum* they help protect the plant from attack by fungus-eating insects.
- They are absent in some species of arum lilies that are pollinated by fungus gnats.
- Arcangeli found evidence that their absence in some species of arum lilies correlated with the absence of fungus gnats in those species' habitats.

National Air negotiated an arrangement with a popular restaurant chain to give the chain's patrons booklets of coupons for discounts on National's flights. Marketing experts claimed that this promotion strategy would more effectively make National stand out relative to rival airlines serving the same routes than would directly setting its fares lower than those of its rivals.

Which of the following, if true, would best explain why, despite heavy demand for the booklets of coupons, National's market share did not increase in response to the promotion?

- The restaurant chain distributing the coupons was initially skeptical about National's proposal.
- Many of National's rivals widely advertised their willingness to honor National coupons.
- Fewer people traveled by air during the period covered by the coupon promotion than had done so during the same period in the previous year.
- During the month immediately preceding the beginning of the promotion, National negotiated a contract with the pilots' union.
- Several airlines operating entirely in areas not served by National launched coupon promotions within the same week that National's promotion was launched.

Most research on the subject has assumed that users of new technologies learn about and modify new technologies gradually. This assumption underlies the concept of the learning curve, a familiar model which presumes that learners gain knowledge in a continuous and highly regular progression over time.

However, when a new technology is introduced into a particular sector of a company, the process of learning about and modifying that technology may not, in fact, be continuous. In general, the introduction of new technology into ongoing operations triggers an initial burst of learning or adaptive activity as users explore the technology and attempt to resolve unexpected problems. Such intense activity is often short-lived, however, with users' effort and attention declining dramatically after the first few months. This rapid decline tends to occur even when serious problems remain unresolved, a trend which suggests that the dramatic falloff in learning or adaptive activity shortly after new technology is introduced does not reflect users' having mastered the new technology. The period of intense activity by users is typically followed by one in which users return their attention to their customary production tasks, though using the new technology to accomplish those tasks. Later on, particularly when challenges related to the new technology arise, users often turn their attention back to the new technology, initiating additional spurts of learning or adaptive activity. In many cases, this pattern continues over time, with brief periods of learning or adaptation followed by longer periods of relatively routine use.

Understanding that the pattern of user learning and adaptation is discontinuous can yield important benefits. Managers who anticipate and plan for intense user activity when a new technology is first introduced are better able to exploit the surge of energy and user motivation that usually occurs at the start of a project when improvements are easiest to implement, and major problems are most obvious. Moreover, by attempting to confine major modifications to start-up periods, such managers can better realize the benefits of periods of routine usage of the technology, during which productivity typically begins to increase and the effectiveness of previous modifications can be assessed.

According to information contained in the passage, the author would be most likely to make which of the following recommendations to managers who are introducing a new technology into the workplace?

- Emphasize the desirability of maintaining certain productivity levels during all phases of the process.
- Exploit the new technology by anticipating and planning for the continuous learning curve that characterizes this process.
- Ensure that needed improvements to the new technology are implemented during the initial period of intense user learning and adaptive activity.
- Work jointly with users to determine the amount of learning and adaptive activity that is required for users to master a new technology.
- Attempt to minimize the dramatic falloff in learning and adaptive activity that often occurs shortly after a new technology is introduced.

Intense competition for grants and donations has prompted some nonprofit organizations to help support their missions by generating revenues in the marketplace. Generally, however, these groups are led by people who, though entrepreneurial, have never launched a competitive venture. One way for nonprofit organizations to learn from the for-profit sector is to enter business plan competitions, whose sponsors, such as universities, provide free business consulting to entrants and offer awards based on the strength of the business plan developed. The process of developing the plans helps participants understand economic realities and foresee conflicts with their core mission.

For example, CIPO Productions, the 2001 winner of Brazil's Social Entrepreneur Award, was created in 1999 by journalist Anna Penido. The organization offers impoverished young people in northeastern Brazil training in media skills such as journalism, photography, and video production. Recognizing that CIPO's video and computer equipment was in use only part-time, Penido believed she could exploit the idle capacity and sell communications services to other organizations. By producing educational brochures, magazines, and Web sites, CIPO could generate income to supplement the donations that financed its educational work. It would also give its graduates an opportunity to continue their professional development. Realizing that accomplishing these objectives required a viable business plan, Penido submitted a general description of her business idea and its objectives to the competition and was one of 80 applicants accepted in 2001.

The passage most strongly supports which of the following statements?

- Prior to winning the business plan competition, CIPO Productions was failing to achieve its nonprofit core mission.
- Anna Penido believed that CIPO's competitive venture would be compatible with CIPO Production's nonprofit core mission.
- After the business plan competition, CIPO Productions retained the services of the consultants it used in the competitions.
- Brazil's Social Entrepreneur Award is awarded primarily based on an evaluation of the expected magnitude of the profits the contestant's planned activities could generate.
- CIPO Productions planned to have its graduates provide unpaid volunteer labor toward the production of educational materials for profit.

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Based on the passage, which of the following can be most reasonably inferred about the contestants in business plan competitions?

- Most of them are companies devoted to providing educational services to specific groups of people.
- They have the opportunity to benefit from a competition even if they do not win it.
- Most of them seek to revise or redefine their core mission.
- They are often intent on changing from a nonprofit to a for-profit company.
- They view the competitions as a way to attract potential donors to support their core missions.

There is no surviving recording of the Duke Ellington Orchestra's performance of a piece that Ellington wrote for the orchestra late in his career. Two different bands have recently recorded the piece, each claiming to have made an authentic reproduction of the Ellington Orchestra's performance. One of these two recorded performances, however, is much closer to Ellington's own handwritten score, and must therefore be the more authentic of the two.

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

- In an attempt to foil plagiarizers, Duke Ellington frequently wrote some parts of his pieces in code, so that the written scores misrepresent what Ellington's orchestra played.
- None of the musicians in either of the two bands had been members of Ellington's orchestra during the period when the piece was part of its repertoire.
- Some of the pieces that were credited as Duke Ellington's compositions when they were recorded or published were actually composed by Duke Ellington's collaborator, Billy Strayhorn.
- The piece is believed to have been recorded by the Duke Ellington Orchestra during a recording session several years after it was written, but the recordings made at this session have been lost.
- A saxophonist who was in Ellington's orchestra at the time the piece was written later formed his own band, which performed the piece in an arrangement that differed from Ellington's handwritten score.

The Chabberton Post-Gazette reported that the overall volume of retail sales in Chabberton was lower last year than it was the year before. The Post-Gazette based that conclusion on a survey of all retail stores that were in business in Chabberton throughout both of those years: these stores, taken together, had a smaller sales volume last year than the year before.

Which of the following, if true, casts the most serious doubt on the Post-Gazette's conclusion?

- Last year several new retail stores opened in Chabberton, offering high quality merchandise at competitive prices.
- Many Chabberton residents do most of their shopping at stores in other towns in the vicinity of Chabberton.
- Most of the Chabberton stores that the survey covered advertise regularly in the Chabberton Post-Gazette.
- A separate survey of manufacturing businesses in Chabberton shows that they did a greater volume of business last year than the year before.
- The year before last was a year of record sales for retail stores in Chabberton, with most stores reporting their highest sales volume ever.

According to the "technocentric" approach—the model that shaped the early stages of the computerization of work—the implementation of technology in the workplace is primarily a technical issue, the goal of technological change is to increase efficiency by mechanizing production and reducing labor costs, and the design of technology is the responsibility of computer specialists. This approach is predicated on a traditional hierarchical workplace with a top-down decision-making structure. However, the technocentric approach has frequently hindered successful implementation of technology. For example, in the banking industry, a technocentric approach to computerization decreased employee morale while failing to increase productivity. In addition, the current global economy has rendered obsolete the traditional model of efficiency underlying the technocentric approach; success is now founded not on mass production and traditional workplace structures but on decentralized decision-making, a broad distribution of skills within an organization, and increased worker initiative.

Thus, the "organization-centered" approach to technological change is generally preferable. According to this approach, worker participation is vital: people who actually do the work to be automated are seen as a crucial source of information during technological implementation. Although the organization-centered approach is based on the sometimes faulty assumption that workers and managers share a consensus about their goals and interests, worker participation in technology implementation can lead to better quality work and improved worker satisfaction.

The passage suggests which of the following about the "traditional model of efficiency" mentioned in the highlighted text?

- It is largely incompatible with the technocentric approach.
- It continues to be used in the banking industry.
- It evaluates efficiency using the standards of mass production.
- It prompted the division of workers and managers into a hierarchical relationship.
- It is outmoded due to the increased productivity of today's skilled workers.

Researchers have long noted strange grooves near the gum lines on dental remains of some early humans. The marks are absent from the teeth of modern-day toothpick users, and have therefore been assumed not to present evidence of tooth picking where they have been present. But an anthropologist has recently proposed that the early humans used grass stalks, which, unlike wood, contain abrasive silica, a substance that would facilitate the development of the grooves.

Which of the following would, if found to be true, be most useful to the evaluation of the anthropologist's hypothesis?

- The dental remains that have the type of grooves in question almost as commonly show signs of tooth decay as do the remains that lack the grooves.
- Dental remains of some of the early humans without the grooves have been found at places where the available grass could have been suitable for tooth picking during their lifetimes.
- Unlike grass stalks, few modern-day toothpicks contain significant amounts of abrasive silica.
- Abrasive silica derived from grasses and other, similar plants could be useful in the removal of cavity-causing plaque from humans' teeth.
- The grooves occur on the teeth of some early humans whose remains were found at places where no grass suitable for tooth picking would have been obtainable during their lifetimes.

That Native Americans in colonial North America were thrust into a world at least as new as that confronting the ever-increasing numbers of European immigrants and transplanted Africans is a simple yet important truth that students of the period have overlooked. The failure to explore the Native Americans' new world helps to explain why the history of the colonial period often remains a history of Europeans and Africans. One reason Native Americans have been left out may be historians' apparent inability to fit them into the New World theme, a theme that exerts a powerful hold on historians' imagination. From Turner to Allen, from Herskovits to Littlefield, scholars have analyzed encounters between peoples from the Old World and conditions in the New World. Since Native Americans had not recently arrived from a faraway land, it must have seemed logical to exclude them.

Recent research, however, suggests that perhaps historians should think of a "world" as the physical and cultural milieu within which people live and a "new world" as a dramatically different milieu demanding basic changes in ways of life. Considered in these terms, the experience of Native Americans was more closely akin to that of immigrants, and the idea of an encounter between worlds can, and indeed must, include the original inhabitants of America.

