

Reading and Writing

27 QUESTIONS

DIRECTIONS

The questions in this section address a number of important reading and writing skills. Each question includes one or more passages, which may include a table or graph. Read each passage and question carefully, and then choose the best answer to the question based on the passage(s).

All questions in this section are multiple-choice with four answer choices. Each question has a single best answer.

1

The collectibles market is one of the most difficult segments of the consumer economy to _____. Few economists would have predicted, for example, that the prices of vintage G.I. Joe action figures would soar in the 2010s, but soar they did.

Which choice completes the text with the most logical and precise word or phrase?

- A) avoid
- B) monitor
- C) forecast
- D) exchange

2

Noah Fierer and colleagues _____ pots of sterilized soil with slurries of live microbes collected from soil in five sites across Colorado, including areas of sagebrush and ponderosa pine forest. Fierer and team then grew mustard plants in the pots to see if the different microbial slurries affected levels of spicy glucosinolates like 3-methylthiopropyl in the plants' seeds.

Which choice completes the text with the most logical and precise word or phrase?

- A) estimated
- B) sanitized
- C) precluded
- D) populated

3

Derived from research conducted with factory workers from 1924 to 1933, the Hawthorne effect suggests that participants' awareness that they are being studied alters their behavior and influences study outcomes. Since then, several researchers have claimed to invalidate this phenomenon, positing that the Hawthorne effect cannot be _____ because attempts to detect it invariably involve faulty research methods.

Which choice completes the text with the most logical and precise word or phrase?

- A) substantiated
- B) hypothesized
- C) rectified
- D) inculcated

4

Paleontologists think that *Ornithomimus*, *Phuwiangosaurus*, and other long-extinct theropods and sauropods may have breathed using air sacs connected to tubelike extensions inside the animals' bones. Such structures are found in modern birds, which is why some paleontologists treat the respiratory systems of birds as _____ those of *Ornithomimus*, *Phuwiangosaurus*, and other theropods and sauropods.

Which choice completes the text with the most logical and precise word or phrase?

- A) subordinates of
- B) emissaries for
- C) harbingers of
- D) proxies for

5

Advancements like the emergence of glassmaking in Mesopotamia circa 3500 BCE are overemphasized in innovation studies, contributing to the idea that technological change always brings greater complexity. Research by Nathaniel Erb-Satullo reveals an important exception: gold metallurgy flourished in the Caucasus in the Bronze Age, but a steep drop during that time (circa 1500 BCE) in objects featuring gold filigree (in which fine threads of gold are arranged in intricate patterns) and other sophisticated goldsmithing techniques suggests that simpler processes supplanted advanced methods.

Which choice best describes the overall structure of the text?

- A) It explains that a particular interpretation of technological development has been perpetuated in an academic field and then provides a counterexample demonstrating that the interpretation isn't always accurate.
- B) It advances a claim made by researchers in one academic field about the nature of technological change and then critiques a contrasting claim presented by a researcher from a related academic field.
- C) It details the near-consensus among researchers in a particular field of study regarding how technology evolves and then indicates the controversial nature of a study challenging that broadly accepted view.
- D) It summarizes the findings of several studies into the origins of a particular invention and then presents additional evidence from a more recent study that contradicts those findings.

6

In their study of the steering muscles regulating sclerites (minute hardened structures) in the Drosophila (fruit fly) wing hinge, Johan M. Melis et al. used machine learning to devise a convolutional neural network (CNN) model capable of predicting the pattern of wing motion produced by the maximum activity of the muscles. The CNN model's output aligned with results of prior studies by other researchers measuring muscle activity patterns directly—one of several indications, said Melis et al., that the model accurately represents important biomechanical processes underlying wing motion.

Which choice best states the main purpose of the text?

- A) To present evidence from Melis et al.'s study in support of the efficacy of their CNN model
- B) To provide an overview of how Melis et al. honed the accuracy of their CNN mode
- C) To compare results obtained by Melis et al. using their CNN model to prior results obtained from other researchers' models
- D) To account for Melis et al.'s reliance in their study on a CNN model in lieu of direct measurement

7

The following text is from Julia Alvarez's 2000 novel *In the Name of Salomé*. The narrator and her sister, daughters of a famous poet, are being tutored by Alejandro Román.

