

Reading and Writing

33 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

According to botanists, a viburnum plant experiencing insect damage may develop erineum—a discolored, felty growth—on its leaf blades. A _____ viburnum plant, on the other hand, will have leaves with smooth surfaces and uniformly green coloration.

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

- A) struggling
- B) beneficial
- C) simple
- D) healthy

2

Nigerian American author Teju Cole's _____ his two passions—photography and the written word—culminates in his 2017 book, *Blind Spot*, which evocatively combines his original photographs from his travels with his poetic prose.

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

- A) indifference to
- B) enthusiasm for
- C) concern about
- D) surprise at

3

Novelist N. K. Jemisin declines to _____ the conventions of the science fiction genre in which she writes, and she has suggested that her readers appreciate her work precisely because of this willingness to thwart expectations and avoid formulaic plots and themes.

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

- A) question
- B) react to
- C) perceive
- D) conform to

4

In *Nature Poem* (2017), Kumeyaay poet Tommy Pico portrays his _____ the natural world by honoring the centrality of nature within his tribe's traditional beliefs while simultaneously expressing his distaste for being in wilderness settings himself.

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

- A) responsiveness to
- B) ambivalence toward
- C) renunciation of
- D) mastery over

5

The following text is from the 1924 poem “Cycle” by D’Arcy McNickle, who was a citizen of the Confederated Salish and Kootenai Tribes.

There shall be new roads wending,
A new beating of the drum—

Men’s eyes shall have fresh seeing,
Grey lives reprise their span—
But under the new sun’s being,
Completing what night began,

There’ll be the same backs bending,
The same sad feet shall drum—
When this night finds its ending
And day shall have come.....

Which choice best states the main purpose of the text?

- A) To consider how the repetitiveness inherent in human life can be both rewarding and challenging
- B) To question whether activities completed at one time of day are more memorable than those completed at another time of day
- C) To refute the idea that joy is a more commonly experienced emotion than sadness is
- D) To demonstrate how the experiences of individuals relate to the experiences of their communities

6

The following text is adapted from Jane Austen’s 1814 novel *Mansfield Park*. The speaker, Tom, is considering staging a play at home with a group of his friends and family.

We mean nothing but a little amusement among ourselves, just to vary the scene, and exercise our powers in something new. We want no audience, no publicity. We may be trusted, I think, in choosing some play most perfectly unexceptionable; and I can conceive no greater harm or danger to any of us in conversing in the elegant written language of some respectable author than in chattering in words of our own.

Which choice best states the main purpose of the text?

- A) To offer Tom’s assurance that the play will be inoffensive and involve only a small number of people
- B) To clarify that the play will not be performed in the manner Tom had originally intended
- C) To elaborate on the idea that the people around Tom lack the skills to successfully stage a play
- D) To assert that Tom believes the group performing the play will be able to successfully promote it

7

Musician Joni Mitchell, who is also a painter, uses images she creates for her album covers to emphasize ideas expressed in her music. For the cover of her album *Turbulent Indigo* (1994), Mitchell painted a striking self-portrait that closely resembles Vincent van Gogh's *Self-Portrait with Bandaged Ear* (1889). The image calls attention to the album's title song, in which Mitchell sings about the legacy of the postimpressionist painter. In that song, Mitchell also hints that she feels a strong artistic connection to Van Gogh—an idea that is reinforced by her imagery on the cover.

Which choice best describes the overall structure of the text?

- A) It presents a claim about Mitchell, then gives an example supporting that claim.
- B) It discusses Van Gogh's influence on Mitchell, then considers Mitchell's influence on other artists.
- C) It describes a similarity between two artists, then notes a difference between them.
- D) It describes the songs on *Turbulent Indigo*, then explains how they relate to the album's cover.

8

Text 1

Astronomer Mark Holland and colleagues examined four white dwarfs—small, dense remnants of past stars—in order to determine the composition of exoplanets that used to orbit those stars. Studying wavelengths of light in the white dwarf atmospheres, the team reported that traces of elements such as lithium and sodium support the presence of exoplanets with continental crusts similar to Earth's.

