#1

ID: f1bfbed3

Marta Coll and colleagues' 2010 Mediterranean Sea biodiversity census reported approximately 17,000 species, nearly double the number reported in Carlo Bianchi and Carla Morri's 2000 census—a difference only partly attributable to the description of new invertebrate species in the interim. Another factor is that the morphological variability of microorganisms is poorly understood compared to that of vertebrates, invertebrates, plants, and algae, creating uncertainty about how to evaluate microorganisms as species. Researchers' decisions on such matters therefore can be highly consequential. Indeed, the two censuses reported similar counts of vertebrate, plant, and algal species, suggesting that _____

Which choice most logically completes the text?

A) Coll and colleagues reported a much higher number of species than Bianchi and Morri did largely due to the inclusion of invertebrate species that had not been described at the time of Bianchi and Morri's census.

B) some differences observed in microorganisms may have been treated as variations within species by Bianchi and Morri but treated as indicative of distinct species by Coll and colleagues.

C) Bianchi and Morri may have been less sensitive to the degree of morphological variation displayed within a typical species of microorganism than Coll and colleagues were.

D) the absence of clarity regarding how to differentiate among species of microorganisms may have resulted in Coll and colleagues underestimating the number of microorganism species.

#2

ID: ce4448b7

Researchers recently found that disruptions to an enjoyable experience, like a short series of advertisements during a television show, often increase viewers' reported enjoyment. Suspecting that disruptions to an unpleasant experience would have the opposite effect, the researchers had participants listen to construction noise for 30 minutes and anticipated that those whose listening experience was frequently interrupted with short breaks of silence would thus _____

Which choice most logically completes the text?

A) find the disruptions more irritating as time went on.

B) rate the listening experience as more negative than those whose listening experience was uninterrupted.

C) rate the experience of listening to construction noise as lasting for less time than it actually lasted.

D) perceive the volume of the construction noise as growing softer over time.

#3

ID: a68fd3e7

Many of William Shakespeare's tragedies address broad themes that still appeal to today's audiences. For instance, *Romeo and Juliet* , which is set in the Italy of Shakespeare's time, tackles the themes of parents versus children and love versus hate, and the play continues to be read and produced widely around the world. But understanding Shakespeare's so-called history plays can require a knowledge of several centuries of English history. Consequently, _____

Which choice most logically completes the text?

A) many theatergoers and readers today are likely to find Shakespeare's history plays less engaging than the tragedies.

B) some of Shakespeare's tragedies are more relevant to today's audiences than twentieth-century plays.

C) *Romeo and Juliet* is the most thematically accessible of all Shakespeare's tragedies.

D) experts in English history tend to prefer Shakespeare's history plays to his other works.

#4

ID: 58e9e497

In the early nineteenth century, some Euro-American farmers in the northeastern United States used agricultural techniques developed by the Haudenosaunee (Iroquois) people centuries earlier, but it seems that few of those farmers had actually seen Haudenosaunee farms firsthand. Barring the possibility of several farmers of the same era independently developing techniques that the Haudenosaunee people had already invented, these facts most strongly suggest that _____

Which choice most logically completes the text?

A) those farmers learned the techniques from other people who were more directly influenced by Haudenosaunee practices.

B) the crops typically cultivated by Euro-American farmers in the northeastern United States were not well suited to Haudenosaunee farming techniques.

C) Haudenosaunee farming techniques were widely used in regions outside the northeastern United States.

D) Euro-American farmers only began to recognize the benefits of Haudenosaunee farming techniques late in the nineteenth century.

#5

ID: ac285054

The domestic sweet potato (*Ipomoea batatas*) descends from a wild plant native to South America. It also populates the Polynesian Islands, where evidence confirms that Native Hawaiians and other Indigenous peoples were cultivating the plant centuries before seafaring first occurred over the thousands of miles of ocean separating them from South America. To explain how the sweet potato was first introduced in Polynesia, botanist Pablo Muñoz-Rodríguez and colleagues analyzed the DNA of numerous varieties of the plant, concluding that Polynesian varieties diverged from South American ones over 100,000 years ago. Given that Polynesia was peopled only in the last three thousand years, the team concluded that _____

Which choice most logically completes the text?

A) the cultivation of the sweet potato in Polynesia likely predates its cultivation in South America.

B) Polynesian peoples likely acquired the sweet potato from South American peoples only within the last three thousand years.

C) human activity likely played no role in the introduction of the sweet potato in Polynesia.

D) Polynesian sweet potato varieties likely descend from a single South American variety that was domesticated, not wild.

#6

ID: 086dd8cc

The morphological novelty of echinoderms—marine invertebrates with radial symmetry, usually starlike, around a central point—impedes comparisons with most other animals, in which bilateral symmetry on an anterior-posterior (head to tail) axis through a trunk is typical. Particularly puzzling are sea stars, thought to have evolved a headless layout from a known bilateral origin. Applying genomic knowledge of *Saccoglossus kowalevskii* acorn worms (close relatives of sea stars, and thus expected to have similar markers for corresponding anatomical regions) to the body patterning genes of *Patiria miniata* sea stars, Laurent Formery et al. observed activity only in anterior genes across *P. miniata*'s entire body and some posterior genes limited to the edges, suggesting that _____

Which choice most logically completes the text?

A) despite the greater prevalence of anterior genes in sea stars' genetic makeup, posterior genes active at the body's perimeter are primarily responsible for the starlike layout that distinguishes sea stars' radial symmetry from that of other echinoderms.

B) contrary to the belief that they evolved from early ancestors with the bilateral form typical of many other animals, sea stars instead originated with an atypical body layout that was neither bilaterally nor radially symmetrical.

C) although the two species are closely related, there is only minimal correspondence in the genetic markers for head, tail, and trunk region development in *P. miniata* sea stars and *S. kowalevskii* acorn worms.

D) rather than undergoing changes resulting in the eventual elimination of a head region in their radial body plan, as previously assumed, sea stars' morphology evolved to completely lack a trunk and consist primarily of a head region.

#7

ID: e185a21f

One theory behind human bipedalism speculates that it originated in a mostly ground-based ancestor that practiced four-legged "knuckle-walking," like chimpanzees and gorillas do today, and eventually evolved into moving upright on two legs. But recently, researchers observed orangutans, another relative of humans, standing on two legs on tree branches and using their arms for balance while they reached for fruits. These observations may suggest that _____

Which choice most logically completes the text?