Our tutor, Alejandro Román, brought his younger brother, Miguel, to class one day. By now I was eighteen and had learned everything Alejandro had to teach me, so I was glad for a new face. Miguel was an aspiring poet, and he had heard from his brother that the Ureña girls were none other than the daughters of Nicolás Ureña, and they were smart as clockwork. Miguel was hoping not only to meet us but to make the acquaintance of the poet himself at Mama's house.

Based on the text, why does Miguel accompany his brother to the sisters' house one day?

- A) Miguel wishes to share his poems with the sisters and ask them for feedback on his writing.
- B) Miguel has not received formal instruction in poetry and wants to ask the sisters' famous father to be his mentor.
- C) Miguel's brother has shared with him all the knowledge he has, and Miguel wants to learn from the sisters now.
- D) Miguel anticipates having the opportunity to be introduced to both the sisters and their father.

8

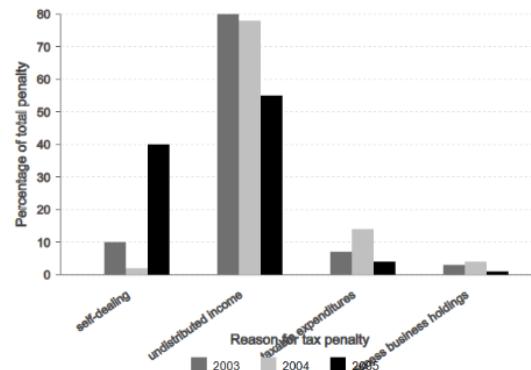
Motivated to sell as many paintings as possible, Alfred Hair, an influential figure among the landscape artists known as the Florida Highwaymen, pioneered “fast painting,” which in part involved swift applications of paint. That many of Hair’s acolytes, including Livingston Roberts, imitated the technique accounts in part for the impressionistic qualities that are now synonymous with the group’s shared aesthetic. But not all Highwaymen fully embraced this approach; for instance, though Charles Walker was also prolific, his paintings were executed with greater attention to detail.

What does the text most strongly suggest about paintings by Roberts?

- A) Because of the manner in which they were created, they likely have visual qualities that are regarded as more typical of Florida Highwaymen paintings than the qualities in works by Walker are.
- B) Roberts’s reliance on the technique of fast painting likely accounts for his works being more aesthetically interesting than works by Walker are.
- C) Although it is evident that Roberts adopted some of Hair’s preferred techniques, Roberts’s works are less derivative of works by Hair than is typically acknowledged.
- D) The lack of precision with which they were executed suggests that they are inferior to works by either Hair or Walker.

9

Tax Penalties Assessed on Private Foundations That Filed Form 4720, by Reason, 2003–2005



While US public charities, like Kaiser Foundation Hospitals, must file Form 990 yearly with the IRS, private foundations, such as the Gordon and Betty Moore Foundation, must file a different form, 990-PF. In addition, foundations that engage in certain prohibited activities must also file Form 4720 and pay a penalty tax on the money involved. Private foundations are prohibited from holding excess interests in a business enterprise, “self-dealing” (conducting activities that benefit foundation insiders), making taxable expenditures such as outlays for lobbying, and failing to cross a required threshold in making charitable distributions from income. Out of the organizations that filed Form 990-PF in the years 2003–2005, _____

Which choice most effectively uses data from the graph to complete the assertion?

- A) a smaller percentage of those that also filed Form 4720 did so because they held excess interests in a business enterprise than the percentage of those that filed Form 4720 because they did not meet the minimum charitable distribution requirement.
- B) those that also filed Form 4720 collectively paid larger penalties for failing to meet the minimum charitable distribution requirement than for other reasons.
- C) those that were also required to file Form 4720 because they had excess holdings in a business enterprise paid, on average, a larger penalty than those organizations that filed Form 4720 because they made taxable expenditures.
- D) those that also filed Form 4720 paid a larger penalty for failing to meet a minimum charitable distribution requirement than those organizations that filed Form 990 but also filed Form 4720 for the same reason.