Text 2

Past studies of white dwarf atmospheres have concluded that certain exoplanets had continental crusts. Geologist Keith Putirka and astronomer Siyi Xu argue that those studies unduly emphasize atmospheric traces of lithium and other individual elements as signifiers of the types of rock found on Earth. The studies don't adequately account for different minerals made up of various ratios of those elements, and the possibility of rock types not found on Earth that contain those minerals.

Based on the texts, how would Putirka and Xu (Text 2) most likely characterize the conclusion presented in Text 1?

- A) As unexpected, because it was widely believed at the time that white dwarf exoplanets lack continental crusts
- B) As premature, because researchers have only just begun trying to determine what kinds of crusts white dwarf exoplanets had
- C) As questionable, because it rests on an incomplete consideration of potential sources of the elements detected in white dwarf atmospheres
- D) As puzzling, because it's unusual to successfully detect lithium and sodium when analyzing wavelengths of light in white dwarf atmospheres

9

Utah is home to Pando, a colony of about 47,000 quaking aspen trees that all share a single root system. Pando is one of the largest single organisms by mass on Earth, but ecologists are worried that its growth is declining in part because of grazing by animals. The ecologists say that strong fences could prevent deer from eating young trees and help Pando start thriving again.

According to the text, why are ecologists worried about Pando?

- A) It isn't growing at the same rate it used to.
- B) It isn't producing young trees anymore.
- C) It can't grow into new areas because it is blocked by fences.
- D) Its root system can't support many more new trees.

10

For many years, the only existing fossil evidence of mixopterid eurypterids—an extinct family of large aquatic arthropods known as sea scorpions and related to modern arachnids and horseshoe crabs—came from four species living on the paleocontinent of Laurussia. In a discovery that expands our understanding of the geographical distribution of mixopterids, paleontologist Bo Wang and others have identified fossilized remains of a new mixopterid species, *Terropterus xiushanensis*, that lived over 400 million years ago on the paleocontinent of Gondwana.

According to the text, why was Wang and his team's discovery of the *Terropterus xiushanensis* fossil significant?

- A) The fossil constitutes the first evidence found by scientists that mixopterids lived more than 400 million years ago.
- B) The fossil helps establish that mixopterids are more closely related to modern arachnids and horseshoe crabs than previously thought.
- C) The fossil helps establish a more accurate timeline of the evolution of mixopterids on the paleocontinents of Laurussia and Gondwana.
- D) The fossil constitutes the first evidence found by scientists that mixopterids existed outside the paleocontinent of Laurussia.

11

The novelist Toni Morrison was the first Black woman to work as an editor at the publishing company Random House, from 1967 to 1983. A scholar asserts that one of Morrison's likely aims during her time as an editor was to strengthen the presence of Black writers on the list of Random House's published authors.

Which finding, if true, would most strongly support the scholar's claim?

- A) The percentage of authors published by Random House who were Black rose in the early 1970s and stabilized throughout the decade.
- B) Black authors who were interviewed in the 1980s and 1990s were highly likely to cite Toni Morrison's novels as a principal influence on their work.
- C) The novels written by Toni Morrison that were published after 1983 sold significantly more copies and received wider critical acclaim than the novels she wrote that were published before 1983.
- D) Works that were edited by Toni Morrison during her time at Random House displayed stylistic characteristics that distinguished them from works that were not edited by Morrison.

12

"The Poet Walt Whitman" is an 1887 essay by José Martí, a Cuban author and political activist, originally written in Spanish. In the essay, Martí explores the value of literature, arguing that a society's spiritual well-being depends on the character of its literary culture: _____

Which quotation from a translation of "The Poet Walt Whitman" most effectively illustrates the claim?

- A) "Poetry, which brings together or separates, which fortifies or brings anguish, which shores up or demolishes souls, which gives or robs men of faith and vigor, is more necessary to a people than industry itself, for industry provides them with a means of subsistence, while literature gives them the desire and strength for life."
- B) "Every society brings to literature its own form of expression, and the history of the nations can be told with greater truth by the stages of literature than by chronicles and decades."
- C) "Where will a race of men go when they have lost the habit of thinking with faith about the scope and meaning of their actions? The best among them, those who consecrate Nature with their sacred desire for the future, will lose, in a sordid and painful annihilation, all stimulus to alleviate the ugliness of humanity."
- D) "Listen to the song of this hardworking and satisfied nation; listen to Walt Whitman. The exercise of himself exalts him to majesty, tolerance exalts him to justice, and order to joy."