The passage suggests that the "failure to explore the Native Americans' new world" (see highlighted text) resulted from historians'

- emphasis on the contrast between the Old World and the New World
- lack of familiarity with the precolonial history of Native Americans
- inability to document the activities of Native Americans in colonial America
- inability to reconstruct the interactions between Native Americans and immigrants to the New World
- belief that physical environment has little effect on culture

The fabric dye Alidin was recently reformulated to eliminate certain solvents known to cause damage to the ozone layer. When a factory in Bouvierville started to use the reformulated version of Alidin, several workers contracted serious lung ailments. The manufacturer of Alidin denied that the reformulated product could be the cause of the ailments since numerous other factories had also started to use it, and none of their workers had suffered any ill effects.

Which of the following, if true, most seriously weakens the dye manufacturer's argument?

- At the time Alidin was reformulated, a number of other reformulated and new dyeing products became available.
- The manufacturer refused for many years to reformulate Alidin, despite numerous complaints about the damage it was causing to the environment.
- In the Bouvierville factory, many workers who do not use Alidin in their own work nevertheless contracted lung ailments.
- While most dyeing factories apply Alidin by brush, the Bouvierville factory has always sprayed the dye onto fabric.
- None of the solvents eliminated from Alidin was ever suspected of causing respiratory problems.

Now that companies can quickly obtain goods, information, and technology from around the world, conventional wisdom about how companies compete has been questioned. In theory, more open global markets and faster transportation should diminish the role of location in competition. A generation ago, the importance of location to companies' success was widely recognized: because success was determined largely by the cost of "inputs," such as raw materials and labor, locations with some important endowment such as a natural harbor or a supply of inexpensive labor could offer significant competitive advantages. Now, it is argued availability of inputs locally is no longer a source of competitive advantage since any company can obtain these inputs efficiently from a distance through global markets. Instead, competitive advantage today supposedly is gained through continuous innovation and the efficient use of inputs, factors that have conventionally been seen as independent of location.

But if location matters less, what accounts for geographic "clusters" of unusually competitive businesses in particular fields, such as the leather fashion industry in northern Italy? Clusters are concentrations of competitors in a given industry and other entities important to that industry, such as suppliers of components, machinery, and services. Many clusters include other institutions—universities, think tanks, and trade associations—that provide specialized training, information, and technical support. Being part of a cluster allows companies to obtain inputs more efficiently. For example, companies in thriving clusters can tap into an existing pool of specialized employees, thereby lowering their recruiting costs. A well-developed cluster also provides an efficient means of obtaining other important inputs because it encourages the local development of a deep and specialized supplier base; obtaining inputs locally instead of from distant suppliers lowers transaction costs in many cases.

Of course, a cluster also fosters competition among its constituent businesses, a fact that might seem to offset the advantages of cluster membership. Competition for resources among cluster constituents might be expected to render those resources more scarce and therefore more expensive. But companies do have the alternative of obtaining many inputs from distant locations, encouraging local suppliers to offer competitive prices. Furthermore, clusters increase not only the demand for specialized inputs but also the supply of them. Competition among cluster constituents then encourages the innovation that keeps constituent companies competitive in the larger business arena.

It can be inferred that the author of the passage believes which of the following about the development of global markets and faster transportation?

- These developments tend to nullify the competitive advantages that might be expected to result from the growth of local supplier bases near clusters.
- These developments have little effect on the competitive success of businesses because the advent of clusters makes a company's location so crucial to its success.
- These developments are advantageous to certain cluster constituents because they foster price competition between the local suppliers and distant suppliers of inputs needed by those constituents.
- These developments are crucial to certain cluster constituents' ability to achieve continuous innovation because they allow those constituents to recruit specialized workers from a global labor pool.
- These developments have had a greater impact on companies' ability to compete than has been acknowledged by adherents to the conventional wisdom.

Film critic: The essential mark of a great film is that it broadens the psychological horizons of its audience. The usual way to do this is to call into question some of the values or assumptions that the audience members have long taken for granted. Thus, a film that makes the viewer uncomfortable is most likely a great one, since it is inevitably discomforting to have one's core beliefs challenged.

Which of the following is a logical flaw in the film critic's argument?

- It confuses a claim that great films usually have a certain characteristic with a claim that films having that characteristic are likely to be great.
- It overlooks the possibility that there are ways to broaden an audience's psychological horizons without calling into question their core values or assumptions.
- It takes for granted that it is appropriate for a film to call into question the core beliefs of its audience, regardless of what those core beliefs are.
- It confuses two distinct meanings of the word "great."
- It fails to adequately address the possibility that viewers may feel comfortable much of the time when watching a great film even if that film challenges some of their values.

A primary concern among manufacturers polled in a 1998 survey was the inefficiency of trade promotions—inducements offered by manufacturers to retailers to encourage them to reduce retail prices temporarily so as to boost sales volume. Such inducements may include temporarily reduced costs of goods, free goods, or display allowances (fees manufacturers pay retailers to encourage them to allocate premium shelf space to a product). At the heart of manufacturers' dissatisfaction lies concern regarding widespread retailer opportunism. Although consumers know from experience the approximate frequency of promotional pricing, they do not typically have complete information about ongoing trade promotions in a given period, so retailers can profit by sometimes choosing not to pass along their own savings to their customers. Inefficient use of trade promotion dollars has prompted several large manufacturers to adopt an "everyday low price" policy for their goods, but at least one diaper manufacturer found it had to revert to its former pricing strategies in the face of increasing promotional competition from other brands. Adopting an alternative approach, some manufacturers have themselves advertised ongoing promotions. By informing at least some customers about promotions, manufacturers believe they can regulate retailer opportunism by increasing customers' propensity to search for discounted prices.

The author of the passage would be most likely to agree with which of the following statements about consumers' knowledge of retail pricing strategies?

- Consumers believe that retailers do not have the option to charge full price for items that manufacturers tell them to discount.
- Consumers assume that a retailer who offers discounts on some items will inflate the prices of other items to compensate for it.
- Consumers are aware that they can expect to find familiar brands available at discounted prices at fairly predictable intervals.
- Consumers believe that retailers must pay the same price for goods whether or not they offer them at a discount to customers.
- Consumers often do not realize that price discounts typically originate from manufacturers rather than individual retailers.

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It can be inferred that the diaper manufacturer mentioned in the highlighted text of the passage discovered that consumers

- were unlikely to continue to purchase a brand that had a lower regular price in the face of temporary discounts on diapers of other brands
- tended to equate higher prices on diapers with higher quality, and so were willing to pay full price for expensive brands
- usually became loyal to a particular brand of diaper and would purchase that brand whether or not it was on sale
- bought fewer diapers per shopping trip when they knew the diapers would always be available at the same "everyday low price"
- were more willing to search for discounted prices on diapers than for other products typically available in the same stores

Just as paleontologists claim that ecologists' findings about the evolution and extinction of species help eliminate discontinuities in the history of life on Earth, ecologists have recently found that paleontology aids in predicting the effects of rapid climate change and habitat destruction. For example, one paleontological study, in which pollen found in lake sediments was analyzed to determine how North American forests responded to the last ice age, supports one side of a debate over the stability of "ecological communities," or species that evolved in proximity to each other and with some degree of interdependence. Pro-stability ecologists believe that such communities are quite stable due to strong interdependence—so that, for example, tree species that evolve together as a community can be expected to remain together since each significantly affects immediate environmental factors such as soil chemistry and shade. But while the pollen study did indicate that advancing glaciers caused the gradual relocation of three tree species—birch, fir, and spruce—that had comprised one community, it also supported the assumption of anti-stability proponents that the three species did not, after all, move together as would the inhabitants of a town resettling *en masse* on higher ground during flooding. Instead, the spruce trees began to share an ecosystem with sedge grasses, becoming part of an entirely different community.

The author of the passage implies that the findings of the pollen study are likely to

- cause pro-stability ecologists to redefine an ecological community as a group of species that are in constant, although gradual, migration
- help paleontologists answer long-standing questions about the effect of tree communities on soil chemistry
- help ecologists predict the possible effects of climate changes on ecological communities of tree species
- support the assertion of pro-stability ecologists that ecological communities remain intact when forced by climate change to relocate
- persuade anti-stability ecologists to reject paleontological evidence in evaluating their assumptions about ecological communities

Which of the following most logically completes the reasoning?

An archaeological site can be excavated only once, and many sites excavated in the past would have yielded far more information if they had been excavated using current technologies. These considerations have led some to argue that sites that could yield valuable information should not be excavated now since new, archaeologically valuable technologies will almost certainly be developed in the future. Insofar as technological progress is unlikely to stop, consistently following this recommendation over time would ___________.

- maximize the archaeologically valuable information obtained through technological advances
- ensure that virtually no archaeologically valuable information at all would be obtained
- guarantee that the number of potential archaeological sites will continue to increase
- encourage archaeologists to make better use of the latest archaeologically valuable technology
- have the additional benefit of encouraging the development of new archaeologically valuable technologies

Light exists on a spectrum of frequencies extending from gamma rays at the highest frequencies to radio waves at the lowest, though human eyes are sensitive to only a narrow range of frequencies in the middle known as the visible spectrum. The different colors we see correspond to the different frequencies of light within that range. Given that there are so many frequencies of light, one might wonder why our eyes didn't evolve to be sensitive to more frequencies.

Gamma rays from space collide with Earth's atmosphere, which converts some of their energy to heat and creates a distinctive cascade of subatomic particles down toward the ground. However, the rays themselves are entirely absorbed before they can reach Earth's surface. Thus, Earth would appear to be pitch black to eyes that were only sensitive to gamma rays. Similarly, the majority of frequencies of light that are higher or lower than those in the visible spectrum—such as ultraviolet and most infrared frequencies, respectively—are mostly or entirely absorbed by Earth's atmosphere.

One reason we see the frequencies we do is that visible-spectrum light generally passes through our atmosphere without being absorbed or reflected. Another reason is that the Sun, in some respects an average star, emits most of its light at frequencies in the visible spectrum, whereas a hot star emits most of its light at ultraviolet frequencies and a very cool star emits most of its light at infrared frequencies. Indeed, to remarkably high precision, the human eye is most sensitive to the exact frequency in the yellow part of the spectrum at which the Sun is the brightest.

Even if there are living beings on other planets, it is not likely that they would see mainly at very different frequencies than we do. Virtually all gases that are abundant in the cosmos tend to allow frequencies in the visible spectrum to pass through while absorbing other frequencies, and all but the coolest stars put out much, if not most, of their light in the visible spectrum. If there are living beings on other planets, they probably see at roughly the same frequencies as we do, though there may be occasional exceptions.