10

Blandine Courel and her colleagues analyzed pottery fragments from thirty-five sites across the Volga and Don river basins to determine whether the ways in which hunter-gatherer societies used pottery in these regions around 6,500–8,000 years ago were influenced primarily by local food availability or primarily by cultural factors. Analysis of organic residues on the pottery fragments showed different prevailing uses for pottery in these locations—cooking and storing terrestrial animal protein at Volga sites and cooking and storing aquatic animal protein at Don sites—which Coureland colleagues attribute to cultural differences.

Assuming that the Volga and Don basins supported similarly sized hunter-gatherer populations 6,500–8,000 years ago, which finding, if true, would most directly support Courel and colleagues' explanation?

- A) Across the Volga and Don basins, people had broadly similar access to the same terrestrial and aquatic animal resources.
- B) The people of the Volga basin acquired the techniques used to create pottery for cooking and storing food from the people of the Don basin.
- C) There were many more bodies of water in a comparably sized area in the Don basin than in the Volga basin.
- D) In both the Volga and Don basins, most of the sites from which pottery has been recovered appear to have been seasonal fishing and hunting encampments rather than year-round settlements.

11

To boost the performance of oil-absorbing resins, which are used to remove oil and other organic compounds from wastewater, one team of materials researchers created a resin with a novel—albeit very expensive—monomer (a molecule that can chemically bond with analogous molecules to form polymers) synthesized from β -cyclodextrin. Other researchers have produced resins consisting of various much cheaper, commercially available methacrylate monomers, including one derived from benzyl methacrylate (BZMA). Testing all these resins' capacity to absorb toluene and trichloromethane, two organic compounds, a scientist concluded that when practical considerations were taken into account, the BZMA-derived resin showed the greatest potential for use in wastewater cleanup.

Which finding, if true, would most directly support the scientist's conclusion?

- A) For both toluene and trichloromethane, the BZMA-derived resin exhibited only modestly lower absorption capacity than the resin synthesized from β -cyclodextrin but higher absorption capacity than other resins consisting of commercially available methacrylate monomers.
- B) Relative to the resin synthesized from β -cyclodextrin and to other resins consisting of commercially available methacrylate monomers, the BZMA-derived resin exhibited superior absorption capacity for toluene but not for trichloromethane.
- C) For both toluene and trichloromethane, the BZMA-derived resin exhibited similar absorption capacity as other resins consisting of commercially available methacrylate monomers and a slightly higher absorption capacity than the resin synthesized from β -cyclodextrin.
- D) Whereas the resin synthesized from β -cyclodextrin exhibited the highest absorption capacity for toluene, the BZMA-derived resin and other resins consisting of commercially available methacrylate monomers exhibited the highest absorption capacity for trichloromethane.

12

Northern New York's Hamilton County is among the most rural counties in the United States: the US Census Bureau classified it as 100% rural in 2010. Researchers often struggle to recruit residents of counties like Hamilton for inclusion in studies. Melissa Valerio and colleagues tested whether an approach called snowball sampling improves recruitment. Working in two rural counties, they recruited a few people (known as "seeds") with the characteristics desired for a proposed study and asked them to recruit additional participants from their social networks. Though the seeds were given minimal guidance, many more people they recruited had the desired characteristics for the study than would be expected by chance alone, most likely because _____.

Which choice most logically completes the text?

- A) the seeds' social networks include a high proportion of people who share characteristics with the seeds.
- B) most seeds' social networks include some people who do not know one another and who share few characteristics.
- C) the seeds' social networks tend to be somewhat smaller than the networks of people who do not live in rural areas.
- D) the characteristics that made the seeds desirable for inclusion in the proposed study may be unknown to some members of the seeds' social networks.

13

In classical Greek and Roman mythology, female characters are typically cast as either villains lacking in psychological depth or passive victims who are marginal to these stories, which usually focus on the exploits of male characters. Recently, a subgenre has emerged in which writers reimagine these stories from the perspectives of their female characters, giving them agency and complex motivations. Purists argue that such efforts represent a distinctively modern tendency to impose our own values on past civilizations, obscuring those civilizations' beliefs. Defenders of the subgenre counter that reimaginings of the myths for new cultural contexts are almost as old as the myths themselves, suggesting that _____.

