2018 Dec Asia SAT® Test



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Reading Test

65 MINUTES, 52 QUESTIONS

Turn to Section 1 of your answers sheet to answer the questions in this section.

DIRECTIONS

Each passage or pair of passages below is followed by a number of questions. After reading each passage or pair, choose the best answer to each question based on what is stated or implied in the passage or passages and in any accompanying graphics (such as a table or graph).

Questions 1-10 are based on the following passage.

This passage is adapted from R.K Narayan, "The Edge". ©1994 by R.K. Narayan.

When pressed to state his age, Ranga would generally reply, "Fifty, sixty or eighty." You might change your tactics and inquire, ""How long have you Line been at this job?"

"Which job?"

"Carrying that grinding wheel around and sharpening knives."

"Not only knives, but also scythes, clippers and every kind of peeler and cutter in your kitchen, also 10 bread knives, even butcher's hatchets in those days when I carried the big grindstone; in those days I could even sharpen a maharaja's sword" (a favorite fantasy of his was that if armies employed swords he could become a millionaire). You might interrupt his 15 loquaciousness and repeat your question, "How long have you been a sharpener of knives and other things?" "Ever since a line of moustache began to appear here," he would say, drawing a finger over his lip. You would not get any further by studying his 20 chin now overlaid with patchy tufts of discolored hair. Apparently he never looked at a calendar, watch, almanac or even a mirror. In such a blissful state, clad in a dhoti, khaki shirt and turban, his was a familiar figure in the streets of Malgudi as he slowly 25 passed in front of homes, offering his service in a high-pitched, sonorous cry, "Knives and scissors sharpened."

He stuck his arm through the frame of a portable grinding apparatus; an uncomplicated contraption 30 operated by an old cycle wheel connected to a foot-pedal. At the Market Road he dodged the traffic and paused in front of tailor's and barber's shops, offering his services. But those were an erratic and unreliable lot, encouraging him by word but always 35 suggesting another time for business. If they were not busy cutting hair or clothes (tailors, particularly, never seemed to have a free moment, always stitching away on overdue orders), they locked up and sneaked away, and Ranga had to be watchful and 40 adopt all kinds of strategies in order to catch them. Getting people to see the importance of keeping their edges sharp was indeed a tiresome mission. People's reluctance and lethargy had, initially, to be overcome. At first sight everyone dismissed him with, 45 "Go away, we have nothing to grind," but if he persisted and dallied, some member of the family was bound to produce a rusty knife, and others would follow, vying with one another, presently, to ferret out long-forgotten junk and clamor for immediate 50 attention. But it generally involved much canvassing, coaxing and even aggressiveness on Ranga's part; occasionally he would warn, "If you do not sharpen your articles now, you may not have another chance, since I am going away on a pilgrimage." "Makes no difference, we will call in the other

fellow," someone would say, referring to a

competitor, a miserable fellow who operated a hand

grinder, collected his cash and disappeared, never

giving a second look to his handiwork. He was a

fellow without a social standing, and no one knew his
name, no spark ever came out of his wheel, while
Ranga created a regular pyrotechnic display and
passing children stood transfixed by the spectacle.

"All right," Ranga would retort, "I do not grudge the
poor fellow his luck, but he will impart to your knife
the sharpness of an egg; after that I won't be able to
do anything for you. You must not think that anyone
and everyone could handle steel. Most of these
fellows don't know the difference between a knife

blade and a hammerhead."

Ranga's customers loved his banter and appreciated his work, which he always guaranteed for sixty days. "If it gets dull before then, you may call me." If he were to be assailed for defective

75 execution, he could always turn round and retort that so much depended upon the quality of metal, and the action of sun and rain, and above all the care in handling, but he never argued with his customers; he just sharpened the knives free of cost on his next round. Customers always liked to feel that they had won a point, and Ranga would say to himself, "After all, it costs nothing, only a few more turns of the wheel and a couple of sparks off the stone to please the eye."

1

Over the course of the passage, the main focus shifts from a

- A) detailed account of a character's livelihood to a lengthy criticism of the character's methods of achieving a goal.
- B) humorous anecdote about a character to an illustration of the character's ethical changes over time.
- C) good-natured interrogation of a character to an extended description of the character's professional interactions.
- D) detached inquiry into a character's motivations to a passionate defense of the character's actions.

2

As used in line 1, "pressed" most nearly means

- A) urged
- B) occupied
- C) rushed
- D) afflicted

3

The passage indicates that compared to the past, Ranga now

- A) can afford to be charitable to others.
- B) indulges more often in daydreams.
- C) sharpens fewer types of blades.
- D) can attract a younger group of customers.

4

Which choice best supports the idea that Ranga offers a service that many do not consider a necessity?