A) bipedalism evolved because it was advantageous to a tree-dwelling ancestor of humans.

B) bipedalism must have evolved simultaneously with knuckle-walking and tree-climbing.

C) moving between the ground and the trees would have been difficult without bipedalism.

D) a knuckle-walking human ancestor could have easily moved bipedally in trees.

#8

ID: f39507a3

One challenge when researching whether holding elected office changes a person's behavior is the problem of ensuring that the experiment has an appropriate control group. To reveal the effect of holding office, researchers must compare people who hold elected office with people who do not hold office but who are otherwise similar to the office-holders. Since researchers are unable to control which politicians win elections, they therefore _____

Which choice most logically completes the text?

A) struggle to find valid data about the behavior of politicians who do not currently hold office.

B) can only conduct valid studies with people who have previously held office rather than people who presently hold office.

C) should select a control group of people who differ from office-holders in several significant ways.

D) will find it difficult to identify a group of people who can function as an appropriate control group for their studies.

#9

ID: f9bd4e61

German theater practitioner Bertolt Brecht (1898–1956) believed that theater should elicit an intellectual rather than an emotional response from audiences, provoking them to consider social and political realities that extend beyond the characters and events depicted onstage. Brecht's influence can be seen in English playwright Caryl Churchill's 1979 play *Cloud 9*: although the play sometimes invites empathetic reactions, it primarily works to engage audiences in an interrogation of patriarchy and colonialism, which it does by placing audiences at a distance, thereby encouraging them to _____

Which choice most logically completes the text?

A) focus on the characters' beliefs about social and political issues as revealed by the characters' actions.

B) reflect on social and political phenomena not directly related to patriarchy and colonialism.

C) recognize pertinent social and political parallels between Germany during Brecht's time and England at the time when Churchill was writing *Cloud 9* .

D) be dispassionate as they think critically about the social and political questions raised by the play.

#10

ID: 4889580c

Archaeologists and historians used to believe that the Maya civilization during its Classic period (roughly 250–900) lacked agricultural marketplaces. One reason for this belief was that these scholars misunderstood the ecology of the regions the Maya inhabited. Marketplaces typically emerge because different individuals or groups want to trade resources they control for resources they don't control. Scholars seriously underestimated the ecological diversity of the Maya landscape and thus assumed that _____

Which choice most logically completes the text?

A) marketplaces likely would not have attracted many traders from outside the regions controlled by the Maya.

B) farming practices would have been largely the same throughout Maya lands even if the crops people produced varied significantly.

C) marketplaces would not have enabled Maya people to acquire many products different from those they already produced.

D) farmers would trade agricultural products only if they had already produced enough to meet their own needs.

#11

ID: aaddd60f

Scientists studying Mars long thought the history of its crust was relatively simple. One reason for this is that geologic and climate data collected by a spacecraft showed that the crust was largely composed of basalt, likely as a result of intense volcanic activity that brought about a magma ocean, which then cooled to form the planet's surface. A study led by Valerie Payré focused on additional information—further analysis of data collected by the spacecraft and infrared wavelengths detected from Mars's surface—that revealed the presence of surprisingly high concentrations of silica in certain regions on Mars. Since a planetary surface that formed in a mostly basaltic environment would be unlikely to contain large amounts of silica, Payré concluded that _____

Which choice most logically completes the text?

A) the information about silica concentrations collected by the spacecraft is likely more reliable than the silica information gleaned from infrared wavelengths detected from Mars's surface.

B) high silica concentrations on Mars likely formed from a different process than that which formed the crusts of other planets.

C) having a clearer understanding of the composition of Mars's crust and the processes by which it formed will provide more insight into how Earth's crust formed.

D) Mars's crust likely formed as a result of other major geological events in addition to the cooling of a magma ocean.

#12

ID: 08395130

The Hubble Space Telescope (HST) is projected to maintain operation until at least 2030, but it has already revolutionized high-resolution imaging of solar-system bodies in visible and ultraviolet (UV) light wavelengths, notwithstanding that only about 6% of the bodies imaged by the HST are within the solar system. NASA researcher Cindy L. Young and colleagues assert that a new space telescope dedicated exclusively to solar-system observations would permit an extensive survey of minor solar-system bodies and long-term UV observation to discern how solar-system bodies change over time. Young and colleagues' recommendation therefore implies that the HST _____

Which choice most logically completes the text?

A) will likely continue to be used primarily to observe objects outside the solar system.

B) will no longer be used to observe solar system objects if the telescope recommended by Young and colleagues is deployed.

C) can be modified to observe the features of solar system objects that are of interest to Young and colleagues.

D) lacks the sensors to observe the wavelengths of light needed to discern how solar system bodies change over time.

#13

ID: 26f5c4ba

In 2022, Crystal Reeck and colleagues studied whether the decision-making modes that guide consumers influence their choice between nonenvironmentally friendly standard electricity plans and environmentally friendly green plans that cap electricity usage. Study participants who self-reported using either an Affect Mode or Role Mode—which prioritize choices that have a stronger positive emotional or social impact, respectively—were more likely to select a green plan. Conversely, participants using a Calculation Mode—which aims to minimize both financial cost and personal inconvenience—were more likely to select a standard plan, even when the green option was cheaper. This finding suggests that participants using a Calculation Mode _____

Which choice most logically completes the text?

A) were equally unlikely to factor the financial savings of the green plan into their decision-making as were participants using either the Affect or Role Modes.

B) may have been less strongly motivated to appear socially responsible with their choice of plan than they realized.

C) may have determined that the green plan imposed additional burdens on them that were not sufficiently offset by the potential financial savings.

D) were less likely to believe that the green plan was truly cost-effective than were participants using either the Affect or Role Modes.

#14

ID: cef77aa7

Geoglyphs are large-scale designs of lines or shapes created in a natural landscape. The Nazca Lines were created in the Nazca Desert in Peru by several Indigenous civilizations over a period of many centuries. Peruvian archaeologist Johny Isla specializes in these geoglyphs. At a German exhibit about the Nazca Lines, he saw an old photograph of a large geoglyph of a whalelike figure and was surprised that he didn't recognize it. Isla returned to Peru and used a drone to search a wide area, looking for the figure from the air. This approach suggests that Isla thought that if he hadn't already seen it, the whalelike geoglyph _____

Which choice most logically completes the text?