Which choice most logically completes the text?

- A) the complex motivations given to female characters in modern retellings of Greek and Roman myths reflect a recent shift toward psychological depth in fictional representation.
- B) purists are overlooking a long tradition of adapting Greek and Roman myths to focus on female characters.
- C) bringing female perspectives to the forefront is not indicative of a novel attitude regarding fidelity to Greek and Roman myths' ideologies.
- D) modern writers' foregrounding of female characters is chiefly motivated by a desire to counterbalance the primacy of male perspectives among earlier adaptations of Greek and Roman myths.

14

The world's many geothermal power plants leverage an array of _____ the Hellisheiði plant uses a flash steam system that transforms high-temperature geothermal fluid into steam; in Indonesia, the Darajat plant's dry steam system pumps superheated steam from a reservoir; and in Turkey, the Pamukoren plant's binary cycle system uses lower-temperature geothermal fluid in conjunction with a secondary fluid.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) technologies: in Iceland,
- B) technologies in Iceland;
- C) technologies, in Iceland,
- D) technologies in Iceland:

15

When a given term—"self-fulfilling prophecies" and "role models" are two well-known examples—is generally accepted and frequently used, _____ susceptible to obliteration by incorporation (OBI). In cases of OBI, widely used terms are rarely, if at all, attributed to the individuals who coined them.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) it often becomes
- B) this often becomes
- C) these often become
- D) they often become

16

In ancient Rome, salt was used as a commodity currency. By using specific goods like salt as common units of exchange, commodity currency economies streamline trade, which is why they often replaced barter economies. Barter economies eschew _____ that requires what economist W.S. Jevons deems a "double coincidence of wants"—in other words, each trading party must want precisely what the other has.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) currency in favor of a direct trade system
- B) currency, in favor of a direct trade system
- C) currency—in favor of a direct trade system
- D) currency, in favor of a direct trade system,

17

For her installation *The Last Cruze*, photographer LaToya Ruby Frazier traveled to Lordstown, Ohio, where she documented the lives of workers at the local automobile plant. In the installation, text culled from a series of in-depth interviews with employees and their families _____ sixty-seven gelatin silver prints, highlighting the collaborative, documentary nature of Frazier's work.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) are punctuated by
- B) punctuate
- C) punctuating
- D) punctuates

18

In their attempt to create a quantum random number generator, K. Muhammed Shafi et al. used a continuous-wave diode laser to fire photons at a periodically-poled potassium titanyl phosphate (PPKTP) nonlinear crystal. A plano-convex lens _____ the laser on the center of the 10-millimeter-long crystal ensured a spot size (a measure of the beam's diameter) of 85 micrometers.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) focus
- B) focuses
- C) focusing
- D) focused

19

A single specimen of *G. hexagonus*, collected at a depth of 483 fathoms (884 meters) in the Pacific Ocean, and a single specimen of *G. rubescens*, collected at a depth of 769 fathoms (1,407 meters) in the Indian Ocean, have been preserved as exemplars of their respective _____ former in a repository at Washington, DC's Museum of Natural History and the latter in a repository at the Netherlands' Naturalis Biodiversity Center.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) species; the
- B) species. The
- C) species, and the
- D) species, the

20

Writing in hieroglyphs, ancient Egyptians recorded measurements using units such as the sa, a unit of _____ and the khar, a unit of volume. The sa, for instance, is written as a hieroglyph that looks like a duck or goose.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) area, the shesep; a unit of length,
- B) area the shesep, a unit of length
- C) area; the shesep; a unit of length;
- D) area; the shesep, a unit of length;

21

While most animals prefer the safety of nighttime migration, many poisonous amphibians—a category that includes the striped newt and the Asian common toad—safely engage in migratory behavior during the day. _____ with the sun in the sky, the amphibians' striking color patterns deter visually oriented daytime predators by serving as a warning of toxicity.

Which choice completes the text with the most logical transition?

- A) However,
- B) In other words
- C) For example,
- D) At that time,

22

In a given rock formation, Chattian rock from 27.8 million years ago might directly abut Roadian rock from 273 million years ago, with millions of years of material missing in between. _____ time did not stand still during these intervening years; the unaccounted-for sedimentary material was likely removed from the stratigraphic record via erosion and weathering.