- A) Lines 8-14 ("Not only...millionaire")
- B) Lines 14-17 ("You might...things")
- C) Lines 31-33 ("At the...services")
- D) Lines 41-42 ("Getting...mission")

5

It can reasonably be inferred from the passage that the tailors and barbers Ranga encounters are

- A) strictly formal in their conduct.
- B) somewhat hypocritical in their actions.
- C) openly sarcastic in their responses.
- D) unreasonably demanding in their expectations.

1

6

The passage suggests that Ranga's methods of attracting business are

- A) successful mainly as a result of determination on Ranga's part.
- B) ineffective, since few people value Ranga's work.
- C) comical because of Ranga's eccentric appearance.
- immediately fruitful because of Ranga's unique skill.

7

The passage suggests that compared to his competitor, Ranga is perceived by certain people as being

- A) less sentimental in his beliefs.
- B) less sophisticated in his technology.
- C) more interested in his profits.
- D) more impressive in his presentation.

8

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 55-59 ("Makes...handiwork")
- B) Lines 59-63 ("He was...spectacle")
- C) Lines 68-70 ("Most...hammerhead")
- D) Lines 71-73 ("Ranga's...days")

9

In line 66, Ranga refers to an egg in order to emphasize which aspect of the knife?

- A) Its fragility
- B) Its bluntness
- C) Its ordinariness
- D) Its utility

10

In the last paragraph of the passage, the information about Ranga's sixty-day work guarantee serves mainly to

- A) emphasize Ranga's astute knowledge of how to conduct business.
- B) show Ranga's cleverness in outsmarting his customers.
- C) describe Ranga's attempt to match his competitor's strategy.
- D) introduce a reason for Ranga's looming financial failure.

1

Questions 11-21 are based on the following passage.

This passage is adapted from Walt Whitman's open letter to Ralph Waldo Emerson, August 1856. The full letter was published with *Leaves of Grass*, a collection of Whitman's poetry.

Swiftly, on limitless foundations, the United States ... are founding a literature. It is all as well done, in my opinion, as could be practicable. Each Line element here is in condition. Every day I go among the people of Manhattan Island, Brooklyn, and other cities, and among the young men, to discover the spirit of them, and to refresh myself. These are to be attended to; I am myself more drawn here than to those authors, publishers, importations, reprints, and so forth. I pass coolly through those, understanding them perfectly well, and that they do the indispensable service, outside of men like me, which nothing else could do. In poems, the young men of The States shall be represented, for they out-rival the best of the rest of the earth.

The lists of ready-made literature which America inherits by the mighty inheritance of the English language—all the rich repertoire of traditions, poems, histories, metaphysics, plays, classics, 20 translations, have made, and still continue, magnificent preparations for that other plainly signified literature, to be our own, to be electric, fresh, lusty, to express the full-sized body, male and female—to give the modern meanings of things, to grow up beautiful, lasting, commensurate with America, with all the passions of home, with the inimitable sympathies of having been boys and girls together, and of parents who were with our parents.

What else can happen The States, even in their 30 own despite? That huge English flow, so sweet, so undeniable, has done incalculable good here, and is to be spoken of for its own sake with generous praise and with gratitude. Yet the price The States have had to lie under for the same has not been a small price. 35 Payment prevails; a nation can never take the issues of the needs of other nations for nothing. America, grandest of lands in the theory of its politics, in popular reading, in hospitality, breadth, animal beauty, cities, ships, machines, money, credit, collapses quick as lightning at the repeated, admonishing, stern words, Where are any mental expressions from you, beyond what you have copied or stolen? Where the born throngs of poets, literats, orators, you promised? Will you but tag after other

45 nations? They struggled long for their literature, painfully working their way, some with deficient languages, some with priest-craft, some in the endeavor just to live—yet achieved for their times, works, poems, perhaps the only solid consolation left 50 to them through ages afterward of shame and decay. You are young, have the perfectest of dialects, a free press, a free government, the world forwarding its best to be with you. As justice has been strictly done to you, from this hour do strict justice to yourself. Strangle the singers who will not sing you loud and strong. Open the doors of The West. Call for new great masters to comprehend new arts, new perfections, new wants. Submit to the most robust bard till he remedy your barrenness. Then you will not need to adopt the heirs of others; you will have true heirs, begotten of yourself, blooded with your

11

own blood.

Over the course of the passage, the main focus shifts from

- A) an introduction of a theory concerning tradition to an analysis of the role of young writers in continuing that tradition.
- B) a description of the present cultural conditions to an emphasis on the immediate need to transform those conditions.
- C) a discussion of societal forces influencing art to an explanation of why certain art forms are more susceptible to change than others.
- D) an evaluation of the appeal of classical art to a revelation of the need to innovate for the sake of improvement.

1

12

In describing his own activity, Whitman suggests that the components of American literature can more readily be found in

- A) New York City than in other cities in the nation.
- B) the work of common laborers than in that of educated professionals.
- C) the genre of poetry than in other literary genres.
- D) the daily lives of city dwellers than in published literature.