A) must represent a species of whale that went extinct before there were any people in Peru.

B) is actually located in Germany, not Peru, and isn't part of the Nazca Lines at all.

C) is probably in a location Isla hadn't ever come across while on the ground.

D) was almost certainly created a long time after the other Nazca Lines geoglyphs were created.

#15

ID: 9c591ff7

Some *Astyanax mexicanus* , a river-dwelling fish found in northeast Mexico, have colonized caves in the region. Although there is little genetic difference between river and cave *A. mexicanus* and all members of the species can emit the same sounds, biologist Carole Hyacinthe and colleagues found that the context and significance of those sounds vary by location—e.g., the click that river-dwelling *A. mexicanus* use to signal aggression is used by cave dwellers when foraging—and the acoustic properties of cave fish sounds show some cave-specific variations as well. Hyacinthe and colleagues note that differences in sonic communication could accumulate to the point of inhibiting interbreeding among fish from different locations, suggesting that _____

Which choice most logically completes the text?

A) although *A. mexicanus* living in rivers are genetically similar to those living in caves, river fish rely on sonic communication less than cave fish do.

B) although *A. mexicanus* is a single species at present, it could be in the process of splitting into distinct populations with different characteristics.

C) although all *A. mexicanus* emit sounds, the fish living in rivers produce some sounds that the fish living in caves do not, and vice versa.

D) although *A. mexicanus* from different locations can interbreed currently, river fish and cave fish are sufficiently genetically distinct that they can be considered separate species.

#16

ID: fd1095d7

To address the susceptibility of materials used in components of high-performance machinery, such as aircraft engines, to creep (deformation that is induced by persistent mechanical stress and that often occurs at elevated temperatures), materials researchers have developed silicon carbide (SiC) fibers for producing aerospace composites. Testing the thermomechanical properties of several commercially available SiC fibers, Ramakrishna T. Bhatt et al. found that in comparison with two polymer-derived SiC fibers, a nitrogen-treated SiC fiber exhibited a lower minimum creep rate, a measure of the rate at which a stress-exposed material deforms at a constant temperature and uniaxial load. The finding suggests that _____

Which choice most logically completes the text?

A) unlike the two polymer-derived SiC fibers, the nitrogen-treated SiC fiber can substantially inhibit creep, provided that temperatures and loads are consistent.

B) the two polymer-derived SiC fibers likely hold similar potential for reducing the creep resistance of materials exposed to stress and elevated temperatures, thus prolonging the life span of aerospace machinery.

C) composites based on the two polymer-derived SiC fibers have chemical properties that may improve the mechanical and thermal stability of aerospace equipment to a greater extent than do composites based on the nitrogen-treated SiC fiber.

D) aerospace composites containing the nitrogen-treated SiC fiber may have the ability to withstand mechanical stress for a longer period of time than can aerospace composites containing either of the two polymer-derived SiC fibers.

#17

ID: 4b8eda0a

For its 1974 work *Instant Mural* , the Chicano art collective Asco taped members Patssi Valdez and Humberto Sandoval to an outdoor wall in East Los Angeles. The work is manifestly a commentary on constraint, but many critics focus on Valdez and the social constraints women faced at the time, which is understandable but leaves the presence of Valdez's male collaborator Sandoval unexplained. We should instead consider that in 1974, the art establishment's recognition of Chicano artists was (and had long been) restricted to sociohistorical muralists, leaving nonmuralist Chicano artists—like Asco's members—struggling to even exhibit their work; attending to this context opens an interpretation that accounts for all the evidence, allowing us to conclude that _____

Which choice most logically completes the text?

A) while Valdez's presence in *Instant Mural* represents the social constraints placed on women at the time, Sandoval's presence represents Chicano muralists' frustration at their lack of recognition by the art establishment.

B) the main subject of *Instant Mural* is female Chicano artists' experience of being doubly constrained by gender-role expectations and the marginalization of certain types of art.

C) *Instant Mural* is a reflection on the constraining aesthetic expectations placed on Chicano artists in general rather than on the social constraints placed on women specifically.

D) *Instant Mural* is best understood not as a critique of the social constraints placed on women but rather as a critique of sociohistorical muralists' depictions of Chicano culture.

#18

ID: 1bf2173e

In a three-year study of parasitic infections by *Anomotaenia brevis* tapeworms in *Temnothorax nylanderi* ants, entomologist Susanne Foitzik and colleagues found something unexpected: rather than reducing its host's fitness, as is typical of parasites, *A. brevis* greatly extends the lifespan of a *T. nylanderi* worker ant and seems to halt the effects of aging. Furthermore, those infected receive special treatment, ceasing their share of labor to sustain the colony and remaining in the nest as uninfected workers feed, groom, and transport them. By contrast, the researchers observed that uninfected workers in parasitized colonies have shortened lifespans, most likely because the _____

Which choice most logically completes the text?

A) uninfected workers are at high risk for direct exposure to *A. brevis* in the course of providing social care to the infected workers in the nest.

B) need to compensate for reduced contributions within the colony while also caring for infected workers is burdensome to the uninfected workers.

C) high level of activity maintained by the uninfected workers makes them better able than infected workers to quickly disperse when the nest is attacked by a predator.

D) average lifespan of *T. nylanderi* worker ants in colonies without parasitic activity typically falls well below three years, the range covered by the study.

#19

ID: 9391b7cc

If some artifacts recovered from excavations of the settlement of Kuulo Kataa, in modern Ghana, date from the thirteenth century CE, that may lend credence to claims that the settlement was founded before or around that time. There is other evidence, however, strongly supporting a fourteenth century CE founding date for Kuulo Kataa. If both the artifact dates and the fourteenth century CE founding date are correct, that would imply that _____

Which choice most logically completes the text?

A) artifacts from the fourteenth century CE are more commonly recovered than are artifacts from the thirteenth century CE.

B) the artifacts originated elsewhere and eventually reached Kuulo Kataa through trade or migration.

C) Kuulo Kataa was founded by people from a different region than had previously been assumed.