Which choice completes the text with the most logical transition?

- A) As a result,
- B) On the contrary,
- C) Of course,
- D) In particular,

23

Architect Victor Gruen, the designer of Indiana's Woodmar Plaza shopping mall, conceived of the mall as an indoor version of the European town square, a communal space that encouraged visitors to stroll and linger. _____ he designed Woodmar Plaza with long, pedestrian-friendly promenades and ample seating areas clustered around fountains and greenery.

Which choice completes the text with the most logical transition?

- A) In addition
- B) Regardless,
- C) By contrast,
- D) Accordingly,

24

Long thought to be sessile (immobile), adult *Chelonibia testudinaria*, barnacles that adhere to sea turtle shells, have been observed to shift slightly in position over time—a phenomenon that has been attributed to the barnacles' passive displacement by water currents. _____ a research team found that adult *C. testudinaria* moved toward the heads of their sea turtle hosts and thus against the prevailing water flow, behavior consistent with self-initiated locomotion.

Which choice completes the text with the most logical transition?

- A) Undermining this explanation,
- B) Confirming this hypothesis,
- C) Contrary to this phenomenon,
- D) Drawing a similar conclusion,

25

In Annie Dillard's *Pilgrim at Tinker Creek*—where, early on, the author marvels at a single goldfish's delicate fins but later winces when imagining a horde of goldfish laying and eating their own eggs—Dillard struggles to reconcile the complicated juxtapositions of the natural world. _____ nature's mesmerizing intricacy and pitiless harshness prove inextricably linked for Dillard, like "two branches of the same creek."

Which choice completes the text with the most logical transition?

- A) To that end,
- B) Moreover,
- C) Hence,
- D) Ultimately,

26

While researching a topic, a student has taken the following notes:

- Founded in 2011, EMOTIV is a neurotechnology company that develops brain-computer interfaces (BCIs).
- BCIs interpret and execute brain signals to allow users to control external software or hardware with their thoughts.
- Founded in 2013, Saluda Medical is a neurotechnology company that develops neuromodulation technologies.
- Neuromodulation technologies use neural interfaces to stimulate nervous system structures and influence neural activity.
- Founded in 2009, BrainGate is a neurotechnology company that develops neuroprostheses.

Neuroprostheses act as replacement brain functions to restore the user's lost sensory, motor, or neural functions.

The student wants to contrast the type of neurotechnology EMOTIV develops with the type of neurotechnology Saluda Medical develops. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A) Unlike Saluda Medical, which develops neurotechnology, EMOTIV develops BCIs.
- B) BCIs interpret and execute brain signals to allow users to control external software or hardware with their thoughts, whereas neuromodulation technologies restore sensory, motor, or neural functions.
- C) BCIs allow users to control external software or hardware with their thoughts, but they don't influence neural activity as neuromodulation technologies do.
- D) Founded in 2011, EMOTIV develops technology for interpreting and executing brain signals, which, unlike Saluda Medical and BrainGate, is categorized as a neuromodulation technology.

27

While researching a topic, a student has taken the following notes:

- Silent films can be valuable historical documents of their time.
- Ninety percent of silent films made before 1930 are now lost.
- A film is considered lost when no remaining copies are known to exist.
- Director Richard Thorpe's 1929 silent film *The Fatal Warning* is lost.
- Director Oscar Micheaux's 1920 silent film *Within Our Gates* is archived at the UCLA Film & Television Archive in Los Angeles, California.

Which choice most effectively uses information from the given sentences to emphasize a difference between the two movies?

- A) While Richard Thorpe's *The Fatal Warning* is considered lost to history, Oscar Micheaux's film *Within Our Gates* is archived at the UCLA Film & Television Archive in Los Angeles, California.
- B) Oscar Micheaux's film *Within Our Gates* can be found at the UCLA Film & Television Archive in Los Angeles, California.
- C) Richard Thorpe's 1929 film *The Fatal Warning* is among the many lost films of the era.
- D) Richard Thorpe's *The Fatal Warning* (1929) and Oscar Micheaux's *Within Our Gates* (1920) are just two examples of silent films from the 1920s.

STOP

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