13

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 2-3 ("It is...practicable")
- B) Lines 4-10 ("Every...forth")
- C) Lines 10-13 ("I pass... could do")
- D) Lines 13-15 ("In poems...earth")

14

As used in line 8, "drawn" most nearly means

- A) provoked
- B) extracted
- C) dragged
- D) attracted

15

The primary purpose of the second paragraph (lines 16-28) is to argue that an older literary tradition is

- A) a repository containing everything necessary for creating a new literature.
- B) an important asset for a nation that celebrates individual freedom.
- C) a valuable basis for a new and singular development.
- D) a relic with historical significance but with no contemporary relevance.

16

As used in line 18 "rich" most nearly means

- A) manifestly affluent
- B) abundantly supplied
- C) gaudily impressive
- D) deeply colored

17

Whitman makes which assertion about how the English literary tradition should be regarded in the United States?

- Critics should view it as antiquated and obsolete
- B) Writers should imitate its style but write about American themes.
- C) Readers should consider it equal to Western classical literature.
- D) Americans should honor and be thankful for it.

1

18

In the passage, Whitman implies that American literature has so far borne what relationship to its English literary inheritance?

- A) It pays homage to English literature by alluding to it frequently.
- B) It has to a large extent imitated English literature.
- C) It has departed from the narrative conventions of English literature.
- D) It has surpassed the quality of English literature.

19

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 18-24 ("Call...female")
- B) Lines 35-36 ("a nation...nothing")
- C) Lines 41-45 ("Where...nations")
- D) Lines 45-48 ("They struggled...live")

20

Whitman's central claim in the last paragraph (lines 29-62) is that

- A) Americans are unfortunately resistant to the idea of creating a literature that is new and original
- B) the variety of styles in American literature makes it superior to that of Europe.
- C) the creation of original American literature is both needed and overdue.
- D) American literature will eventually influence the literary development of other nations.

21

Whitman includes the imperative sentences at the end of the passage most likely to

- A) emphasize both literal and metaphorical actions that need to be undertaken.
- B) clarify the number of pervasive errors that will soon be remedied.
- C) order the American people to become more familiar with their own literature.
- D) publicize the struggle of American writers to overcome their English heritage.

1

Questions 22-31 are based on the following passage.

This passage is adapted from Beetles and Bugs, ©2015 by The Economist

The coffee-berry borer is a pesky beetle. It is thought to destroy \$500m-worth of unpicked coffee beans a year, thus diminishing the incomes of some 20m farmers. The borer spends most of its life as a 5 larva, buried inside a coffee berry, feeding on the beans within. To do so, it has to defy the toxic effects of caffeine. This is a substance which, though pleasing to people, is fatal to insects—except, for reasons hitherto unknown, to the coffee-berry borer. But those reasons are unknown no longer. A team of researchers led by Eoin Brodie of Lawrence Berkeley National Laboratory and Fernando Vega of the United States Department of Agriculture had a suspicion the answer lay not with the beetle itself, 15 but with the bacteria in its gut, and the suspicion has proved correct.

The team's hypothesis was that the borer's gut bacteria are shielding it by eating any caffeine it has ingested before the poison can be absorbed through 20 the insect's gut wall. Experiments on a laboratory-reared strain of the borer suggested this hypothesis was probably true. Initially, the larvae's droppings were caffeine-free. When the lab-reared insects were dosed with antibiotics, this changed. 25 Caffeine started appearing in their droppings, and the animals themselves began, as it were, dropping off the perch. Over the course of an experiment lasting 44 days after their guts had been sterilized (a period that let the insects complete an entire life 30 cycle of egg, larva, pupa and adult), the population of the experimental colonies fell by 95%—and even those larvae that did not die had trouble pupating. Clearly, immunity to caffeine was being conferred by bacteria. The question was, which ones?

To answer that, Dr. Brodie and Dr. Vega turned to wild beetles. They collected samples from seven coffee-growing countries and combed through the insects' gut floras, looking for features in common. By constructing what was, in effect, a Venn diagram of microbes from these populations, and also those from their lab-bred strain, they were able to focus on the bacterial species found in all of them.

They tried growing each of these on a medium whose only source of carbon and nitrogen for

metabolism was caffeine. Some of the bugs were able to survive on this diet, others were not. Of the survivors, the most abundant in beetle guts was *Pseudomonas fulva*. This species, a genetic analysis showed, is blessed with an enzyme called caffeine
 demethylase, which converts caffeine into something that can be dealt with by normal metabolic enzymes.

Kill *P. fulva*, then, and you would probably kill the borer. But that is easier said than done. Even if spraying coffee plantations with antibiotics were feasible and would do the job (by no means certain, for the larvae would have to ingest sufficient antibiotic for the purpose), it would be undesirable. The profligate use of antibiotics encourages resistance, thus making them less effective for saving human lives.

There might, though, be another way of getting at *P. fulva*. This would be to craft a type of virus, known as a bacteriophage, specific to the bug—an approach already being investigated for the treatment of human illness caused by a different species of *Pseudomonas*.