D) excavations at Kuulo Kataa may have inadvertently damaged some artifacts dating to the fourteenth century CE.

#20

ID: 2a075bd1

Indigenous cultures possess unique knowledge of the medicinal uses of plants. According to a 2021 study, 73 percent of the medicinal uses of plants native to North America are reflected in the vocabulary of a single Indigenous language. However, as more and more Indigenous people exclusively speak a globally dominant language, such as English, their ancestral languages fade from daily use. These facts lend added importance to tribal nations' efforts to preserve their languages. By ensuring the continued use of Cherokee, Ojibwe, and the hundreds of other Indigenous languages in what is now the United States, tribal nations are also _____

Which choice most logically completes the text?

A) increasing the number of medicinal plants represented in the vocabularies of Indigenous languages.

B) transmitting terms for medicinal plants from Indigenous languages to globally dominant languages.

C) preserving knowledge about the medicinal value of plants native to the tribal nations' lands.

D) ensuring that citizens of tribal nations have physical access to medicinal plants.

#21

ID: 3f236877

Ratified by more than 90 countries, the Nagoya Protocol is an international agreement ensuring that Indigenous communities are compensated when their agricultural resources and knowledge of wild plants and animals are utilized by agricultural corporations. However, the protocol has shortcomings. For example, it allows corporations to insist that their agreements with communities to conduct research on the commercial uses of the communities' resources and knowledge remain confidential. Therefore, some Indigenous advocates express concern that the protocol may have the unintended effect of _____

Which choice most logically completes the text?

A) diminishing the monetary reward that corporations might derive from their agreements with Indigenous communities.

B) limiting the research that corporations conduct on the resources of the Indigenous communities with which they have signed agreements.

C) preventing independent observers from determining whether the agreements guarantee equitable compensation for Indigenous communities.

D) discouraging Indigenous communities from learning new methods for harvesting plants and animals from their corporate partners.

#22

ID: 95dbdf51

Laura Mulvey has theorized that in narrative film, shots issuing from a protagonist's point of view compel viewers to identify with the character. Such identification is heightened by "invisible editing," or editing so inconspicuous that it renders cuts between shots almost unnoticeable. Conversely, Mulvey proposes that conspicuous editing or an absence of point-of-view shots would induce a more critical stance toward a protagonist. Consider, for example, the attic scene in Alfred Hitchcock's *The Birds* , a conspicuously edited sequence of tens of shots, few of which correspond to the protagonist's point of view. According to Mulvey's logic, this scene should affect viewers by _____

Which choice most logically completes the text?

A) obscuring their awareness of the high degree of artifice involved in constructing the montage.

B) lessening their identification with the protagonist, if not alienating them from the character altogether.

C) compelling them to identify with the film's director, whose proxy is the camera, and not with the protagonist.

D) diverting their attention away from the film's content and toward its stylistic attributes.

#23

ID: 0dba14e6

The increased integration of digital technologies throughout the process of book creation in the late 20th and early 21st centuries lowered the costs of book production, but those decreased costs have been most significant in the manufacturing and distribution process, which occurs after the authoring, editing, and design of the book are complete. This suggests that in the late 20th and early 21st centuries, _____

Which choice most logically completes the text?

A) digital technologies made it easier than it had been previously for authors to write very long works and get them published.

B) customers generally expected the cost of books to decline relative to the cost of other consumer goods.

C) publishers increased the variety of their offerings by printing more unique titles but also printed fewer copies of each title.

D) the costs of writing, editing, and designing a book were less affected by the technologies used than were the costs of manufacturing and distributing a book.

#24

ID: a44c7bd4

Some ethicists hold that the moral goodness of an individual's actions depends solely on whether the actions themselves are good, irrespective of the context in which they are carried out. Philosopher L. Sebastian Purcell has shown that surviving works of Aztec (Nahua) philosophy express a very different view. Purcell reveals that these works posit an ethical system in which an individual's actions are judged in light of how well they accord with the individual's role in society and how well they contribute to the community. To the extent that these works are representative of Aztec thought, Purcell's analysis suggests that _____

Which choice most logically completes the text?

A) the Aztecs would have disputed the idea that the morality of an individual's actions can be assessed by appealing to standards of behavior that are independent of the individual's social circumstances.

B) the Aztecs would not have accepted the notion that the morality of an individual's actions can be fairly evaluated by people who do not live in the same society as that individual.

C) actions by members of Aztec society who contributed a great deal to their community could be judged as morally good even if those actions were inconsistent with behaviors the Aztecs regarded as good in all contexts.

D) similar actions performed by people in different social roles in Aztec society would have been regarded as morally equivalent unless those actions led to different outcomes for the community.

#25

ID: a13c1c66

Many animals, including humans, must sleep, and sleep is known to have a role in everything from healing injuries to encoding information in long-term memory. But some scientists claim that, from an evolutionary standpoint, deep sleep for hours at a time leaves an animal so vulnerable that the known benefits of sleeping seem insufficient to explain why it became so widespread in the animal kingdom. These scientists therefore imply that _____

Which choice most logically completes the text?

A) prolonged deep sleep is likely advantageous in ways that have yet to be discovered.

B) most traits perform functions that are hard to understand from an evolutionary standpoint.

C) it is more important to understand how widespread prolonged deep sleep is than to understand its function.

D) many traits that provide significant benefits for an animal also likely pose risks to that animal.

#26

ID: f942646f

Researchers Suchithra Rajendran and Maximilian Popfinger modeled varying levels of passenger redistribution from short-haul flights (flights of 50 to 210 minutes, from takeoff to landing) to high-speed rail trips. Planes travel faster than trains, but air travel typically requires 3 hours of lead time for security, baggage handling, and boarding that rail travel doesn't, so short-haul routes take similar amounts of time by air and by rail. However, the model suggests that as rail passenger volumes approach current capacity limits, long lead times emerge. Therefore, for rail to remain a viable alternative to short-haul flights, _____

Which choice most logically completes the text?

A) rail systems should offer fewer long-haul routes and airlines should offer more long-haul routes.

B) rail systems may need to schedule additional trains for these routes.

C) security, baggage handling, and boarding procedures used by airlines may need to be implemented for rail systems.