According to the passage, humans evolved eyes sensitive to a particular part of the spectrum of light in part because

- Earth's atmosphere filters out most of the light emitted by the Sun
- that part of the spectrum constitutes the full range of frequencies that can penetrate Earth's atmosphere
- Earth is primarily composed of materials that do not absorb light in that part of the spectrum
- the majority of the Sun's light is emitted at frequencies in that part of the spectrum
- most other frequencies of light are reflected by Earth's atmosphere

Light exists on a spectrum of frequencies extending from gamma rays at the highest frequencies to radio waves at the lowest, though human eyes are sensitive to only a narrow range of frequencies in the middle known as the visible spectrum. The different colors we see correspond to the different frequencies of light within that range. Given that there are so many frequencies of light, one might wonder why our eyes didn't evolve to be sensitive to more frequencies.

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The reasoning in the final paragraph most strongly implies that the author makes which of the following assumptions?

- The vast majority of the planets in the cosmos have atmospheres.
- Living beings that evolve on planets orbiting hot stars are more likely to develop the capacity to see than are living beings that evolve on planets orbiting average-temperature stars.
- Living beings are most likely to evolve on planets with atmospheres containing gases that are abundant in the cosmos.
- If living beings evolve on planets orbiting the hottest stars, they will likely develop eyes that are sensitive to gamma rays.
- The frequencies of light that pass through a planet's atmosphere without being absorbed are the frequencies that the nearest star emits most abundantly.

A consulting firm compiles a yearly ranking of the world's leading companies according to the amount of money each spent on research. It has shown in the past that spending more on research has no correlation with better financial performance. But this year's study found that multinational companies that took a global approach to research financially outperformed those that concentrated their spending on research in their home market.

Which of the following statements is most strongly supported by the information provided?

- Taking a global approach to research has become necessary in order to achieve business financial success.
- Companies seeking to improve their financial performance can usually do so by increasing their global research spending.
- Only the largest countries are able to provide sufficient research innovation to ensure a leading company's profitability.
- A company with a low ranking in research spending may have better financial performance than a company with a high ranking.
- The company currently spending the most on research and development is not likely to be among the best in financial performance.

Ancient Greek vase-painting provides a consistent portrayal of satyrs (mythological part-goat, part-human creatures) as comic social creatures, fond of wine and given to excess. The statue known as the Barberini Faun is notably different in its depiction. Although scholars agree that the figure is a satyr, the only indication of its wilder, animal nature is a small tail. Apart from this, the figure appears to be a calm, solemn, well-muscled man who is situated in obvious isolation from others. These facts suggest that the statue portrays not just any satyr, but the satyr that King Midas captured by drugging its drink with a sleeping potion.

Which of the following, if true, would most strengthen the argument above?

- The location of the figure suggests that it is vulnerable to attack.
- The satyr in the Midas myth is typically described as a serious and temperate creature.
- Grapes and ivy around the figure's head indicate its association with wine.
- The depicted length of a satyr's tail did not always symbolize a satyr's tendency to excess.
- The Barberini Faun was discovered in the same area as a vase painted with a scene from the Midas myth.

Advertisers must remain aware of how advertising context can influence an audience's perception of an advertisement, and hence its effectiveness. Advertising context, the program or editorial material in which an advertisement is embedded, typically has some positive or negative content that can trigger affective reactions in an audience. In the case of broadcast media, these affective responses are referred to as "program-induced affect" (PIA). Research has demonstrated that positive or negative PIA can be transferred to ad evaluation (Aad) and subsequently to brand evaluations (Ab). Some studies suggest that advertisements can be more effective (i.e., create more favorable Aad and Ab) if embedded in television programs that are upbeat and positive. Other studies, however, have indicated that positive program-induced feelings may not always result in more favorable consumer responses. In addition, the popularity of certain programs, such as tragedies and soap operas, which elicit negative PIA, and the success of ads embedded within those programs suggest that other factors must be considered when examining the effects of advertising context. One such factor is program "liking" (PL). Whereas PIA is a temporary emotional state, PL represents an overall conscious evaluation of, or attitude toward, a program. In general, research has shown that positive PL tends to have a positive effect on Aad. In fact, a 1992 study suggests that PL is a more accurate predictor of Aad than PIA.

It can be inferred from the passage that the "Other studies" mentioned in the highlighted text would best support which of the following claims about consumers who watch upbeat and positive programs?

- These consumers are more likely to experience positive PIA than positive PL when watching these programs.
- These consumers do not necessarily experience positive PIA when watching these programs.
- These consumers do not necessarily transfer the positive PIA from these programs to ad evaluation.
- These consumers tend to be more influenced by positive ad context than by positive ad content when evaluating the ads in these programs.
- These consumers are more likely to transfer the positive program-induced feelings from these programs to ad evaluation than to brand evaluation.

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The passage mentions which of the following as a factor that may influence the effectiveness of a broadcast advertisement?

- Whether the advertisement is of high quality
- Whether the advertisement is intended to be upbeat and positive
- Whether the advertisement contributes positively to program liking
- The point in a program during which an advertisement appears
- The nature of the program in which the advertisement appears

Melanosomes are granules that produce melanin (a type of pigment) in animals and can be found in bird feathers. An ancient fossilized feather contains dark stripes made from preserved carbon structures similar in size and shape to melanosomes in modern feathers. Although skeptics have pointed out that ancient bacteria could leave carbon remains of the same size and shape, a prominent paleontologist argues that the structures in the feather are almost certainly melonosomes.

Which of the following, if true, would most help justify the prominent paleontologist's judgment that the structures are almost certainly melanosomes?

- Modern bird feathers rarely if ever contain the carbon remains of bacteria.
- If the structures in the fossilized feather are melanosomes, they originally created stripes of pigmentation in the feather before it was fossilized.
- Many other fossilized feathers also contain preserved carbon structures similar in size and shape to melanosomes.
- Ancient bacteria of the size and shape of those carbon structures were commonly found in biological structures other than feathers.
- Bacteria in a feather are almost always distributed fairly evenly throughout the feather, rather than in discrete stripes.

Psychologist: In an experiment, volunteers were asked to solve abstract arithmetic problems while their brains were being scanned. The brain scans revealed considerable activity in the linguistic-processing centers of the brain. However, it is likely that this activity reflected passing thoughts that are not an indispensable part of arithmetical reasoning processes.

Which of the following, if true, provides the strongest justification for the psychologist's judgment?

- The volunteers who reported that they had used language in their minds when solving the arithmetic problems were the most efficient in solving them.
- The brain scans revealed activity in several parts of the brain other than the linguistic-processing centers.
- In experiments in which volunteers have been asked to perform mental tasks other than arithmetic while their brains were being scanned, activity was often present in the linguistic-processing centers of the brain.
- Studies have found that some people who have suffered significant head injuries are still capable of solving arithmetic problems.
- A second study using the same problems, but with professional mathematicians as research subjects, found that some solved the problems without any significant activity in their linguistic-processing brain centers.

Historian Annelise Orleck points out most scholars' neglect of an important Depression-era (1929–1939) phenomenon in the United States: activism by working-class homemakers who lobbied for food and rent price controls, staged anti-eviction demonstrations and food boycotts, and created large-scale barter networks. Orleck's research on homemakers' groups acknowledges regional differences in their political styles, but emphasizes a significant commonality: a strong labor-movement affiliation. Male unionists' wage victories during the 1910s had improved working-class families' standard of living, but spiraling inflation and the near-destruction of many unions during the 1920s sharply eroded these gains. Depression-era homemakers' militance was sparked by this steep decline in working-class families' standard of living. It was also rooted in female organizers' own union experiences. In areas where homemakers' organizations flourished, usually union strongholds, women commonly worked for wages before marriage. The wage-earning years of most leading activists in these organizations coincided with a period marked by women's labor militance: 1909 to 1920. Women's union experiences shaped their understanding of the home as enmeshed in a web of social and economic relationships that included unions, the marketplace, and the government. By organizing as consumers, Depression-era women shattered stereotypes of the passive homemaker, showed a keen understanding of their place in larger economic structures, and demonstrated that food and housing, like wages and hours, could be regulated by applying economic pressure.

The author of the passage mentions the wage-earning years of the leading activists of homemakers' organizations in the highlighted text primarily in order to

- help account for the number of women who were union members between 1909 and 1920
- identify a possible reason for changes in working-class families' standard of living during the 1910s
- distinguish certain tactics used by homemakers' organizations from those used by union members
- show how women began to exercise their power as consumers during a particular period
- help support an assertion about a source of homemakers' militance

Paleontologist: The giant pterosaur *Quetzalcoatlus* had an eleven-meter wingspan and was too heavy to take off merely by flapping its wings, even with a running start. One biomechanics researcher found that *Quetzalcoatlus* had wings that were far sturdier than it would have needed during flight, and concluded that it took off by using the wings as forelimbs, beginning its flight by leaping with all four "legs." However, this hypothesis is implausible, since *Quetzalcoatlus* had to attain a speed of at least forty-eight kilometers per hour to take off, which would have been impossible from a standing jump.

Of the following, which, if true, would be the most effective rebuttal the biomechanics researcher could make to the paleontologist's argument?

- *Quetzalcoatlus* could plausibly have taken off by diving off a cliff from its hind limbs, then using the fall to accelerate.
- Most other pterosaur species are known to have taken off by flapping their wings after a running start.
- The sturdy forelimbs of *Quetzalcoatlus* could have helped it to subdue its prey when not in flight.
- *Quetzalcoatlus* could plausibly have run fast enough to take off by leaping into the air after a running start.
- Researchers know of no plausible way in which any giant pterosaur species could have attained a speed of 48 kilometers per hour before taking off.

Industry's environmental improvement efforts have traditionally focused on pollution control through identifying, processing, and disposing of discharges or waste. Recently, more progressive companies have embraced the concept of pollution prevention, using such methods as material substitution and closed-loop processes to prevent pollution. Regardless of their approach to dealing with pollution, however, many companies view pollution treatment or control as too expensive. But companies must learn to view environmental improvement in terms of efficient use of resources and to recognize that pollution has "opportunity costs"—wasted resources, wasted effort, and diminished product value for customers.

This view of pollution as resulting from inefficient use of resources evokes the history of the "quality revolution" of the 1980s. Before that revolution, many managers believed that improving product quality was prohibitively expensive because it could be achieved only through additional inspections and reworking of "inevitable" product defects. What lay behind the old view was the assumption that both product design and production processes were unalterable. As a result of the quality revolution, companies now view defects as a sign of inefficient product and process design, not as an inevitable by-product of manufacturing.

Like product defects, industrial pollution often reveals flaws in product design or production processes. Companies can eliminate pollution and follow the basic principles of the quality revolution by using materials more efficiently, by obviating the need for hazardous and hard-to-handle materials, and by eliminating unneeded activities.

In the context of the passage as a whole, the function of the second paragraph is to

- provide an evaluation of the pollution-prevention methods described in the first paragraph
- introduce evidence that supports the traditional approach mentioned in the first paragraph
- present an analogous situation that helps to explain the position taken in the last paragraph
- describe how the principles of the quality revolution have been applied to pollution-prevention methods
- explain how the principles underlying the quality revolution have affected pollution-prevention methods

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The term "opportunity costs" as it is used in the passage refers to which of the following?