In practice, more than one type of phage would probably be needed, for if *P. fulva* were knocked out, another caffeine-consuming bacterium in the beetle's gut might end up replacing it. But, regardless of the details, this study has introduced a novel way of thinking about pest control. Many plants use poisons to protect themselves from insects. Sometimes, such plants are crops. Being able to circumvent these natural insecticides is an important part of becoming abundant enough to constitute a pest. It is possible other agronomists who have been seeking to understand how critters do this have been looking in the wrong place—i.e., at the critters themselves, rather than among the bacteria in their guts.

Figure 1

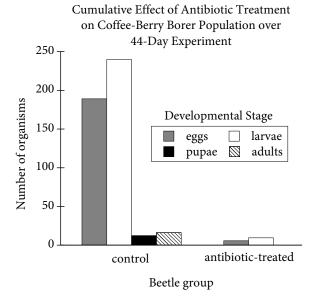
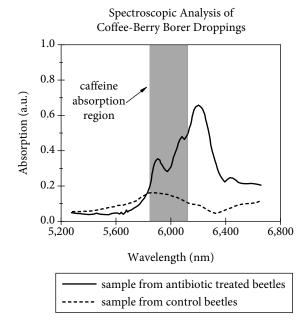


Figure 2



In the shaded region, higher absorption values indicate greater concentrations of caffeine.

Figures adapted from Javier A. Cejia-Navarro et al., "Gut Microbiota Mediate Caffeine Detoxification in the Primary Insect Pest of Coffee." ©2015 by Macmillan Publishers Limited.

22

The primary purpose of the passage is to

- A) recommend an approach for controlling coffee-berry borer populations.
- B) discuss research on the causes of coffee-berry borer infestations.
- C) compare two studies of how caffeine benefits the coffee-berry borer.
- D) describe efforts to understand how the coffee-berry borer tolerates caffeine.

1

23

As used in line 3, "diminishing" most nearly means

- A) belittling
- B) reducing
- C) discrediting.
- D) underestimating

24

According to the passage, coffee-berry borers are a problem for coffee farmers because they

- A) render coffee beans toxic.
- B) infect coffee plants with bacteria.
- C) consume the coffee beans.
- D) weaken the coffee plant's root system.

25

Which choice best supports the idea that coffee-berry borers' normal maturation process will likely be disrupted if the borers absorb caffeine through their gut walls?

- A) Lines 10-15 ("A team...gut")
- B) Lines 22-23 ("Initially...caffeine-free")
- C) Lines 27-32 ("Over...pupating")
- D) Lines 39-42 ("By constructing...them")

26

As used in line 33, "conferred" most nearly means

- A) donated
- B) awarded
- C) provided
- D) served

27

The parenthetical statement in lines 55-57 ("by no...purpose") primarily serves to

- A) acknowledge a potential impediment to implementing a proposal supported by the author.
- B) imply that current limitations on adopting an approach the author favors may soon be overcome.
- C) call into question the intentions of researchers who have suggested a plan that the author opposes.
- D) emphasize the impracticality of a course of action that the author describes as harmful regardless.

28

The author's discussion best supports which statement about *Pseudomonas fulva*?

- A) It is probably more resistant to antibiotics than are other species of caffeine-consuming bacteria that live in the guts of coffee-berry borers.
- B) It is probably not the only species of bacteria that can live in the guts of coffee-berry borers and digest or detoxify caffeine.
- C) It can probably be killed by the bacteriophage that has been developed to treat illnesses caused by another species of Pseudomonas.
- D) It can probably survive only in the guts of the various insect species that regularly ingest caffeine.

29

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 58-60 ("The profligate...lives")
- B) Lines 61-62 ("There...*P.fulve*")
- C) Lines 62-66 ("This...Pseudomonas")
- D) Lines 67-70 ("In practice... replacing it")

1

30

According to figure 1, how many coffee-berry borer eggs were found in the control group?

- A) Between 50 and 100
- B) Between 100and 150
- C) Between 150 and 200
- D) Between 200 and 250

31

Which assertion is best supported by the spectroscopic analysis depicted in figure 2?

- A) In the caffeine absorption region, the sample from the control group exhibited a lower concentration of caffeine than did the sample from the antibiotic-treated group.
- B) The absorption exhibited by the sample from the control group and the absorption exhibited by the sample from the antibiotic-treated group were nearest in value at a wavelength of 6,400nm.
- C) The absorption exhibited by the sample from the control group was constant across the caffeine absorption region.
- D) The greatest absorption exhibited by the sample from the antibiotic-treated group occurred within the caffeine absorption region.

32

Taken together, figure 1 and figure 2 best support which of the following statements about coffee-berry borers?