D) passengers who travel by rail for these routes will need to accept that lead times will be similar to those for air travel.

#27

ID: 1ffd60ce

An analysis by Alain Elayi and colleagues of coins minted in Sidon in the fifth and fourth centuries BCE reveals a change in their composition over time: while a coin from circa 450 BCE contains about 98% silver and 1% copper, a coin from 367 BCE (the end of Ba'alšillem II's reign) contains 74.2% silver and 24.7% copper, giving it a relatively yellowish appearance that traders would have noticed. Because coins with a silver content below 80% were widely considered unsuitable for trade, Elayi et al. speculate that a crisis in confidence in the currency occurred in Sidon around 367 BCE, which was likely relieved—despite Sidon's persistent oppressive financial obligations—as a result of Ba'alšillem II's successor Abd'aštart I's decision to _____

Which choice most logically completes the text?

A) proclaim that the percentage of silver in coins suitable for trade would be raised to a threshold higher than 80%.

B) keep the amount of silver in Sidonian coins consistent with that in coins minted in 367 BCE but decrease their weight.

C) begin minting heavier coins with a proportion of silver to copper similar to that in coins minted in 367 BCE.

D) fund the mining of some copper deposits that were not available to Ba'alšillem II.

#28

ID: e6e6be2d

Overgrazing by purple sea urchins has caused many kelp forests along North America's west coast to be replaced by urchin barrens—areas stripped of vegetation and covered in purple sea urchins. Urchins in barrens persist in a state of starvation that lessens their nutritional value—and thus their appeal—to many predators. Sarah Gravem and colleagues placed sunflower sea stars, a once-abundant predator species suffering massive population declines in recent years, in aquariums that each contained a nutritionally poor and a nutritionally rich purple sea urchin. The researchers found that the sea stars selected the nutritionally rich urchin in 42.7% of trials and the nutritionally poor urchin in 37.5% of trials, suggesting that _____

Which choice most logically completes the text?

A) sunflower sea stars are willing to hunt sea urchins, but if given a choice, they will prey on other more nutritious marine animals instead.

B) sunflower sea stars are reluctant to feed on both nutritionally poor and nutritionally rich sea urchins and are therefore unlikely to thrive in kelp forests.

C) sunflower sea stars are less likely to consume sea urchins in barrens than other species of sea stars are, putting sunflower sea stars at a high risk of extinction.

D) sunflower sea stars do not always avoid foraging on nutritionally poor sea urchins, making sunflower sea star population recovery a potentially important tool for controlling urchin barrens.

#29

ID: 0dccbf17

Henry Ossawa Tanner's 1893 painting *The Banjo Lesson* , which depicts an elderly man teaching a boy to play the banjo, is regarded as a landmark in the history of works by Black artists in the United States. Scholars should be cautious when ascribing political or ideological values to the painting, however: beliefs and assumptions that are commonly held now may have been unfamiliar to Tanner and his contemporaries, and vice versa. Scholars who forget this fact when discussing *The Banjo Lesson* therefore _____

Which choice most logically completes the text?

A) risk judging Tanner's painting by standards that may not be historically appropriate.

B) tend to conflate Tanner's political views with those of his contemporaries.

C) forgo analyzing Tanner's painting in favor of analyzing his political activity.

D) wrongly assume that Tanner's painting was intended as a critique of his fellow artists.

#30

ID: 5632ffb4

In a study of the cognitive abilities of white-faced capuchin monkeys (*Cebus imitator*), researchers neglected to control for the physical difficulty of the tasks they used to evaluate the monkeys. The cognitive abilities of monkeys given problems requiring little dexterity, such as sliding a panel to retrieve food, were judged by the same criteria as were those of monkeys given physically demanding problems, such as unscrewing a bottle and inserting a straw. The results of the study, therefore, _____

Which choice most logically completes the text?

A) could suggest that there are differences in cognitive ability among the monkeys even though such differences may not actually exist.

B) are useful for identifying tasks that the monkeys lack the cognitive capacity to perform but not for identifying tasks that the monkeys can perform.

C) should not be taken as indicative of the cognitive abilities of any monkey species other than *C. imitator* .

D) reveal more about the monkeys' cognitive abilities when solving artificial problems than when solving problems encountered in the wild.

#31

ID: 1b9b29f1

A team of biologists led by Jae-Hoon Jung, Antonio D. Barbosa, and Stephanie Hutin investigated the mechanism that allows *Arabidopsis thaliana* (thale cress) plants to accelerate flowering at high temperatures. They replaced the protein ELF3 in the plants with a similar protein found in another species (stiff brome) that, unlike *A. thaliana* , displays no acceleration in flowering with increased temperature. A comparison of unmodified *A. thaliana* plants with the altered plants showed no difference in flowering at 22° Celsius, but at 27° Celsius, the unmodified plants exhibited accelerated flowering while the altered ones did not, which suggests that _____

Which choice most logically completes the text?

A) temperature-sensitive accelerated flowering is unique to *A. thaliana* .

B) *A. thaliana* increases ELF3 production as temperatures rise.

C) ELF3 enables *A. thaliana* to respond to increased temperatures.

D) temperatures of at least 22° Celsius are required for *A. thaliana* to flower.

#32

ID: 61228830

A heliograph is a semaphore device used for sending optical communications—usually in the form of Morse code—by reflecting flashes of sunlight off a mirror. Heliographs were used for rapid communication across expansive distances for military, surveying, and forestry purposes during the late nineteenth and early twentieth centuries, but they were largely effective only during the daytime, and the range of the device depended on factors such as the opacity of the air and line of sight. Therefore, heliographs were eventually replaced by technology that _____

Which choice most logically completes the text?

A) worked on similar principles but was easier to produce and maintain.

B) was not so constrained by environmental circumstances.

C) could be used for more than military, surveying, or forestry purposes.

D) enabled communication that didn't require knowledge of Morse code.

#33

ID: 75208874

The widespread use of social media enables linguists to study changes in language usage in real time. A notable recent example is the proliferation of the affix *meng-* among speakers of Bahasa Indonesia, the official language of Indonesia. Linguists observed *meng-* originate as an onomatopoetic tag that social-media users applied to images of cats they posted; over time, users increasingly applied it as a prefix to existing words (e.g., *mengsedih* affixes *meng-* to the word for *sad*) in text that they posted. From there, it has begun to move into spoken Bahasa Indonesia. Linguists have noted many similar examples of this phenomenon occurring in other languages, suggesting that social media _____

Which choice most logically completes the text?