- Costs to the consumer of new product development
- Financial ramifications of keeping pollution control costs low
- Opportunities to stop pollution before it begins
- Possibilities lost because of pollution
- Costs to industries of preventing pollution

Police Chief of Megalopolis: Five years ago, the city's police department introduced innovative policing strategies. **Since then, the crime rate in Megalopolis has declined significantly**. Our new strategies should be credited with bringing about the decline. It has been objected that there have been significant declines during the past five years in crime rates throughout the nation and that therefore **Megalopolis' crime rate would probably have declined even without the new policing strategies**. Once we had introduced the new strategies, however, they were soon adopted by police departments in cities throughout the nation, and it was only then that crime rates in those cities began to decline.

In the police chief's argument, the two **boldface** portions play which of the following roles?

- The first is the main conclusion of the argument; the second provides evidence in support of that conclusion.
- The first is the main conclusion of the argument; the second is a conclusion that was drawn to cast doubt on that main conclusion.
- The first presents a phenomenon, a certain explanation of which the argument seeks to defend; the second is a conclusion that was drawn to cast doubt on that explanation.
- The first presents a phenomenon, a certain explanation of which the argument seeks to defend; the second presents evidence to support that explanation.
- The first presents a phenomenon, a certain explanation of which the argument seeks to defend; the second is the main conclusion of the police chief's argument.

Recently, linguists have begun to focus on differences evident in many cultures in the ways men and women speak, and on the ways that men and women exercise power through control of certain key speech genres. One example of such exercise of power appears in the culture of the Warao, an indigenous people of Venezuela. Through the custom of ritual mourning, in which lamentations are composed and sung exclusively by women, Warao women command an important and highly public forum for commenting on and affecting social processes.

The ritual inversion of ordinary discourse and social patterns that characterizes mourning provides women, who do not hold formal positions of authority in Warao culture, with a public forum parallel to that of community officials. Death moves all survivors except the singers of the laments to the margins of life, and normal activities are suspended. Food is neither procured nor eaten, and the house in which the mourning takes place becomes a spatial representation of such inversion, as the cooking fire is extinguished and the area becomes a funeral parlor. With normal activities suspended, the full attention of the community is directed to the lamentations.

Warao women, who otherwise are seldom involved in public discourse, use this forum to powerful effect. Because reported (or invented) conversations between community members form a large part of the laments, the singers are able to reformulate and characterize the speech of others, as well as present their own views of events. In one lament, for example, the singer offers her own positive interpretation of her deceased son's behavior while characterizing community officials' discussions of that behavior not as the authoritative discourse of leaders but as "idle talk." Warao mourners also use irony as an effective verbal strategy: they may, for example, use mocking epithets in reference to high-ranking figures. They undermine points of view with which they disagree by presenting them in a highly exaggerated fashion. Frequently, the laments explicitly lead to particular courses of action—one lament blaming youths from a neighboring township for the death of a local boy resulted in the banning of those youths from the mourners' community.

Which of the following best states the main idea of the passage?

- The custom of ritual mourning affords Warao women an influential role within their communities.
- The Warao custom of ritual mourning has inspired linguists to focus on differences in the ways men and women speak.
- Among the Warao people, ritual mourning serves to undermine the authority of community officials.
- Linguists have recently begun to realize that men and women speak in different ways in the mourning customs of many cultures.
- In many cultures, the ability to reformulate and characterize the speech of others conveys public authority.

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The passage suggests which of the following about the lament discussed in the highlighted text?

- The singer was renowned for her effective use of irony.
- Relatives of the deceased had asked the singer to express her own view of events.
- Community officials had spoken disapprovingly of the behavior of the singer's son.
- The singer's son had used mocking epithets in reference to high-ranking figures.
- The death of the singer's son had been caused by youths from a neighboring township.

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Which of the following is mentioned in the passage as an important component of Warao lamentations?

- Elaborate metaphor
- Actual or fictional dialogue
- Direct address to the deceased
- Comedic narrative
- Complicated rhythmic patterning

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The passage suggests all of the following about Warao mourning lamentations EXCEPT:

- Different lamentations are composed for different circumstances.
- Dialogue is an important feature of the lamentations.
- The lamentations reflect the opinions of the community authorities.
- The lamentations are heard by many members of the community.
- The lamentations mention other figures in addition to the deceased.

Sonex Corporation employees use computers in their daily work, and a small percentage of them develop vision-related problems as a result. These problems can be reversed, and recurrences prevented, by modifications to individual computer work spaces. Because implementing these modifications for all employees would be somewhat costly, Sonex's policy is to implement modifications only when an employee reports vision-related problems. However, such modifications would enhance the productivity of all of Sonex's employees.

The information given, if accurate, could best be used in support of which of the following positions?

- It would be to Sonex's advantage to reduce the number of its employees.
- Sonex employees would require training in how to use the modified computer workspaces.
- Sonex's current policy might not be to its long-term advantage.
- When Sonex's current computer work spaces were designed, it was known that the design might induce vision problems.
- Sonex's computer work areas must be modified in order to satisfy industry standards.

Jacob: Public funding of the arts is worthwhile for our city because publicly funded art makes the city more attractive to new residents and businesses, thus enhancing the city's tax base.

Andrew: That argument is misguided. Art's true value lies in being a profound expression of human nature. Funding art solely in order to reach economic goals debases it by disregarding its intrinsic value.

Based on their statements, Jacob and Andrew most clearly disagree about whether

- a sufficient rationale for public funding of the arts in the city is the potential effects on the city's tax base
- publicly funding the arts in the city would make the city more attractive to new residents and businesses
- public funding of the arts is likely to be economically worthwhile for the city
- publicly funding the arts in the city would lower the artistic quality of the arts there
- funding the arts while respecting art's intrinsic value necessarily entails ignoring issues concerning what monetary costs are reasonable

A group of anthropologists has argued that Europeans may not have been, as generally believed, the first to bring chickens to South America. The group cites European accounts dating from the arrival of Europeans in South America around five hundred years ago that suggest that the Inca had already incorporated chickens into religious ceremonies. Further, a DNA comparison suggests a Polynesian origin for a chicken bone unearthed at Chile's El Arenal site, where other artifacts have been dated to over six hundred years ago.

Which of the following would, if true, most seriously weaken the anthropologists' argument as reported above?

- Preserved sweet potatoes up to one thousand years old from Polynesian archaeological sites most likely originated in South America.
- The ages of other chicken bones found in the vicinity of the El Arenal site have been established by an absolutely irrefutable method.
- Analyses of ancient Polynesian canoes suggest that they could have been used for voyages to places as far away from Polynesia as South America.
- The Europeans often mistook certain South American ducks for chickens.
- Given ocean currents, it is just as likely that South Americans traveled to Polynesia centuries ago as it is that Polynesians traveled to South America.

Although some historians trace the origin of British trademark law to Roman times, the medieval guilds, or the sixteenth-century legal case of J. G. Samford, nothing like the modern notion of trademark law took shape until the latter half of the nineteenth century. In fact, we can probably say that, as of 1850 in the United Kingdom (UK), it made no sense to talk of "a law of trademarks" as such.

To say there was no "law of trademarks" does not mean that there were no laws regulating misrepresentation in trade. However, the protection afforded to traders who found themselves victims of the fraudulent imitation of their marks was scattered across different sources (trade-specific statutes or maverick judicial decisions) and lacked any unifying logic.

By 1850, the complex state of the body of these laws was a real cause of inconvenience and expense to traders who wished to gain protection in the UK for their trademarks. Moreover, it was an obstacle to the development of international agreements that would help garner protection for British traders' marks abroad. And there certainly was a sense that British traders needed protection abroad, as the markets for their goods in the UK, the British colonies, and elsewhere were being penetrated by counterfeit goods.

Which of the following factors is NOT mentioned in the passage as having helped motivate the development of modern British trademark law?

- The expense of gaining protection against fraudulent imitation in the UK
- A general trend in the British legal system toward searching for a unifying logic in similar statutes from different sources
- An influx of counterfeit goods into markets outside of the UK
- The inconvenience traders experienced due to the complexity of trademark protections in the UK
- The difficulty of developing agreements to protect against fraudulent imitation of British traders' marks abroad

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According to the passage, which of the following statements about trade in the UK prior to 1850 is correct?

- Laws regulating misrepresentation in trade came from a variety of disparate sources.
- Most traders used guild-specific marks as identifiers on their goods.
- Imitating other traders' marks was not the most common type of fraud committed by unscrupulous traders.
- Using the existent laws regulating misrepresentation in trade, a trader could seldom gain protection against fraudulent use of a mark.
- Misrepresentation in trade primarily affected traders working in the British colonies.

Nutritionist: For years people have believed that irradiating food to kill bacteria makes it less wholesome. Although their worries may have subsided, that belief appears to be well-founded: The research group that published a widely influential report dismissing health concerns about irradiated foods is heavily funded by segments of the food industry that desire widespread acceptance of irradiation. Because the group is so patently biased, the report's assurances should be looked at critically.

The nutritionist's argument is most vulnerable to the criticism that it

- concludes, merely because the report's author may be biased, that the report's assurances should be viewed with caution
- fails to adequately address the possibility that there are also segments of the food industry that desire that irradiation be seen negatively by the public
- draws a conclusion about the motivations of people who favor a particular position based on a sample that may be unrepresentative
- concludes that a position is well supported merely because some who have rejected that position may have been biased
- fails to adequately address the possibility that irradiation may not be advisable even if the specific worries the public has had about it are ill-founded

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Physicist: A kilogram of antimatter mixed with a kilogram of matter would, through their mutual annihilation, release half as much energy as all the gasoline burned in the United States in 2005. But this process will never provide a practical means of generating energy: no known natural sources of antimatter are available, and the most efficient antimatter generator now in existence would have to run for 100 trillion years to make a kilogram of antimatter.

Which of the following is an assumption required by the physicist's argument?

- No other fuel could release as much energy per kilogram as antimatter when it is mixed with matter.
- Present physics indicates that antimatter is unlikely to exist anywhere in large enough quantities to be usable as fuel.
- No antimatter has yet been found in large enough quantities to be perceived by the naked eye (without magnifying instruments).
- We will never, in the future, build an antimatter generator efficient enough to produce, within a practical amount of time, a sufficient amount to be practical as a fuel.
- Making a kilogram of antimatter would take less than half as much energy as was released by all the gasoline burned in the United States in 2005.

Waveton hosts an annual weeklong crafts fair at which there are numerous food vendors. Food vendors are subject to the city's restaurant tax, and in a typical year the city collects about $20,000 in restaurant taxes from the fair's food vendors. Therefore, if the fair were to discontinue having food vendors, Waveton's revenue from the restaurant tax would decline by about $20,000.