- A) The concentration of caffeine in their droppings increases over the course of their life cycle.
- B) Their ability to lay eggs is positively correlated with the concentration of caffeine in their droppings.
- Increased concentrations of caffeine in their droppings are associated with increased mortality.
- D) High concentrations of caffeine in their droppings occur primarily when they are pupae.

1

Questions 32-42 are based on the following passage.

This passage is adapted from Ori Brafman and Rom Brafman, *Sway: The Irresistible Pull of Irrational Behavior*. ©2008 by Ori Brafman and Rom Brasfman.

The conference where US Supreme Court justices start deciding a case is purposely structured. "In the conference, we go around the table in order of seniority, from the chief justice down to the most recent appointment," Justices Stephen Breyer explained, "and everybody speaks once before anybody speaks twice." This ensures that every opinion is represented. "Each person might spend five minutes per case...They're trying to explain their reasons for which direction they're leaning. And everybody writes down what everybody else says. And then there'll be some discussion back and forth afterwards. And on the basis of that discussion—which is a preliminary discussion—it's fairly clear how the Court is likely to break down."

The group dynamic that the conference unintentionally avoids was first empirically studied by Solomon Asch in a landmark psychology experiment. This study not only illuminates what goes on in the Supreme Court, but also explains how the role played by a single individual can shift an entire group's opinion.

In Asch's study each participant was placed in a room with several other people. The participants

25 were told they would be tested for visual acuity. The task seemed simple enough: the group was shown three straight lines of varying lengths, and each person was asked to determine which of the three lines matched a fourth line. It was pretty

30 straightforward; the lengths were so glaringly different that you certainly didn't need a magnifying glass or a ruler. But what the participant didn't know was that the other "subjects" in the room were really actors, and all of them had been instructed to give

35 the same wrong answer. As the actors called out their erroneous answers one by one, the real participant

was bewildered. But something strange happened: rather than stick to their guns, most participants began to doubt themselves and their lone dissenting opinion. What if I misunderstood something, or what if I've been looking at the lines from a weird angle? Time and again, they figured that it was best to go along with the group—and save themselves the embarrassment of being odd man out. Indeed,

45 75 percent of subjects joined the group in giving the wrong answer in at least one round.

Now, it's easy to dismiss the study participants as being too easily manipulated. But regardless of how independent-minded and steadfast we may think we are, we're all tempted at times to align ourselves with a group. We may worry that if we voice an unpopular viewpoint others will doubt our intelligence, taste, or competence. Or we may just not want to make waves. The challenge is to know when to speak up.

Breyer explained that even when the thought "Oh, I'm the only one" arises, he'll speak up, saying something like, "I actually don't agree, but I'll swallow it because there's no point writing a dissent in this. I don't feel that strongly about it." He added, "If I'm all by myself, I have to feel pretty strongly before I write a dissent." This reasoning makes perfect sense. If justices were to write a formal dissent every time they disagreed on a small point, the Court would come to a standstill. But the fact that a dissenter speaks up can make all the difference.

As Asch found, although the sway of group conformity is incredibly strong, it depends on unanimity for its power. In a variation of the line study, Asch ran the experiment exactly as before (an unsuspecting participant, a room full of actors giving the wrong answer), but this time he added a single actor who gave the right answer. This lone dissenting voice was enough to break the spell, as it "gave permission" to the real participant to break ranks with the other members of the group.

Figure 1

Frequency of Errors by Participants Relative to Number of Actors Giving Incorrect Answer

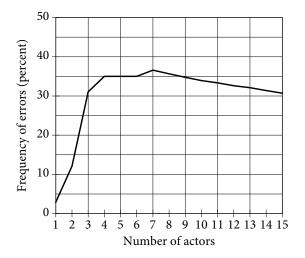
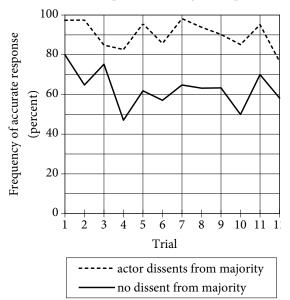


Figure 2

Impact of Dissenting Actor on Accuracy of Responses Given by Participants



Figures adapted from Solomon E. Asch, "Opinions and Social Pressure," ©1955 by Scientific American

33

According to the passage, preliminary conferences for US Supreme Court cases are structured with which primary aim in mind?

- A) Allowing each justice to present his or her position
- B) Privileging the opinions of more recently appointed justices
- C) Reaching a majority decision by minimizing debate among justices
- D) Compiling a written transcript of the arguments advanced by each justice

34

As used in line 8, "represented" most nearly means

- A) served
- B) expressed
- C) portrayed
- D) symbolized

35

Which choice provides the best evidence for the idea that Asch, in designing the first experiment, took steps to exclude errors in perception as a determining factor in the responses of participants?