A) is more useful for studying informal language than for studying formal or official language.

B) appears to be exerting an exceptionally strong influence on the evolution of Bahasa Indonesia.

C) may give linguists a somewhat misleading sense of how languages are changing.

D) does not merely register changes in language usage but can facilitate such changes.

#34

ID: e9521fd1

The Uto-Aztecan language family is divided into a northern branch, which includes the Shoshone language of present-day Idaho and Utah, and a southern one, whose best-known representative is Nahuatl, the language of the Aztec Empire in Mexico. Lexical similarities across the family, including of botanical terms, confirm descent from a single language spoken millennia ago, and the family's geographical distribution suggests an origin in what is now the US Southwest. However, vocabulary pertaining to maize isn't shared between northern and southern branches, despite the crop's universal cultivation among Uto-Aztecan tribes. Given archaeological evidence that maize originated in Mexico and diffused northward into what became the US Southwest, some linguists reason that _____

Which choice most logically completes the text?

A) northern Uto-Aztecan tribes likely obtained the crop directly from a southern Uto-Aztecan tribe rather than from a non-Uto-Aztecan tribe.

B) variation in maize-related vocabulary within each branch of the Uto-Aztecan family likely reflects regionally specific methods for cultivating the crop.

C) southern Uto-Aztecan tribes likely acquired maize at roughly the same time as northern Uto-Aztecan tribes did, though from different sources.

D) the family's division into northern and southern branches likely preceded the acquisition of the crop by the Uto-Aztecan tribes.

#35

ID: 96d1c1fe

Tatiana R. Feuerborn and colleagues analyzed the genomes of more than a hundred domesticated dogs from sites in Siberia dating from 11,000 years ago to the present. They found that the dogs constituted a genetically isolated population of Arctic breeds until approximately 2,000 years ago, at which point there was substantial interbreeding with Near Eastern dog breeds. Furthermore, beginning around 2,000 years ago, some sites contain artifacts consistent with a Near East origin, like glass beads, but the people show no evidence of having traveled extensively outside Siberia. From this, Feuerborn and colleagues concluded that around 2,000 years ago _____

Which choice most logically completes the text?

A) dogs and artifacts like glass beads began to be transported from the Near East to Siberia.

B) people from Siberia began to reach the Near East, where they acquired dogs and artifacts such as glass beads.

C) glass beads and other artifacts from the Near East began to be exchanged for dogs from Siberia.

D) dogs from the Near East began to be exchanged for glass beads and other artifacts from Siberia.

#36

ID: b5e9f3c2

Ancestral Puebloans, the civilization from which present-day Pueblo tribes descended, emerged as early as 1500 B.C.E. in an area of what is now the southwestern United States and dispersed suddenly in the late 1200s C.E., abandoning established villages with systems for farming crops and turkeys. Recent analysis comparing turkey remains at Mesa Verde, one such village in southern Colorado, to samples from modern turkey populations in the Rio Grande Valley of north central New Mexico determined that the latter birds descended in part from turkeys cultivated at Mesa Verde, with shared genetic markers appearing only after 1280. Thus, researchers concluded that _____

Which choice most logically completes the text?

A) conditions of the terrains in the Rio Grande Valley and Mesa Verde had greater similarities in the past than they do today.

B) some Ancestral Puebloans migrated to the Rio Grande Valley in the late 1200s and carried farming practices with them.

C) Indigenous peoples living in the Rio Grande Valley primarily planted crops and did not cultivate turkeys before 1280.

D) the Ancestral Puebloans of Mesa Verde likely adopted the farming practices of Indigenous peoples living in other regions.

#37

ID: 4f9f8ea6

Birds of many species ingest foods containing carotenoids, pigmented molecules that are converted into feather coloration. Coloration tends to be especially saturated in male birds' feathers, and because carotenoids also confer health benefits, the deeply saturated colors generally serve to communicate what is known as an honest signal of a bird's overall fitness to potential mates. However, ornithologist Allison J. Shultz and others have found that males in several species of the tanager genus *Ramphocelus* use microstructures in their feathers to manipulate light, creating the appearance of deeper saturation without the birds necessarily having to maintain a carotenoid-rich diet. These findings suggest that _____

Which choice most logically completes the text?

A) individual male tanagers can engage in honest signaling without relying on carotenoid consumption.

B) feather microstructures may be less effective than deeply saturated feathers for signaling overall fitness.

C) scientists have yet to determine why tanagers have a preference for mates with colorful appearances.

D) a male tanager's appearance may function as a dishonest signal of the individual's overall fitness.

#38

ID: f2250478

Among social animals that care for their young, such as chickens, macaque monkeys, and humans, newborns appear to show an innate attraction to faces and face-like stimuli. Elisabetta Versace and her colleagues used an image of three black dots arranged in the shape of eyes and a nose or mouth to test whether this trait also occurs in *Testudo* tortoises, which live alone and do not engage in parental care. They found that tortoise hatchlings showed a significant preference for the image, suggesting that _____

Which choice most logically completes the text?

A) face-like stimuli are likely perceived as harmless by newborns of social species that practice parental care but as threatening by newborns of solitary species without parental care.

B) researchers should not assume that an innate attraction to face-like stimuli is necessarily an adaptation related to social interaction or parental care.

C) researchers can assume that the attraction to face-like stimuli that is seen in social species that practice parental care is learned rather than innate.

D) newly hatched *Testudo* tortoises show a stronger preference for face-like stimuli than adult *Testudo* tortoises do.

#39

ID: 6e0e0de1

Aerogels are highly porous foams consisting mainly of tiny air pockets within a solidified gel. These lightweight materials are often applied to spacecraft and other equipment required to withstand extreme conditions, as they provide excellent insulation despite typically being brittle and eventually fracturing due to degradation from repeated exposure to high heat. Now, Xiangfeng Duan of the University of California, Los Angeles, and colleagues have developed an aerogel with uniquely flexible properties. Unlike earlier aerogels, Duan's team's material contracts rather than expands when heated and fully recovers after compressing to just 5% of its original volume, suggesting that _____

Which choice most logically completes the text?