Estimates of Tyrannosaurid Bite Force

Study	Year	Estimation method	Approximate bite force (newtons)
Cost et al.	2019	muscular and skeletal modeling	35,000–63,000
Gignac and Erickson	2017	tooth-bone interaction analysis	8,000–34,000
Meers	2002	body-mass scaling	183,000–235,000
Bates and Falkingham	2012	muscular and skeletal modeling	35,000–57,000

The largest tyrannosaurids—the family of carnivorous dinosaurs that includes *Tarbosaurus*, *Albertosaurus*, and, most famously, *Tyrannosaurus rex*—are thought to have had the strongest bites of any land animals in Earth’s history. Determining the bite force of extinct animals can be difficult, however, and paleontologists Paul Barrett and Emily Rayfield have suggested that an estimate of dinosaur bite force may be significantly influenced by the methodology used in generating that estimate.

Which choice best describes data from the table that support Barrett and Rayfield’s suggestion?

- A) The study by Meers used body-mass scaling and produced the lowest estimated maximum bite force, while the study by Cost et al. used muscular and skeletal modeling and produced the highest estimated maximum.
- B) In their study, Gignac and Erickson used tooth-bone interaction analysis to produce an estimated bite force range with a minimum of 8,000 newtons and a maximum of 34,000 newtons.
- C) The bite force estimates produced by Bates and Falkingham and by Cost et al. were similar to each other, while the estimates produced by Meers and by Gignac and Erickson each differed substantially from any other estimate.
- D) The estimated maximum bite force produced by Cost et al. exceeded the estimated maximum produced by Bates and Falkingham, even though both groups of researchers used the same method to generate their estimates.

Number and Origin of Clamshell Tools Found at Different Levels Below the Surface in Neanderthal Cave

Depth of tools found below surface in cave (meters)	Clamshells that Neanderthals collected from the beach	Clamshells that Neanderthals harvested from the seafloor
3–4	99	33
6–7	1	0
4–5	2	0
2–3	7	0
5–6	18	7

Studying tools unearthed at a cave site on the western coast of Italy, archaeologist Paola Villa and colleagues have determined that prehistoric Neanderthal groups fashioned them from shells of clams that they harvested from the seafloor while wading or diving or that washed up on the beach. Clamshells become thin and eroded as they wash up on the beach, while those on the seafloor are smooth and sturdy, so the research team suspects that Neanderthals prized the tools made with seafloor shells. However, the team also concluded that those tools were likely more challenging to obtain, noting that _____

Which choice most effectively uses data from the table to support the research team's conclusion?

- A) at each depth below the surface in the cave, the difference in the numbers of tools of each type suggests that shells were easier to collect from the beach than to harvest from the seafloor.
- B) the highest number of tools were at a depth of 3–4 meters below the surface, which suggests that the Neanderthal population at the site was highest during the related period of time.
- C) at each depth below the surface in the cave, the difference in the numbers of tools of each type suggests that Neanderthals preferred to use clamshells from the beach because of their durability.
- D) the higher number of tools at depths of 5–6 meters below the surface in the cave than at depths of 4–5 meters below the surface suggests that the size of clam populations changed over time.

15

Average Number and Duration of Torpor Bouts and Arousal Episodes for Alaska Marmots and Arctic Ground Squirrels, 2008–2011

Feature	Alaska marmots	Arctic ground squirrels
torpor bouts	12	10.5
duration per bout	13.81 days	16.77 days
arousal episodes	11	9.5
duration per episode	21.2 hours	14.2 hours

When hibernating, Alaska marmots and Arctic ground squirrels enter a state called torpor, which minimizes the energy their bodies need to function. Often a hibernating animal will temporarily come out of torpor (called an arousal episode) and its metabolic rate will rise, burning more of the precious energy the animal needs to survive the winter. Alaska marmots hibernate in groups and therefore burn less energy keeping warm during these episodes than they would if they were alone. A researcher hypothesized that because Arctic ground squirrels hibernate alone, they would likely exhibit longer bouts of torpor and shorter arousal episodes than Alaska marmots.