- A) Lines 23-24 ("In Asch's...people")
- B) Lines 24-25 ("The participants...acuity")
- C) Lines 25-29 ("The task...line")
- D) Lines 29-32 ("It was...ruler")

1

36

In line 33, the authors put the word "subjects" in quotation marks most likely to

- A) emphasize the strategy employed to mislead the study participants.
- B) suggest the extent to which the experiment's outcome was predictable.
- C) underscore the impartial nature of Asch's selection of participants for the experiment.
- D) convey the capability of the actors who took part in Asch's experiment.

37

Based on the passage, the authors' opinion of the study subjects who conformed with the group in Asch's first experiment is best characterized as

- A) disapproving
- B) ambivalent
- C) understanding
- D) concerned

38

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 35-37 ("As the...bewildered")
- B) Lines 37-40 ("But something...opinion")
- C) Lines 44-46 ("Indeed...round")
- D) Lines 48-51 ("But regardless... group")

39

It can reasonably be inferred that Asch designed the second study described in the passage to investigate which question?

- A) How might unanimity within a group influence the self-image of an individual in the group who privately disagrees with the majority?
- B) How might a lack of unanimity in a group influence an individual's willingness to dissent openly from the majority?
- C) How might an individual who dissents from the majority regain credibility within the group?
- D) How might the intensity of an individual's convictions impact the willingness of that individual to openly express them in a group setting?

40

According to figure 1, study participants were least likely to commit errors when tested alongside how many actors answering incorrectly?

- A) One
- B) Two
- C) Seven
- D) Fifteen

According to figure 1, the greatest increase in the frequency of errors occurred when the number of actors increased from

- A) two to three.
- B) three to four.
- C) four to five.
- D) five to six.

42

Figure 2 helps support a main claim addressed in the passage by showing that the

- A) presence of a dissenter decisively shifted the opinion of the majority
- B) presence of a dissenter improved the accuracy of responses only when there were multiple dissenters
- C) accuracy of responses given by participants when a dissenter was present verified across trails
- D) accuracy of responses given by participants was higher overall when a dissenter was present.

Questions 42-52 are based on the following passage.

Passage 1 is adapted from David Quammen. *The Fight of the Iguana: A Sidelong View of Science and Nature.* ©1998 by David Quammen. Passage 2 is adapted from Cecile LeBlanc, "Tiny Earthworms' Big Impact." ©2011 by Society for Society for Science & the Public.

Passage 1

Charles Darwin was concerned with the collective and cumulative impact of earthworms in the wild. On this count, he made large claims for them. He Line knew they were numerous, powerful, and busy. A German scientist had recently come up with the figure 53,767 as the average earthworm population on each acre of the land he was studying, and to Darwin this sounded about right for his own turf in England too. Every one of those 53,767 worms, he 10 realized, spent much of its time swallowing. It swallowed dead plant material for its sustenance, and it swallowed almost anything else in its path (including tiny rock particles) as it burrowed. The rock particles were smashed even finer in the worm's 15 gizzard, mixed with the plant material and the digestive juices in its gut, and passed out behind in the form of "castings". The castings contained enough natural glue to give them a nice crumb structure, characteristic of good soil, and were also 20 biochemically ideal for nurturing vegetation. Collectively, over years and decades and centuries, this process transformed dead leaves and fractured rock into the famous and all-important "vegetable

25 At least some of those species of earthworm had the habit of depositing their castings above ground. A worm would back tail-first out of its burrow and unload a neat castellated pile around the entrance. As a result, Darwin recognized, soil from a foot or more underground was steadily being carried up to the surface. In many parts of England, he figured, the worm population swallowed and brought up ten tons of earth each year on each acre of land. Earthworms therefore were not only creating the planet's thin layer of fertile soil; they were also constantly turning it inside out. They were burying old Roman ruins. They were causing the monoliths of Stenehenge to subside and topple. On sloping land, where rainwater and wind would sweep their castings away and down

mould." But that wasn't all.

40 into valleys, they were making a huge contribution to erosion. No wonder Darwin concluded: "Worms have played a more important part in the history of the world than most persons would at first suppose."

Passage 2

In the 1990s, biologist Cindy Hale took a field trip to northern Minnesota. There she saw a changed landscape. Gone were forest floor plants like ferns and wildflowers and understory plants like bushes and tree saplings that make up the middle height of the forest. She and other ecologists on the field trip were given a surprising reason for the loss of the plants and the ecosystem they sustained: invasive earthworms.

To get an idea of the earthworm's destruction, picture these forests before European settlers—and their earthworms—arrived in the Great Lakes region around 200 years ago. Leaves, twigs and other plant debris had accumulated on the forest floor over the years and created a thick layer of what is called duff. Fungi, bacteria and microscopic invertebrates such as mites slowly broke down this debris. The duff held moisture like a sponge, nurturing the growth of many understory plants like wildflowers, shrubs and tree seedlings. Small animals and birds nested and fed on the forest floor and in understory foliage.