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

- Providing appropriate facilities for the food vendors at the crafts fair costs Waveton less than $20,000 a year.
- Attendance at the crafts fair would not decline significantly if there were no food vendors there.
- Few people who eat food from the food vendors during the week of the crafts fair would eat at Waveton's restaurants instead if the food vendors were not available.
- The food vendors at the crafts fair report their sales for the week of the fair accurately for tax purposes.
- The average price of food purchased from the crafts fair's food vendors is significantly lower than the price of similar food eaten at restaurants in Waveton.

Although it is sometimes claimed that consuming caffeine at high levels does not cause insomnia, statistical evidence shows that it does. Study after study has found that people with high levels of caffeine consumption from beverages such as coffee, tea, and soft drinks are far more likely to suffer from insomnia than people who consume little or no caffeine.

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

- Consumption of caffeine from sources other than coffee, tea, and soft drinks is unlikely to cause insomnia.
- Caffeine consumption is the only commonly occurring cause of insomnia.
- People suffering from insomnia do not typically respond to their lack of sleep by consuming much more caffeine than they would if they did not suffer from insomnia.
- The only evidence available to show whether caffeine causes insomnia is statistical evidence showing correlations between caffeine consumption and insomnia.
- Anyone who regularly consumes caffeine in more than moderate quantities will suffer from insomnia.

In an economic downturn, companies tempted to take advantage of job applicants as unemployment rates rise should reconsider, for such actions could hurt these companies when the economy recovers. Researchers surveyed employees about their experiences as applicants with their current employers. Those who felt they had been treated unfairly during hiring were twice as likely to respond that they were looking for jobs outside their company, even after five years. Among the actions applicants considered unfair were slow responses from employers and pressure to accept offers quickly.

Which of the following would, if true, most strengthen the reasoning above?

- Recovery from an economic downturn usually affects company profits before it affects hiring practices.
- The unwillingness of a company to negotiate compensation levels is often considered unfair.
- During an economic downturn, the jobs available outside one's current company are usually limited.
- An economic recovery usually occurs less than five years after the start of an economic downturn.
- A rising unemployment rate is a widely accepted indication of an economic downturn.

Frequently it is advantageous to businesses to offer a group of products or services as a package, or "bundle." Bundles of existing products act like new products in the marketplace but typically are less expensive and risky to create and require less time to introduce. Aggregation bundling is a market-expanding strategy that involves creating a bundle that will appeal to numerous customer segments, albeit for different reasons; the goal is to reach a large market and reduce complexity by marketing fewer separate products. For example, a credit card may include a wide variety of services, such as car rental insurance and a purchase protection plan. Even though it is unlikely that large numbers of subscribers are interested in all the available services, they all use the same card.

Loyalty bundling is another such strategy, where the goal is to expand sales by reducing a customer's incentive to sample and perhaps switch to a competitor's product. For example, a cereal company sometimes offers "variety packs," each with several different brands of that company's cereal. But whatever the bundling strategy, manufacturers must be careful to offer bundles whose value is perceived as greater than the sum of the individual components, to avoid the impression that portions of the bundle are wasteful. Additionally, manufacturers often benefit from continuing to offer specialized products separately (at a relatively higher price) to attract certain customers.

The author of the passage implies that which of the following is true of bundling as a market-expanding strategy?

- The bundling of services may be counterproductive when it appears unlikely that a large number of customers will be interested in all the services offered.
- Bundling is likely to give customers the impression that portions of the bundle are wasteful, and this can result in disappointing sales.
- Bundles of services are typically more difficult to market successfully than are bundles of products.
- Bundling can be useful as a "last resort" strategy to dispose of products that have not sold well separately.
- The marketing advantages of bundling are not undercut when a company continues to offer some of the bundled products separately.

To grant a patent for a product, thereby entitling its inventor to control its use, patent officials must judge that the product contains an innovation that would not be obvious to experts in the relevant field. There are many fields in which no patent official is expert, so almost certainly many patents are being granted for products that in fact contain no such innovation.

The argument relies on which of the following assumptions?

- Products are never invented by people who are not experts in the relevant field.
- Few experts in a field invent products that contain innovations that are obvious.
- Most experts would prefer to work in their own fields than in the patent office.
- Most new products contain innovations that are not obvious to experts in the relevant field.
- Patents are not customarily granted on the basis of advice from experts outside the patent office.

Studies have found that most consumers undertake little prepurchase research into durable goods (goods that are typically used repeatedly over a period of years) and do even less price-comparison shopping, despite the reported importance of price to consumers' purchase decisions. In view of this finding, it is interesting that studies have documented considerable price variation for durable goods within local markets. Moreover, prices of more expensive durable items tend to exhibit the greatest price variation from store to store.

Why does consumers' willingness to engage in price-comparison shopping not increase concomitantly with price variation of durable goods? One potential explanation is that consumers simply underestimate the potential savings from comparison shopping and undertake less comparison shopping than expected. A second possible explanation builds upon Thaler's transaction utility theory, which suggests that the psychological utility that a consumer derives from saving a fixed amount of money, say $20, is inversely related to the price of the item. For example, a consumer may spend more time comparison shopping for a $100 microwave oven than for a $400 television, even though the consumer expects to find a $20 savings in either case; the explanation for this behavior appears to be that the relative savings seem dramatically higher for the microwave than for the television.

The passage suggests that which of the following is true of prices of durable goods?

- Durable goods tend to exhibit greater price variation at the local level than they do at the regional or national level.
- Durable goods tend to exhibit more price variation from store to store than do other types of consumer goods.
- Durable goods tend to exhibit less price variation from store to store than do other types of consumer goods.
- The prices set by manufacturers of durable goods reflect the fact that those manufacturers are aware that consumers are unlikely to comparison shop.
- Consumers willing to comparison shop are more likely to discover greater price variations on relatively expensive durable goods than on lower-priced durable goods.

As a large corporation in a small country, Hachnut wants its managers to have international experience, so each year it sponsors management education abroad for its management trainees. Hachnut has found, however, that the attrition rate from this program is becoming increasingly high, with many especially promising participants leaving Hachnut to join competing firms even before completing the program. **Hachnut does use performance during the program as a criterion in deciding among candidates for management positions**, but it finds itself more and more in the position of selecting from a critically depleted pool of candidates. The program is thus beginning to work against Hachnut's interest. Therefore, **if the attrition problem cannot be successfully addressed, Hachnut should discontinue the sponsorship program**.

In the argument given, the two boldfaced portions play which of the following roles?

- The first describes a practice that the argument seeks to justify; the second states the main conclusion of the argument.
- The first describes a practice that the argument seeks to justify; the second identifies a standard that any successful justification would have to meet.
- The first is an intermediate conclusion that is drawn in order to support the main conclusion of the argument; the second states that main conclusion.
- The first introduces a policy that the argument seeks to evaluate; the second states a criterion to be used in that evaluation.
- The first raises a consideration against abandoning the policy that the argument seeks to evaluate; the second states the evaluation at which the argument arrives.

A publishing company, renowned for its high-quality, collectible illustrated hardcover editions of classic literature, is observing the e-book trend while choosing to continue focusing on their niche market. The company plans to expand globally, relying on the unique appeal of their editions to drive sales in the face of digital competition.

Which of the following, if true, would provide the strongest evidence that the publishing company's global expansion strategy will be commercially successful?

- Demographic studies indicate a growing segment of young adults who show interest in building personal libraries with aesthetically appealing and collectible book editions.
- An international survey of reading habits reveals a sustained interest in classic literature, with a significant number of readers expressing a preference for physical books over e-books for certain genres.
- Data from book fairs and literary festivals around the world show an increasing engagement with and spending on deluxe editions of classic titles.
- Analysis of global book sales trends shows a niche but steadily growing market for collectible editions of books, contrasting with the plateauing growth of e-books sales.
- Market research indicates that high-quality, physical book editions are increasingly viewed as luxury items, with several countries showing a rising trend in luxury goods spending.

Public Health Official: A recent study concludes that the new public park in Downtown Metroville has not contributed to an overall improvement in residents' physical fitness. This conclusion is based on a citywide survey showing no significant change in average weekly exercise hours reported by residents after the park's opening. However, this conclusion may be too simplistic. The same period saw a substantial increase in the number of gyms and fitness centers across Metroville. Additionally, there was a marked rise in the use of online fitness programs, likely due to the recent expansion of high-speed internet services in the area.

In this passage, the public health official attempts to challenge the study's conclusion by:

- pointing out the limitations of the study's scope in assessing the impact of the public park on physical fitness.
- suggesting that the study's reliance on self-reported data might not accurately reflect the actual change in residents' physical fitness.
- introducing additional factors that could have influenced the citywide physical fitness trends during the same period.
- questioning the validity of using the number of weekly exercise hours as a measure of physical fitness.
- arguing that the study's timeframe was not sufficient to capture the long-term impact of the public park on residents' fitness.

In an attempt to improve their user experience, a software company is trying to determine whether their new user interface design is responsible for the increased user engagement observed over the past six months. The company rolled out the new design around the same time it launched a major marketing campaign. It is unclear whether the increased engagement is due to the improved interface or the effects of the marketing campaign.

Which of the following would, if available, best help in determining whether the new user interface design is responsible for the increased user engagement?

- Survey responses indicating that most users became aware of the software through the recent marketing campaign.
- Feedback from long-time users who had previously rated the old interface poorly but now rate the new interface highly.
- Reviews from new users who started using the software after the marketing campaign and mention the user interface specifically.
- A report indicating a significant increase in user engagement metrics immediately following the start of the marketing campaign.
- Data showing that users who have been using the software for more than a year also showed increased engagement after the new interface was introduced.

In a city's public library system, librarians noticed that the number of visitors attending educational workshops significantly increased when the event descriptions highlighted practical skills and career advancement opportunities, rather than just the enjoyment of learning. Education specialists hypothesize that emphasizing practical outcomes makes participants more motivated to attend because it aligns with their goals of personal development and professional growth.

Which of the following, if true, most strongly supports the education specialists' interpretation of this increase in attendance?

- Many of the individuals who attended the workshops were seeking to acquire new skills for job advancement or career changes.
- Attendees often reported that they found the workshops enjoyable and intellectually stimulating, regardless of the focus on practical skills.
- Most of the library visitors who attended the workshops had previously shown interest in personal development seminars and career counseling.
- Libraries that offered a diverse range of workshops, including those focused on personal hobbies and interests, saw an overall increase in visitor numbers.
- The frequency of workshop attendance increased when librarians actively promoted events as opportunities for professional development and networking.

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Price promotions, such as temporary price reductions or coupon offers, have a large, measurable, immediate effect on a brand's sales. However, such promotions increase price sensitivity, which constrains profitability because it becomes more difficult to raise prices. Furthermore, price promotions become increasingly less effective, making it necessary to offer more costly promotions in the future. Finally, price promotions encourage consumer stockpiling (buying more, less often), which leads to greater volatility in sales, exacerbating the task of managing inventories, thereby increasing costs and further reducing profitability. Therefore, retail managers should __________.