A) the aerogel's remarkable flexibility results from its higher proportion of air pockets to solidified gel as compared to other aerogels.

B) the aerogel's overall strength is greater than that of other insulators but its ability to withstand exposure to intense heat is lower.

C) the aerogel will be more effective as an insulator for uses that involve gradual temperature shifts than for those that involve rapid heat increases.

D) the aerogel will be less prone to the structural weakness that ultimately causes most other aerogels to break down with use.

#40

ID: 5cd55c77

During their larval phase, numerous species of coral reef fish are drawn toward areas where light is present. To better understand how artificial light at night (ALAN) might affect some coral reef fish, researchers explored the effect of exposure to low levels of ALAN on the reproductive success of the common clownfish (*Amphiprion ocellaris*). While exposure to low levels of ALAN had no significant effect on spawning frequency and egg fertilization in *A. ocellaris* , incubation in the presence of ALAN completely inhibited hatching. These findings suggest that _____

Which choice most logically completes the text?

A) *A. ocellaris* that settle in areas with low levels of ALAN have significantly higher rates of successful egg fertilization than *A. ocellaris* that settle in areas without ALAN do.

B) the reproductive success of *A. ocellaris* would be at risk if they were to selectively settle in regions that are regularly exposed to low levels of ALAN.

C) the reproductive success of *A. ocellaris* is more greatly affected by the presence of low levels of ALAN during incubation than the reproductive success of other species of coral reef fish is.

D) the spawning frequency of *A. ocellaris* was more strongly affected by the presence of low levels of ALAN than egg fertilization was, though both were less affected than incubation.

#41

ID: f495b554

Silicon-based photovoltaic cells account for 95% of the cells used in solar panels worldwide despite converting an average of only 18–22% of the sunlight that reaches them. In a study addressing this relative inefficiency, a team led by Laura Miranda-Pérez demonstrated that the addition of a thin layer of the mineral perovskite—which captures the blue range of light in the solar spectrum, whereas silicon captures the red range—allows the cells to convert 29.5% or more of the Sun's energy into usable electricity. Cells made with only perovskite, however, are no more efficient than silicon-based ones. It's reasonable to conclude, then, that

_____

Which choice most logically completes the text?

A) photovoltaic cells with both silicon and perovskite are more efficient because they make use of more of the solar spectrum.

B) photovoltaic cells with only perovskite and no silicon would likely convert more than 29.5% of the Sun's energy.

C) solar power will remain elusive until photovoltaic cells are replaced with a more practical technology.

D) researchers need to evaluate whether other minerals like perovskite are as effective as perovskite seems to be.

#42

ID: f27559d4

Volunteering, or giving time for a community service for free, is a valuable form of civic engagement because helping in a community is also good for society as a whole. In a survey of youths in the United States, most young people said that they believe volunteering is a way to help people on an individual level. Meanwhile, only 6% of the youths said that they think volunteering is a way to help fix problems in society overall. These replies suggest that

_____

Which choice most logically completes the text?

A) many young people think they can volunteer only within their own communities.

B) volunteering may be even more helpful than many young people think it is.

C) volunteering can help society overall more than it can help individual people.

D) many young people may not know how to find ways to volunteer their time.

#43

ID: d1539546

Tides can deposit large quantities of dead vegetation within a salt marsh, smothering healthy plants and leaving a salt panne—a depression devoid of plants that tends to trap standing water—in the marsh's interior. Ecologist Kathryn Beheshti and colleagues found that burrowing crabs living within these pannes improve drainage by loosening the soil, leading the pannes to shrink as marsh plants move back in. At salt marsh edges, however, crab-induced soil loosening can promote marsh loss by accelerating erosion, suggesting that the burrowing action of crabs _____

Which choice most logically completes the text?

A) can be beneficial to marshes with small pannes but can be harmful to marshes with large pannes.

B) may promote increases in marsh plants or decreases in marsh plants, depending on the crabs' location.

C) tends to be more heavily concentrated in areas of marsh interiors with standing water than at marsh edges.

D) varies in intensity depending on the size of the panne relative to the size of the surrounding marsh.

#44

ID: cf3acc50

Compiled in the late 1500s largely through the efforts of Indigenous scribes, *Cantares Mexicanos* is the most important collection of poetry in Classical Nahuatl, the principal language of the Aztec Empire. The poems portray Aztec society before the occupation of the empire by the army of Spain, and marginal notes in *Cantares Mexicanos* indicate that much of the collection's content predates the initial invasion. Nonetheless, some of the poems contain inarguable references to beliefs and customs common in Spain during this era. Thus, some scholars have concluded that _____

Which choice most logically completes the text?

A) while its content largely predates the invasion, *Cantares Mexicanos* also contains additions made after the invasion.

B) although those who compiled *Cantares Mexicanos* were fluent in Nahuatl, they had limited knowledge of the Spanish language.

C) before the invasion by Spain, the poets of the Aztec Empire borrowed from the literary traditions of other societies.

D) the references to beliefs and customs in Spain should be attributed to a coincidental resemblance between the societies of Spain and the Aztec Empire.

#45

ID: 4802f6a5

Aptamers—synthetic DNA or RNA molecules that bind to target molecules—can be used to test for foodborne bacterial pathogens, though their specificity (the probability of returning a negative result in the absence of the focal pathogen) in real-world foods has been unclear. Sandeep Somvanshi et al. fabricated test paper incorporating aptamers targeting strain O157:H7 of the bacteria *Escherichia coli*; the paper shifts from pink to purple as the aptamers bind to target molecules. Somvanshi et al. tested the paper in store-bought pear juice they treated with *E. coli* O157:H7, other strains of *E. coli* , or other bacteria species. Following exposure, the paper from the O157:H7 test was purple while papers from the other tests were pink, suggesting that _____

Which choice most logically completes the text?

A) aptamer-based tests in real-world foods are more likely to show a high degree of specificity if the focal pathogen is *E. coli* O157:H7 than if the focal pathogen is another strain of *E. coli* or another species.

B) uncertainty about the specificity of aptamer-based tests for pathogens in real-world foods may be due to the similarity between *E. coli* O157:H7 and other *E. coli* strains.