When the first European earthworms arrived, they began doing what they always do: munching, mixing and moving. Some plant litter earthworms munched through the forest floor and its fungi and bacteria. Burrowing species, like the common
 nightcrawler, pulled leaf litter down into their holes to finish munching and mixing. Slowly, earthworms destroyed the duff on which wildflowers, understory shrubs and tree seedlings depended.

Before long, says forestry scientist Lee Frelich

"Earthworms become the dominant living thing that influences the ecosystem. They influence the type of plants that can grow, the type of insects that can live there, the habitat for wildlife species and the structure of the soil."

In one recent study, scientists looked at how invasive earthworms have affected a type of litter-dwelling mite. Mites help break down a forest floor's duff and spread fungus spores, the tiny reproductive units similar to seeds that give rise to more fungi.
 Today, more than 100,000 mites of more than

1

100 species may occupy each square meter of northern forest soil. That may sound like a lot, but this study showed that in soil free of invasive earthworms, the mites seem to fare better. They were between 72 and 1,210 times more abundant and the number of mite species was one to two times higher.

43

Which choice best describes the characterization of Darwin in Passage 1?

- A) The passage represents Darwin as a modern thinker whose ideas were criticized by the scientific community
- B) The passage represents Darwin as an insightful thinker who made expansive observations.
- The passage depicts Darwin as an innovative thinker whose theories require only slight modifications.
- D) The passage portrays Darwin as an imaginative thinker who tended to exaggerate the significance of his findings.

44

As used in line 3, the phrase "claims for" most nearly means

- A) requests for
- B) allowances for
- C) assertions about
- D) rights to

45

Which choice in Passage 1 best supports the idea that Darwin credited earthworms with rendering earth favorable for plant growth?

- A) Lines 9-13 ("Every...burrowed")
- B) Lines 13-17 ("The rock...of 'castings'")
- C) Lines 17-20 ("The castings...vegetation")
- D) Lines 29-33 ("As a...land")

46

The repetition of the phrase "they were" in lines 36-41 serves primarily to

- A) summarize a counterclaim to an argument presented earlier in the passage.
- B) stress the likelihood that the hypotheses predicted by the author would occur.
- C) offer competing interpretations of a fact presented in the passage.
- D) emphasize the potential significance of an observation noted earlier in the paragraph.

47

It can reasonably be inferred that the author of Passage 2 conceives of the duff of the Great lakes region as

- A) the foundation of the forest ecosystem.
- B) a common entry point for invasive species.
- C) the local manifestation of global environmental change.
- D) an ongoing safeguard against further habitat loss.

48

Passage 2 implies that the feeding behavior of earthworms can vary according to the

- A) species of earthworm
- B) earthworms' proximity to predators
- C) size of the earthworm population
- D) weather conditions earthworms encounter

1

49

Figure 2 helps support a main claim addressed in the passage by showing that the

- A) presence of a dissenter decisively shifted the opinion of the majority
- B) presence of a dissenter improved the accuracy of responses only when there were multiple dissenters
- C) accuracy of responses given by participants when a dissenter was present verified across trails:
- D) accuracy of responses given by participants was higher overall when a dissenter was present.

50

On what grounds do both passages characterize the ecological significance of earthworms as startling or unexpected?

- A) Certain actions performed by earthworms are counteracted by other actions they perform so that the earthworms' contributions to the environment go unnoticed.
- B) Although a particular environmental condition is widespread, scientists only recently determined that the condition is caused by earthworms.
- C) Earthworms have a dramatic influence on their environment, even though that influence is not apparent upon casual observation.
- D) The effect of any individual earthworms on a landscape is negligible, while the combined effect of all the earthworms in that landscape results in catastrophe.

51

The author of Passage2 would most likely describe the biological processes discussed in line 10-17 ("It swallowed...of 'castings") and lines 25-28 ("At least... entrance") of Passage 1 as

- A) reflective of the changes that a species typically undergoes when transplanted to an unfamiliar environment.
- B) potentially harmful to ecosystems to which the organisms
- C) jeopardized by the presence of competitor species that perform equivalent processes.
- D) frequently misunderstood as conferring an advantage to all the organisms in an ecosystem.

52

Which choice in Passage 2 provides the best evidence for the answer to the previous question?

- A) Lines 65-67 ("When...moving")
- B) Lines 80-84 ("In one...fungi")
- C) Lines 85-87 ("Today...soil")
- D) Lines 87-91 ("That...higher")

STOP

If you finish before time is called, you may check your work on this section only.

Do not turn to any other section.



Writing and Language Test

35 MINUTES, 44 QUESTIONS

Turn to Section 2 of your answer sheet to answer the questions in this section.

Each passage below is accompanied by a number of questions. For some questions, you will consider how the passage might be revised to improve the expression of ideas. For other questions, you will consider how the passage might be edited to correct errors in sentence structure, usage, or punctuation. A passage or a question may be accompanied by one or more graphics (such as a table or graph) that you will consider as you make revising and editing decisions. This test is brought to you by Kale Academy©

Some questions will direct you to an underlined portion of a passage. Other questions will direct you to a location in a passage or ask you to think about the passage as a whole.