Which of the following most logically completes the argument above?

- negate the effects of price promotions on individual brands by promoting more brands in a constant but ever-changing mix
- use price promotions relatively rarely
- offer price promotions only for overstocked items
- offer shallow price discounts during promotions
- raise prices after promotions to levels above those prior to promotions

The date of the Rimienti World Map, drawn in Italy, is unknown. The map accurately depicts the coastline of western Africa down to the Cape of Good Hope, near Africa's southern tip. In 1488 Portuguese explorers became the first Europeans to reach the Cape. Since it would have taken at least a year for their information to be brought back to Europe and incorporated into maps, the Rimienti World Map could not have been made before 1489.

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

- Portuguese authorities generally tried to keep information about Portuguese voyages secret for as long as possible.
- A map as complicated as the Rimienti World Map would have required at least half a year for a professional cartographer of the 1400's to complete.
- It would not have taken more than a year for geographical information to travel from Portugal to Italy.
- Italian cartographers did not get the information for the Rimienti World Map directly from African sources.
- No accurate map of any parts of the coastline of western Africa appeared before the Rimienti World Map.

Paleontologist: Sifrhippus, a miniature horselike animal, lived about 56 million years ago. The average weight of Sifrhippus adults declined from 5.4 to 3.9 kilograms during a period of climatic warming that lasted about 175,000 years, then rose as the climate cooled again. The most likely explanation is that smaller mammals can shed heat more easily than larger ones—Sifrhippus must have adapted to the hot climate by shrinking because larger individuals would more often have died from overheating.

Which of the following would, if true, most strongly support the paleontologist's hypothesis?

- The climatic warming shrank Sifrhippus habitats, and larger habitats can generally support larger animals.
- Before the climate warming period, Sifrhippus went through several changes in average body size and weight that did not coincide with changes in climate.
- Several species of small mammals went extinct during the period of climatic warming, while many larger species thrived.
- Sifrhippus populations increased in numbers during the period of climatic warming, then decreased again as the climate cooled.
- During the climatic warming period, Sifrhippus adults weighed more, on average, in populations in cooler habitats.

Although most anthropologists believe humans first arrived in New Zealand in the late thirteenth century, others have dated the arrival to much earlier—around 200 BC. The earlier arrival date was based on 1996 research that carbon-dated bones of rats, which are thought to have been brought to New Zealand by humans. With no evidence of human settlements that early, critics suggested that the carbon dates were due to lab errors in preparing the bones.

Now, a team led by Janet Wilmshurst has applied an improved preparation technique to other rat bones collected from excavation sites where the oldest New Zealand rat remains were found. The new rat-bone dates are all more recent than AD 1280. The Wilmshurst team's carbon dating of bones from the previous study indicated that these, too, were more recent than AD 1280. They also carbon-dated seeds from the oldest rat-bone sites. Some of the seeds were nearly four thousand years old, but none of those with distinctive rat-gnaw marks was older than about AD 1290.

Wilmshurst's findings provide convincing evidence that neither rats nor people reached New Zealand before the thirteenth century AD. So the devastating ecological impact of humans on New Zealand, such as deforestation and the extinction of animal species (the rats themselves wiped out several species, including some birds and frogs), took only about six hundred years, rather than over two thousand years.

The final paragraph serves primarily to

- provide additional evidence to help support the conclusions drawn from Wilmshurst's research
- call for additional research to explore the implications of Wilmshurst's research
- illustrate how disagreements within the scientific community can affect those outside that community
- suggest a way in which the rats' arrival date is relevant to another issue regarding New Zealand history
- demonstrate that the procedures used by the researchers in the 1996 study were flawed

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The passage most strongly suggests that which of the following statements is true of the critics mentioned in the first paragraph (see highlighting)?

- Their skepticism regarding the 200-BC carbon dating of the rat bones was based on the results of the research project that is described in the second paragraph.
- Their position regarding the 200-BC carbon dating of the rat bones was motivated by the fact that the 1996 research did not date any rat-gnawed seeds from the excavation sites.
- They questioned the assumption that rats first arrived in New Zealand at the same time as humans.
- They were skeptical of the claim that humans' importation of rats had a devastating impact on New Zealand's ecosystems.
- Their belief that humans first arrived in New Zealand much later than 200 BC did not depend on any of the carbon-dating of rat-bones mentioned in the passage.

Scientists have discovered a remarkable undersea field of hot springs and gigantic chimneys, unlike anything seen before, and named it Lost City. Geologist Deborah Kelley led an expedition to analyze Lost City, obtaining results that have prompted reconsideration of how life on Earth first emerged and of where extraterrestrial life might also exist.

Around most hydrothermal vents, the seawater is extremely acidic and reaches temperatures over 400 degrees Celsius. But at Lost City, the water is alkaline and no hotter than 90 degrees Celsius. And unlike other hydrothermal vents, those at Lost City are situated on seafloor consisting mainly of rock called peridotite. Seawater reacts with the peridotite, producing energy-rich gases such as hydrogen and methane. Some scientists speculate that these gases could have fostered the emergence of life on Earth. A famous experiment conducted in 1952 showed that sparks discharging through energy-rich gases produce many organic compounds, including amino acids, which are components of all living things. However, geologists later concluded that these gases were probably not concentrated enough in Earth's early atmosphere to form such compounds.

But the gases are far more concentrated in the Lost City waters. Billions of years ago, could vents resembling those at Lost City have produced the organic compounds required for life? Hydrothermal fluids at Lost City contain certain organic compounds. And on early Earth, peridotite probably comprised most of the seafloor, making conditions like those at Lost City far more common than they are today.

Lost City also teems with microbes such as methanogens, which metabolize hydrogen and generate methane. Each step in the geothermal process that generates methane is replicated in the biochemical pathways of these methanogens. This suggests that on early Earth, the methanogens' primordial ancestors at sites like Lost City may have simply co-opted each of the geochemical steps for themselves, producing the first biochemical pathways, which their descendents have inherited.

The Lost City findings also suggest that extraterrestrial life could exist on any planet or moon containing peridotite and liquid water. Evidence of these components is strongest on Mars and on Jupiter's moon Europa, and researchers have detected methane in the Martian atmosphere. Whether the methane comes from microbes or chemical reactions remains uncertain.

The question asked in the third paragraph (see highlighted text) serves mainly to

- suggest a hypothesis that the other sentences in the third paragraph help support
- raise doubts about a hypothesis stated explicitly in the second paragraph
- rhetorically imply that the main conclusion of the passage as a whole needs additional support
- indirectly help explain the presence of the geothermal process discussed in the fourth paragraph
- indicate the issue that most strongly motivated Kelley to lead her expedition to analyze Lost City

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To support the hypothesis that hydrogen and methane fostered the emergence of life on Earth, the passage mentions the

- concentrations of these gases in Earth's early atmosphere
- discharge of sparks through gases around hydrothermal vents
- likely composition of the early Earth's seafloor
- temperature and alkalinity of the seawater on ancient Earth
- chemical reactions of seawater with energy-rich gases

Naomi: One critical interpretation of an artwork is superior to another if, all other things being equal, it accounts for more aspects of that work. For example, accounting for a work's style and content is superior to accounting for only its style.

Harold: But you're leaving out an essential element: the quality of the interpretation. It's ridiculous to suggest that simply addressing more aspects of a work is a mark of superiority.

Harold's response is most vulnerable to the criticism that it

- does not offer a counterexample to disprove Naomi's claim
- mischaracterizes Naomi's argument in the guise of restating it
- fails to consider that Naomi may have additional criteria in mind
- fails to establish that the quality of an interpretation can be ascertained
- claims that Naomi's reasoning leads to an absurd conclusion when taken to an extreme

In recent years, variations of the "precautionary principle" have been adopted in international environmental agreements and regulations. Advocates of its use in such contexts hold that where there is a threat of serious or irreversible environmental damage, lack of a consensus regarding the scientific certainty of the threat should not be used as a reason for postponing cost-effective environmental regulations to prevent the damage. Advocates argue that the precautionary principle reinforces commonsense notions of environmental stewardship. Opponents, however, view it as a fundamentally unscientific rule that exploits the public's fear of the unfamiliar and promotes radical environmental agendas or protectionist trade policies disguised as environmental regulations.

Advocates counter that the precautionary principle's application is justified by science's demonstrated fallibility in anticipating environmental hazards such as asbestosis and ozone depletion. Additionally, they say, some potential environmental hazards cannot be predicted with any certainty by existing scientific methods. Thus, the precautionary principle would allow potentially harmful activities to be regulated even if conclusive proof that harm will occur has yet to be established. However, given that environmental regulations entail real costs—e.g., concern with improbable risks can consume resources that could be better applied to higher-probability risks—opponents also note that the precautionary principle can be taken too far.

The distinction between uncertainty and what might be called "true uncertainty" is important to understanding the scope of the precautionary principle. Uncertainty generally refers to situations in which outcomes are probabilistic in nature, but for which a probability distribution can be formulated. True uncertainty refers to situations in which even the probability of an outcome is not known. It is this latter situation with which advocates of the precautionary principle are primarily concerned. For example, trials may be performed to determine the frequency with which a particular gasoline storage tank will fail in relation to its age—an uncertain harm—which in turn may be used to formulate a probability distribution on which to base regulations. Truly uncertain harms, such as global warming, often arise when controlled testing is impossible and there is no experience from which to construct a probability distribution.

The final paragraph of the passage functions primarily to

- provide evidence that supports the argument presented by advocates of the precautionary principle
- summarize the argument presented by advocates of the precautionary principle
- provide evidence that calls into question the main argument presented by opponents of the precautionary principle
- clarify the type of situations to which the precautionary principle would be considered applicable by its advocates
- provide real-world examples of the appropriate application of the precautionary principle

Protectionist trade restrictions harm large segments of society for the benefit of a smaller segment. For example, every time the steel industry asks for tariffs on steel imports from foreign countries, someone correctly points out that if that wish were granted, it would harm the United States auto industry and other steel users, not to mention consumers. Protectionist trade restrictions serve particular interests and only rarely also the general welfare. But the U.S. Constitution requires the government to serve the general welfare. It follows that ___________.

Which of the following best completes the passage?

- trade restrictions of any kind are unconstitutional
- most U.S. domestic industries are probably helped, not hindered, by foreign competition
- protectionist trade restrictions are usually incompatible with the U.S. Constitution
- government measures that serve the general interest are generally compatible with the U.S. Constitution
- the general welfare requires protectionist trade restrictions

According to Christopher Leo, reviewing Douglas Rae's book *City: Urbanism and Its End*, Rae draws on his experience as a city manager to argue that the most dramatic and direct contribution of automobiles to urban decline was to overwhelm city centers with traffic congestion, rather than to make urban residents' flight to the suburbs easier. Leo says this contradicts conventional wisdom among scholars of urbanism.