C) the specificity of the tests in a real-world food was unaffected by the aptamers' tendency to bind to different strains of *E. coli* .

D) the aptamers successfully bound to *E. coli* O157:H7 and the tests displayed a high degree of specificity in a real-world food.

#46

ID: 9abc3ba5

"Gestures" in painting are typically thought of as bold, expressive brushstrokes. In the 1970s, American painter Jack Whitten built a 12-foot (3.7-meter) tool he named the "developer" to apply paint to an entire canvas in one motion, resulting in his series of "slab" paintings from that decade. Whitten described this process as making an entire painting in "one gesture," signaling a clear departure from the prevalence of gestures in his work from the 1960s. Some art historians claim this shift represents "removing gesture" from the process. Therefore, regardless of whether using the developer constitutes a gesture, both Whitten and these art historians likely agree that _____

Which choice most logically completes the text?

A) any tool that a painter uses to create an artwork is capable of creating gestures.

B) Whitten's work from the 1960s exhibits many more gestures than his work from the 1970s does.

C) Whitten became less interested in exploring the role of gesture in his work as his career progressed.

D) Whitten's work from the 1960s is much more realistic than his work from the 1970s is.

#47

ID: 22b3da87

During the Bourbon Restoration in France (1814–1830), the right to vote required in part that a person paid at least 300 francs in direct taxes to the government. The four most common taxes (the *quatre vieilles*) were levied on real estate (both land and buildings); the doors and windows in taxpayer homes; the rental values of homes; and the businesses of artisans and merchants. (Foreign investments were either exempt from taxation or taxed lightly.) Although relatively few people paid the tax on real estate, it was the main means of voter qualification and accounted for over two-thirds of government receipts during this period, suggesting that during the Bourbon Restoration _____

Which choice most logically completes the text?

A) those people who had the right to vote most likely had substantial holdings of French real estate.

B) the voting habits of French artisans and merchants were effective in reducing tax burdens on businesses.

C) the number of doors and windows in French residences was kept to a minimum but increased after 1830.

D) French people with significant foreign investments were unlikely to have the right to vote.

#48

ID: 5d20f560

Conventional theories of rhetoric hold that presenting information as coming from credentialed experts increases that information's credibility. When communications researcher Sungkyoung Lee and her colleagues tested messages seeking volunteers for clinical trials, however, they found that participants in their study judged recruitment messages from former trial volunteers as significantly more credible than messages from doctors (i.e., credentialed experts). One reason for this may be that the doctors' status as credentialed experts wasn't ignored but rather was outweighed by participants' views of the experiential relevance of the two types of messengers; that is, participants may have reacted the way they did because _____

Which choice most logically completes the text?

A) messages from former trial volunteers depicted clinical trials as being more positive experiences than did messages from doctors.

B) participants did not have enough experience to evaluate the credibility of the doctors' messages but did have enough experience to evaluate the credibility of former trial volunteers' messages.

C) the fact that former trial volunteers went through the same experience that participants were contemplating while doctors did not was more important to participants than the doctors' status as credentialed experts was.

D) participants regarded the experiences of both the doctors and former trial volunteers as relevant to the subject of clinical trials but were skeptical of the doctors' status as credentialed experts.

#49

ID: cae97f58

Mosses can struggle in harsh desert conditions because these plants require enough sunlight for photosynthesis but not so much that they risk drying out. Researchers Jenna Ekwealor and Kirsten M. Fisher found several species of *Syntrichia caninervis* , a type of desert moss, growing under quartz crystals in California's Mojave Desert. To evaluate whether these semitransparent rocks benefited the moss, the researchers compared the shoot tissue, a measure of plant growth, of *S. caninervis* when growing on the soil surface versus when the moss was growing under the quartz rocks. They found that the shoot tissue was 62% longer for moss growing under the quartz as compared to moss on the soil surface, suggesting that _____

Which choice most logically completes the text?

A) *S. caninervis* is one of the few types of moss that can survive under semitransparent rocks.

B) quartz crystals do not transmit the necessary sunlight for photosynthesis in *S. caninervis* .

C) *S. caninervis* growing under quartz crystals experience lower light intensity and are thus able to retain more moisture.

D) quartz crystals are capable of supporting *S. caninervis* growth if the crystals are not too thin.

#50

ID: 9869c261

Data collected by the Mars rover *Curiosity* at the Gale Crater's Murray Formation are suggestive of hydrological deposition of sediment in the distant past. To characterize the nature of the depositional environment, Frances Rivera-Hernández et al. analyzed the grain size of Murray Formation sediment, finding that although there are intervals of coarse grains, most of the sediment consists of fine grains that show signs of cracking due to episodic desiccation. Rivera-Hernández et al. concluded that the coarse grains are sandstone, which tends to be deposited by flowing water, whereas the fine grains are mudstone, which is slowly deposited by settling out of suspension in low-flow water, leading the researchers to posit that _____

Which choice most logically completes the text?

A) although the area of the Murray Formation experienced a prolonged period of dryness that prevented a lake from forming, water flowing from a distant source was present.

B) a lake existed at the Murray Formation for a prolonged period, though the lake occasionally experienced drying and there were periods in which one or more streams were present.

C) one or more streams existed at the Murray Formation for an extended period until being replaced by a lake that persisted for only a brief period before permanently drying.

D) a stream-fed lake was present at the Murray Formation for an extended period, and although the streams experienced occasional drying, the lake did not.

#51

ID: 03701ef3

To better understand the burrowing habits of *Alpheus bellulus* (the tiger pistol shrimp), some studies have used resin casting to obtain precise measurements of the shrimps' burrows. Resin casting involves completely filling an empty burrow with a liquid plastic that hardens to create a three-dimensional model; however, recovering the model inevitably requires destroying the burrow. In their 2022 study, Miyu Umehara and colleagues discovered that an x-ray computed tomography (CT) scanner can accurately record a burrow's measurements both at a moment in time and throughout the entire burrow-building process, something that's impossible with resin casting because _____

Which choice most logically completes the text?

A) it can only be used on burrows below a certain size.

B) it does not allow for multiple castings of the same burrow over time.

C) the casting process takes more time than *A. bellulus* takes to construct a burrow.

D) the process of recovering the model distorts the resin's shape.