Which choice best describes data from the table that support the researcher's hypothesis?

- A) The Alaska marmots' arousal episodes lasted for days, while the Arctic ground squirrels' arousal episodes lasted less than a day.
- B) The Alaska marmots and the Arctic ground squirrels both maintained torpor for several consecutive days per bout, on average.
- C) The Alaska marmots had shorter torpor bouts and longer arousal episodes than the Arctic ground squirrels did.
- D) The Alaska marmots had more torpor bouts than arousal episodes, but their arousal episodes were much shorter than their torpor bouts.

16

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.

17

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.

18

Atoms in a synchrotron, a type of circular particle accelerator, travel faster and faster until they _____ a desired energy level, at which point they are diverted to collide with a target, smashing the atoms.

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

- A) will reach
- B) reach
- C) had reached
- D) are reaching

19

Even though bats prefer very sweet nectar, the plants that attract them have evolved to produce nectar that is only moderately sweet. A recent study _____ why: making sugar is energy-intensive, and it is more advantageous for plants to make a large amount of low-sugar nectar than a small amount of high-sugar nectar.

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

- A) explains
- B) explaining
- C) having explained
- D) to explain

20

Former First Lady of the United States Eleanor Roosevelt and Indian activist and educator Hansa Mehta were instrumental in drafting the United Nations' Universal Declaration of Human Rights, a document that _____ the basic freedoms to which all people are entitled.

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

- A) have outlined
- B) were outlining
- C) outlines
- D) outline

21

The life spans of rockfish vary greatly by species. For instance, the colorful calico rockfish (*Sebastes dalli*) can survive for a little over a _____ the rougheye rockfish (*Sebastes aleutianus*) boasts a maximum life span of about two centuries.

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

- A) decade: while
- B) decade. While
- C) decade; while
- D) decade, while

22

The Lion Light system, developed by Kenyan inventor Richard Turere, consists of LED lights installed around the perimeter of livestock pastures. Powered with _____ the blinking LEDs keep lions away at night, thus protecting the livestock without risking harm to the endangered lions.

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

- A) energy collected, by solar panels, during the day
- B) energy collected by solar panels during the day
- C) energy collected by solar panels during the day,
- D) energy, collected by solar panels during the day,

23

Materials scientist Marie-Agathe Charpagne and her colleagues believed they could improve on the multicomponent alloy NiCoCr, an equal-proportions mixture of nickel (Ni), cobalt (Co), and chromium (Cr), by replacing chromium with ruthenium _____ the alloy that resulted, NiCoRu, turned out to be an unsuitable replacement for NiCoCr.

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

- A) (Ru)
- B) (Ru) but
- C) (Ru),
- D) (Ru), but

24

The Progressive Era in the United States witnessed the rise of numerous Black women's clubs, local organizations that advocated for racial and gender equality. Among the clubs' leaders _____ Josephine St. Pierre Ruffin, founder of the Women's Era Club of Boston.

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

- A) was
- B) were
- C) are
- D) have been

25

Based on genetic evidence, archaeologists have generally agreed that reindeer domestication began in the eleventh century CE. However, since uncovering fragments of a 2,000-year-old reindeer training harness in northern Siberia, _____ may have begun much earlier.

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

- A) researcher Robert Losey has argued that domestication
- B) researcher Robert Losey's argument is that domestication
- C) domestication, researcher Robert Losey has argued,
- D) the argument researcher Robert Losey has made is that domestication

26

Hegra is an archaeological site in present-day Saudi Arabia and was the second largest city of the Nabataean Kingdom (fourth century BCE to first century CE). Archaeologist Laila Nehmé recently traveled to Hegra to study its ancient _____ into the rocky outcrops of a vast desert, these burial chambers seem to blend seamlessly with nature.

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

- A) tombs. Built
- B) tombs, built
- C) tombs and built
- D) tombs built

27

When external forces are applied to common glass made from silicates, energy builds up around minuscule defects in the material, resulting in fractures. Recently, engineer Erkka Frankberg of Tampere University in Finland used the chemical _____ to make a glassy solid that can withstand higher strain than silicate glass can before fracturing.