According to Leo, Rae's view that traffic congestion kills cities fails to notice that the most successful cities all suffer from serious congestion, while unsuccessful cities, persuaded by their engineers, build roads in vain, in many cases until there is no city center left. Leo writes: "If we could find one example of an obviously successful city—say London, New York, Tokyo, or Toronto—whose economy was harmed by excess traffic, the road engineers' argument might gain some credibility. But ordinary observation suggests that complaints about traffic and parking are not a major concern in those cities, which actually have serious traffic and parking problems—but are a constant refrain" in some other North American cities. In one such city, Leo writes, parking complaints that would be "considered laughable" in the Canadian city of Vancouver are "offered as reasons for not spending time in a downtown that is beset by urban decay."

If Leo's views as represented in the passage are correct, which of the following would, if true, most help explain why serious traffic and parking problems in certain cities have relatively little, if any, negative effect on those cities' economic success?

- Some metropolitan areas are more successful than others in arranging traffic flow to eliminate or significantly reduce traffic and parking problems.
- Some cities that are economically successful and succeed in solving their traffic-congestion problems become even more successful economically.
- The economies of cities like London, New York, Tokyo, and Toronto are driven primarily by international trade that is little affected by traffic congestion.
- The roads of New York and Toronto were built much more recently than those of London and Tokyo.
- Many successful cities do not have traffic congestion or parking problems.

Which of the following most logically completes the passage?

A certain species of coral that flourishes on a reef off the North Carolina coast provides shelter for more than 300 species. Among these species is a crab that feeds on the reef's abundant seaweed. These crabs are able to survive on the reef only because the coral provides crannies in which they can hide to escape their many predators. The provision of benefits, however, extends in both directions, since __________.

- crabs of this species are rarely found among coral that grows in waters deeper than those of the reef off North Carolina
- crabs of this species cannot survive in a well-lit area if no corals grow there
- no other species that find shelter among corals off the North Carolina coast compete with crabs of this species for food
- the unfettered growth of seaweed severely inhibits the growth of corals
- this species of coral secretes a substance that is nutritious to crabs and other crustaceans

An executive of ZCCorp has proposed that the company buy PondGen, a small company that has developed an algae-based process to produce biodiesel fuel for cars and trucks. In support of the proposal, the executive notes that initial pilot projects show that the process may provide much more energy per acre than non-algae sources of biofuels, reducing the need for land. Also, the algae help absorb greenhouse gases, and ZCCorp already has close relationships with fuel distributors. The executive's proposal advocates that, after buying the company, ZCCorp should invest heavily in PondGen's process, in order to become a serious player in the biofuel market.

Which of the following would, if true, most strongly suggest that the executive's proposal should not be adopted?

- The energy yield provided by a given amount of PondGen's fuel will not be significantly higher than that produced by the same amount of non-algae biofuel sources.
- ZCCorp does not have extensive previous experience working with biofuel production.
- ZCCorp does not currently own sufficient open land to support large-scale algae production.
- Biofuel prices will probably not rise significantly in the near future.
- No research and development effort has shown that PondGen's process can produce fuel on an industrial scale.

By the early 1970s, historian Gabriel Kolko and economist George Stigler had independently reached compatible conclusions about the interests served by the United States government's regulation of business during the Progressive era (1890–1915). Kolko argued that big business led the struggle for federal regulation and that regulatory legislation was motivated primarily by legislators' desire to benefit business, not, as the view dominant up until that time had held, by the desire to protect the public interest. As Stigler explained, the federal government's ability to subsidize business, to control the entry of foreign goods, and to fix prices could be used by businesses to their advantage, just as campaign contributions from businesses could be used to advantage by legislators.

There is no denying Kolko's and Stigler's basic claims. Nevertheless, businesses within an industry did not always welcome being regulated, nor did industries necessarily respond uniformly to legislators' efforts to enact regulations affecting them. All but one major railroad in 1905 opposed an expansion of the regulatory power of the Interstate Commerce Committee (ICC) of the United States Senate, and though the Hepburn Act, which granted the ICC rate-making power in the railroad industry, was passed the following year, commercial users of the railroads were divided about the passage of the act: the coal industry opposed it, the agricultural industry favored it, and the lumber industry was split.

According to the passage, scholars whose research on the Progressive era preceded that of Kolko and Stigler subscribed to which of the following views about the federal regulation of business during the era?

- Such regulation was often resisted by the businesses that would be affected by it.
- Such regulation primarily benefited those businesses that desired it.
- Such regulation was instigated by a wish to safeguard the public interest.
- Such regulation was welcomed by some businesses because it lessened foreign competition.
- Such regulation was promoted by government officials who had received campaign contributions.

Since the early 1990s, many airliners have been equipped with telephones for passenger use. However, the telephones are expensive for passengers to use and their use has declined, especially since cell phones have become more prevalent. Nevertheless, since airlines collect a portion of the charge for each call made without having to pay anything for the telephone equipment, which is owned and maintained by telephone companies, airlines clearly still benefit financially from the telephones.

In drawing its conclusion, the argument depends on assuming which of the following?

- The proportion of the charge for an in-flight telephone call that goes to the airline has not declined since the early 1990s.
- Despite the decline in usage, the in-flight telephones remain profitable for the telephone companies that own and maintain them.
- The telephone equipment does not weigh enough to make a material difference in the fuel consumption of airliners in which it is installed.
- Even passengers who rarely or never use the in-flight phones prefer that airliners be equipped with them.
- The passengers who still use in-flight telephones are primarily those who are not carrying cell phones.

Earth's mantle lies below the crust and above the core. Scientists cannot examine the mantle directly but have inferred its structure by measuring how seismic waves from earthquakes are distorted as they traverse it. In laboratory experiments, researchers have also studied mineral formation at the high pressures and temperatures in the mantle. These measurements and experiments indicate that the mantle consists of several concentric layers, with different minerals predominating at different depths. As pressures and temperatures increase toward the core, they force the elements to rearrange into new crystal structures, forming different minerals.

Until 2004, scientists believed that the lower mantle was fairly uniformly composed of a dense form of magnesium silicate belonging to a family of crystals called perovskite that extended all the way down to the boundary between the mantle and the core. But seismic measurements revealed the lower mantle's bottommost layer to be substantially denser than the rest. Since magnesium silicate perovskite has a tightly packed geometry that seemed to maximize the mass per unit volume, the higher pressures in this bottommost layer were not expected to change the perovskite's geometry. Thus, scientists assumed that a greater abundance of heavy elements within the crystal must explain the higher density. However, this assumption was also problematic, because convection should stir the lower mantle, mixing the layers and producing a uniform distribution of elements.

In 2004, geophysicists managed to expose magnesium silicate to the extreme pressures and temperatures of this bottommost layer, producing an unexpected new, denser crystalline structure they called postperovskite. Because postperovskite would conduct heat away from Earth's core more rapidly than perovskite would, scientists hypothesize that the early Earth's core must have been hotter than previously thought. This suggests that the inner core cooled enough to solidify only about one billion years ago. The solid inner core strengthens Earth's magnetic field. This field shields the surface from radiation from space, which can cause genetic mutations and would be especially dangerous for life on land. Thus, the growing intensity of the magnetic field about one billion years ago may have first allowed life to expand from the seas onto dry land. So postperovskite's discovery may help explain the timing of developments in life's evolution.

Based on the passage, the implications of the discovery of postperovskite most likely challenged many geophysicists' beliefs about

- why Earth's inner core strengthens Earth's magnetic field
- when the elements in Earth's inner core first became solid
- which elements are present in Earth's core and mantle
- whether crystalline magnesium silicate can form in Earth's lower mantle
- what causes magnesium silicate crystals to have a tightly packed geometry

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Based on the passage, which of the following statements about perovskite is most likely true?

- It could be transformed into postperovskite as it sinks through the mantle.
- It may have a more tightly packed crystalline geometry than postperovskite does.
- It has been directly observed to distort slightly when seismic waves traverse it.
- It contains heavy elements in greater quantities than postperovskite does.
- It might comprise several concentric layers of different minerals below the mantle.

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According to the passage, the scientists' hypothesis that the early Earth's core must have been hotter than previously thought is based on

- measurements of seismic waves from earthquakes that establish a layer of Earth's inner core has been losing heat
- samples of billion-year-old magnesium silicate crystals whose density is similar to that of postperovskite
- a theoretical model demonstrating the range of temperatures in which postperovskite can be converted to perovskite
- the presence of fossils showing that organisms were living on dry land before one billion years ago
- differences between the heat-conduction properties of perovskite and those of postperovskite in the lower mantle

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As evidence that postperovskite is present in Earth's mantle, the passage mentions the

- timing of developments in the evolution of life on Earth
- different minerals predominating at different depths in the core
- results of exposing magnesium silicate to high pressures and temperatures
- indirectly measured temperature of Earth's inner core
- dangers that genetic mutations pose for life on Earth

Naomi: One critical interpretation of an artwork is superior to another if, all other things being equal, it accounts for more aspects of that work. For example, accounting for a work's style and content is superior to accounting for only its style.

Harold: But you're leaving out an essential element: the quality of the interpretation. It's ridiculous to suggest that simply addressing more aspects of a work is a mark of superiority.

Harold's response is most vulnerable to the criticism that it

- does not offer a counterexample to disprove Naomi's claim
- mischaracterizes Naomi's argument in the guise of restating it
- fails to consider that Naomi may have additional criteria in mind
- fails to establish that the quality of an interpretation can be ascertained
- claims that Naomi's reasoning leads to an absurd conclusion when taken to an extreme

Frederick Snyder proposed the idea that rapid eye movement (REM) sleep serves a sort of sentinel function because it is a state of much neural activity. The hypothesis is that episodes of REM sleep allow an animal to be ready to escape once awake should a predator attack, and that the brief periods of wakefulness associated with REM sleep also serve an antipredator function.

The sentinel hypothesis is appealing in many respects. Mammals in REM sleep are clearly more physiologically prepared for wakefulness than are those in deep slow-wave (SW) sleep. Furthermore, humans and rats can detect and process information to a surprising degree during REM sleep. Paradoxically, however, thresholds for arousal from REM sleep tend to be higher than from SW sleep. Additionally, the brief periods of wakefulness associated with REM sleep may not be frequent enough to have much benefit from an antipredator perspective.

Moreover, the hypothesis has never really been tested, and its predictions are not obvious. One would expect that REM sleep would be more prominent in species that suffer high predation or would become so when the perceived risk of predation increases. However, this prediction does not hold. One would also expect that an increase in predation risk would lead to shorter cycles of REM sleep and thus more arousals to wakefulness.

Based on the information in the first paragraph, it is most reasonable to attribute to Snyder which of the following assumptions?

- Sleep that involves much neural activity is the least restful form of sleep.
- The greater the amount of an animal's neural activity, the sharper its perception of the surrounding environment.
- REM sleep occurs in most animal species and serves to protect them against predators.
- REM sleep generally does not occur in animals except when they fear a high risk of predation.
- Animals waking from sleep during low levels of neuroactivity are unlikely to achieve the fastest possible responses.

Sea otters in Kedrick Bay feed on sea urchins and thus keep the local sea urchin population from growing large enough to destroy the kelp beds on which the urchins feed. Therefore, any oil spill that destroyed the sea otter population in Kedrick Bay would guarantee the destruction of the kelp beds by the urchins.

Which of the following, if true, would most seriously call into question the reasoning in the argument above?

- An oil spill severe enough to destroy the Kedrick Bay otter population would be likely to diminish the populations of other animal species that feed on Kedrick Bay's sea urchins.
- If the population of sea otters in Kedrick Bay declined in number as the result of an oil spill, sea otters from other locales would not soon replace them.
- In locales where both sea urchins and sea otters are present, sea urchins are the sea otter's main food source.
- Because of the pattern of ocean currents in and around Kedrick Bay, there is little likelihood that even a major oil spill in the area would affect the size of the local sea otter population.
- The sea urchin population in Kedrick Bay would be likely to be harmed by any oil spill that reduced the size of the local sea otter population.

In recent years, variations of the "precautionary principle" have been adopted in international environmental agreements and regulations. Advocates of its use in such contexts hold that where there is a threat of serious or irreversible environmental damage, lack of a consensus regarding the scientific certainty of the threat should not be used as a reason for postponing cost-effective environmental regulations to prevent the damage. Advocates argue that the precautionary principle reinforces commonsense notions of environmental stewardship. Opponents, however, view it as a fundamentally unscientific rule that exploits the public's fear of the unfamiliar and promotes radical environmental agendas or protectionist trade policies disguised as environmental regulations.

Advocates counter that the precautionary principle's application is justified by science's demonstrated fallibility in anticipating environmental hazards such as asbestosis and ozone depletion. Additionally, they say, some potential environmental hazards cannot be predicted with any certainty by existing scientific methods. Thus, the precautionary principle would allow potentially harmful activities to be regulated even if conclusive proof that harm will occur has yet to be established. However, given that environmental regulations entail real costs—e.g., concern with improbable risks can consume resources that could be better applied to higher-probability risks—opponents also note that the precautionary principle can be taken too far.

The distinction between uncertainty and what might be called "true uncertainty" is important to understanding the scope of the precautionary principle. Uncertainty generally refers to situations in which outcomes are probabilistic in nature, but for which a probability distribution can be formulated. True uncertainty refers to situations in which even the probability of an outcome is not known. It is this latter situation with which advocates of the precautionary principle are primarily concerned. For example, trials may be performed to determine the frequency with which a particular gasoline storage tank will fail in relation to its age—an uncertain harm—which in turn may be used to formulate a probability distribution on which to base regulations. Truly uncertain harms, such as global warming, often arise when controlled testing is impossible and there is no experience from which to construct a probability distribution.

In the passage, opponents of the precautionary principle are reported as raising each of the following issues EXCEPT:

- The precautionary principle is fundamentally unscientific.
- The precautionary principle is sometimes used to disguise trade policies as environmental regulations.
- Environmental regulations entail real costs.
- Advocates of the precautionary principle are primarily concerned with true uncertainty.
- Environmental regulations are sometimes based on radical environmental agendas.

Economists coined the term *vertical specialization* in 2001 to describe a country's use of imported intermediate parts or services as inputs in producing goods the country later exports—a common occurrence today in global trade. Traditionally, although exports were deducted from imports in calculating gross domestic product (GDP), policymakers did not have data specifically addressing the import content of exports. Today, new trade statistics are being developed to remedy this. These statistics show the national value-added content of exports after all imported input goods and business services have been subtracted.

The case of Sweden is illustrative. A 2010 report from the Swedish National Board of Trade examines data about manufacturing and services inputs and outputs for the Swedish economy in 1995 and 2005 and finds that the conventional gross trade figures inflate the value of exports in relation to GDP. The report finds that 33.5 percent of the total value of Swedish exports consisted of imported goods and services used as inputs. Consequently, when official statistics claim that the 2005 export share of Swedish GDP was 49 percent, this exaggerates the contribution of exports to the Swedish economy. The real contribution is the value added in the exports. It is therefore more accurate to say that approximately one-third of Swedish GDP is generated by foreign demand, not half. Thus, Sweden is considerably less dependent on exports than commonly believed.

"Made in Sweden" can thus seem an anachronism. It is, however, not equally anachronistic for all sectors. National aggregates hide huge sectoral differences in import content, ranging from sectors with very little import content to sectors where almost all production consists of imports. Generally, production of services requires fewer inputs than production of goods; consequently services are also less dependent on imported inputs. A 2011 study finds that the vertical specialization of manufacturing sectors ranges from 15 percent (electricity, gas, and water) to 90 percent (petroleum), whereas for services the range is from around 8 percent (finance and insurance) to around 30 percent (transport and storage). This shows that, as a proportion of total exports, export of services contributes more to Sweden's economy than the gross trade data imply.

Which of the following is a claim made in the passage about exports from Sweden in 1995 and 2005?

- The traditional gross trade figures are based on incorrect calculations of the total value of the products exported.
- The most frequently used gross trade figures do not accurately report the total value of exported products and services.
- The gross trade figures traditionally provided tend to misrepresent what contribution domestic production makes to exports.
- Imports that are used as inputs in products that are domestically produced are not recorded as imports in the most commonly used gross trade figures.
- The inflation-adjusted value of products exported would show them to be a larger proportion of GDP than is indicated by the gross trade figures that are normally used.

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A claim made in the passage is that

- economists had traditionally been unaware of the extent to which imported inputs contributed to the manufacture of exported goods
- production of services, unlike production of goods, was very unlikely to require imported inputs
- export figures that subtract the value of imported inputs tend to exaggerate the economic contribution of exports to Sweden's economy
- trade statistics were being developed to report the portion of exports' value directly attributable to production in the exporting country
- official trade figures for gross exports had underreported the quantity of services exported by Sweden

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The passage states in the final paragraph that a 2011 study found that the vertical specialization of the Swedish finance and insurance sector is about 8 percent. From this and the other information in the passage, it can most reasonably be inferred that

- about 8 percent of the the total output in the sector was produced in Sweden
- a country other than Sweden produced about 92 percent of the total output in the sector
- some goods or services produced outside of Sweden comprised about 8 percent of the value of the total output of the sector
- the finance and insurance sector is not as important a component of the Swedish economy as the electricity, gas, and water sector
- the finance and insurance sector accounts for about 8 percent of the total Swedish domestic product

Newspaper editorial: Some deforested areas have been restored with new trees, and new habitats have developed. Some naturalists maintain that these "rebuilt" environments are as worthy of appreciation as the old ones. **They are just as beautiful and appear to be just as natural.** However, part of our appreciation of nature is the connection to the distant past. **That feeling will be lost in an environment known to be humanmade.**

Which of the following best describes the roles of the two portions in boldface?

- The first is a premise of the editorial's argument; the second addresses an objection to the editorial's conclusion.
- The first presents evidence for a claim; the second explains why that evidence supports the editorial's conclusion.
- The first defends an assumption made by the editorial; the second explains why the editorial's conclusion undermines the position that the editorial challenges.
- The first is the claim that the editorial directly challenges; the second is the conclusion defended by the editorial's argument.
- The first is used to support the position that the editorial opposes; the second elaborates on the justification for the editorial's conclusion.

According to Christopher Leo, reviewing Douglas Rae's book *City: Urbanism and Its End*, Rae draws on his experience as a city manager to argue that the most dramatic and direct contribution of automobiles to urban decline was to overwhelm city centers with traffic congestion, rather than to make urban residents' flight to the suburbs easier. Leo says this contradicts conventional wisdom among scholars of urbanism.

According to Leo, Rae's view that traffic congestion kills cities fails to notice that the most successful cities all suffer from serious congestion, while unsuccessful cities, persuaded by their engineers, build roads in vain, in many cases until there is no city center left. Leo writes: "If we could find one example of an obviously successful city—say London, New York, Tokyo, or Toronto—whose economy was harmed by excess traffic, the road engineers' argument might gain some credibility. But ordinary observation suggests that complaints about traffic and parking are not a major concern in those cities, which actually have serious traffic and parking problems—but are a constant refrain" in some other North American cities. In one such city, Leo writes, parking complaints that would be "considered laughable" in the Canadian city of Vancouver are "offered as reasons for not spending time in a downtown that is beset by urban decay."

As represented in the passage, Leo's statements are most likely intended to indicate that in a particular North American city (see highlighted phrase), the primary factor discouraging some people from spending much time downtown is that

- they have everything they need in the suburbs
- the downtown area suffers from serious traffic congestion
- it is too difficult to find a parking spot in the downtown area
- the downtown area is too far from their homes in the suburbs
- they find little, if anything, downtown attractive enough to outweigh perceived difficulties with parking

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The primary purpose of the passage is to

- describe two effects of automobiles on city centers
- compare several major cities with regard to traffic congestion and parking problems
- provide an account of one writer's response to an opinion ascribed to Rae concerning cities' decline
- challenge one critic's view of Rae's claim regarding the role of automobiles in urban decline
- present evidence against the conventional view of scholars of urbanism regarding the influence of automobiles

Outsourcing is the practice of obtaining from independent suppliers products or services that a company previously provided for itself. Some analysts maintain that since **the goal of any company is to maximize its profit**, a company should outsource a product or service if an independent supplier can provide it at a lower cost. **This very goal, however, could require a company to make the opposite decision**. Companies that outsource generally dismantle some of their capabilities. In so doing, they might make themselves totally dependent on just a few outside suppliers. Since the outsourcing companies do not control the priorities of those suppliers, the continuity of supply and thus of their own operations could be threatened. Thus, a company's long-term profitability might be better protected by not outsourcing.

In the argument given, the two boldfaced portions play which of the following roles?

- The first presents a generalization whose accuracy the argument calls into question; the second presents that generalization in a revised version that the argument concludes is correct.
- The first presents a generalization that the argument criticizes as too sweeping; the second identifies potential exceptions to that generalization.
- The first is a general claim whose implications are at issue in the argument; the second is a position concerning those implications that is criticized in the argument.
- The first is a general claim whose implications are at issue in the argument; the second is a statement of the main conclusion of the argument.
- The first is a general principle that the argument seeks to show is unsound; the second is the main criticism of that principle raised in the argument.