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

- A) compound, aluminum oxide
- B) compound aluminum oxide,
- C) compound, aluminum oxide,
- D) compound aluminum oxide

28

Etched into Peru's Nazca Desert are line drawings so large that they can only be fully seen from high above. Archaeologists have known of the lines since the 1920s, when a researcher spotted some from a nearby foothill, and they have been studying the markings ever since. _____ archaeologists' efforts are aided by drones that capture high-resolution aerial photographs of the lines.

Which choice completes the text with the most logical transition?

- A) Currently,
- B) In comparison,
- C) Still,
- D) However,

29

Archaeologist Sue Brunning explains why the seventh-century ship burial site at Sutton Hoo in England was likely the tomb of a king. First, the gold artifacts inside the ship suggest that the person buried with them was a wealthy and respected leader. _____ the massive effort required to bury the ship would likely only have been undertaken for a king.

Which choice completes the text with the most logical transition?

- A) Instead,
- B) Still,
- C) Specifically,
- D) Second,

30

The more diverse and wide ranging an animal's behaviors, the larger and more energy demanding the animal's brain tends to be. _____ from an evolutionary perspective, animals that perform only basic actions should allocate fewer resources to growing and maintaining brain tissue. The specialized subtypes of ants within colonies provide an opportunity to explore this hypothesis.

Which choice completes the text with the most logical transition?

- A) Subsequently,
- B) Besides,
- C) Nevertheless,
- D) Thus,

31

When designing costumes for film, American artist Suttirat Larlarb typically custom fits the garments to each actor. _____ for the film *Sunshine*, in which astronauts must reignite a dying Sun, she designed a golden spacesuit and had a factory reproduce it in a few standard sizes; lacking a tailor-made quality, the final creations reflected the ungainliness of actual spacesuits.

Which choice completes the text with the most logical transition?

- A) Nevertheless,
- B) Thus,
- C) Likewise,
- D) Moreover,

32

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

- Shaun Tan is an Australian author.
- In 2008, he published *Tales from Outer Suburbia*, a book of fifteen short stories.
- The stories describe surreal events occurring in otherwise ordinary suburban neighborhoods.
- In 2018, he published *Tales from the Inner City*, a book of twenty-five short stories.
- The stories describe surreal events occurring in otherwise ordinary urban settings.

The student wants to emphasize a similarity between the two books by Shaun Tan. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A) Shaun Tan's book *Tales from Outer Suburbia*, which describes surreal events occurring in otherwise ordinary places, contains fewer short stories than *Tales from the Inner City* does.
- B) *Tales from Outer Suburbia* was published in 2008, and *Tales from the Inner City* was published in 2018.
- C) Unlike *Tales from the Inner City*, Shaun Tan's book *Tales from Outer Suburbia* is set in suburban neighborhoods.
- D) Shaun Tan's books *Tales from Outer Suburbia* and *Tales from the Inner City* both describe surreal events occurring in otherwise ordinary places.

33

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

- The factors that affect clutch size (the number of eggs laid at one time) have been well studied in birds but not in lizards.
- A team led by Shai Meiri of Tel Aviv University investigated which factors influence lizard clutch size.
- Meiri's team obtained clutch-size and habitat data for over 3,900 lizard species and analyzed the data with statistical models.
- Larger clutch size was associated with environments in higher latitudes that have more seasonal change.
- Lizards in higher-latitude environments may lay larger clutches to take advantage of shorter windows of favorable conditions.

The student wants to emphasize the aim of the research study. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A) Researchers wanted to know which factors influence lizard egg clutch size because such factors have been well studied in birds but not in lizards.
- B) After they obtained data for over 3,900 lizard species, researchers determined that larger clutch size was associated with environments in higher latitudes that have more seasonal change.
- C) We now know that lizards in higher-latitude environments may lay larger clutches to take advantage of shorter windows of favorable conditions.
- D) Researchers obtained clutch-size and habitat data for over 3,900 lizard species and analyzed the data with statistical models.

STOP

**If you finish before time is called, you may check your work on this module only.
Do not turn to any other module in the test.**

No Test Material On This Page