After reading each passage, choose the answer to each question that most effectively improves the quality of writing in the passage or that makes the passage conform to the conventions of standard written English. Many questions include a "NO CHANGE" option. Choose that option if you think the best choice is to leave the relevant portion of the passage as it is.

Question 1-11 are based on the following passage.

The Colorful Communication of Squid

Longfin inshore squid, *Loligo Pealei*, communicate and express behaviors through visible signals that can be seen, including changes in coloration, posture, and

in patterns on their bodies. To study body patterns in

1

- A) NO CHANGE
- B) visible signals that can be observed,
- C) visible signals,
- D) signals that can visibly be seen,

- A) NO CHANGE
- B) their patterns
- C) making patterns
- D) patterns

L. pealei, researchers from Stanford University and the National Geographic Society outfitted several of the squid with formfitting sleeves equipped with a Crittercam system used t record their behaviors in their natural habitats.

Because the squid is only one of many different species that can modify its appearance, the scientists have created an ethogram, a catalog of body patterns and their corresponding meanings, that can be used to resolve the squid behaviors.

3

Which choice provides the most effective transition from the details provided earlier in the paragraph to the rest of the sentence?

- A) NO CHANGE
- B) Because squid can adapt easily to divers,
- C) With the information they've gathered,
- D) Though they can't know for sure what squid are thinking,

- A) NO CHANGE
- B) unscramble
- C) convert
- D) decode

In longfin squid, the chromatic, or color component of body pattern is perhaps the most interesting and also the most complex. This aspect of body pattern involves chromatophores—organs that, when retracted or expanded, change the coloration pattern on a squid's body. If a squid retracts all of its chromatophores while in clear water, it will appear almost translucent, which allows it to avoid detection. When a quid retracts its chromatophores in murky water, it will turn bright white, which serves as a signal to repel other members of the species. This function is often used when a squid is protecting its eggs or guarding its mate. Conversely, the expansion of chromatophores

Scientists have observed that squid migrate
seasonally based on water temperatures, noting that a
squid can retract or expand the chromatophores in
specific regions of its body and that coloration can appear
almost instantaneously. Dark spots on the fins, for

in a wide variety of patterns; this type of change is often

seen among animals that are in an alarmed state.

example, these appear when a squid is alarmed or threatened, usually while fighting other squid. Dark bands may appear on the fins, head, or arms of a squid to serve as camouflage when it is at rest. Some body patterns are brief, occurring in situations that last for mere seconds, such as fights. They can also be longer lasting, visible during states that span minutes or hours, such as attempts to avoid detection.

5

- A) NO CHANGE
- B) color component;
- C) color, component
- D) color, component,

6

- A) NO CHANGE
- B) result
- C) resulted
- D) have resulted

7

Which choice most effectively sets up the observations that follow in the sentence?

- A) NO CHANGE
- B) many variations in chromatic appearance,
- C) that pilot whales and dolphins prey on squid,
- D) squid schooling in the Atlantic Ocean south of Newfoundland,

- A) NO CHANGE
- B) example. They
- C) example,
- D) example, which

Despite their discoveries, scientists have yet to answer every question about longfin squid body patterns. The ethogram based on the Crittercams findings lists 59 components that can mix and match into an enormous number of body patterns, and researchers are still learning of more. While squid might not appear to be intelligent animals, research is proving that the Crittercam system is a highly effective means of recording their behaviors.

9

Which choice provides the most effective transition from the previous paragraph?

- A) NO CHANGE
- B) In light of the fact that deep-sea animals such as squid are widely dispersed,
- C) Speculating that these behaviors are not vestiges of the behaviors of ancient organisms,
- D) Although the use of Crittercam technology is groundbreaking,

10

- A) NO CHANGE
- B) Crittercam findings'
- C) Crittercams finding's
- D) Crittercam's findings

11

Which choice best concludes the passage?

- A) NO CHANGE
- B) they are capable of mimicking the effects of sunlight on ocean water.
- C) their behavior is much more complex than one might expect.
- D) their behavior is surprisingly easy to interpret.

Question 12-22 are based on the following passage and supplementary material.

A Career That Hits All the Right Notes

Many people believe, that achieving success as a musician means becoming an international superstar. In reality, most professional musicians are not world-famous recording artists, but they can still make a living creating music. As the career of guitarist Ron Zabrocki illustrates, musicians who master many aspects of music production and develop strong networks of contacts can thrive in the music industry.

- A) NO CHANGE
- B) believe:
- C) believe—
- D) believe

Zabrocki began his career primarily as a live performer, and in this capacity he met many fellow musicians and others in the music industry. While he does not label himself a live performer, editor, or studio musician and simply considers himself a guitarist, he came to make a steady income working out of his home studio. There he plays instruments, records music, and mixes songs(blending together different instrumental and vocal tracks) for television commercials, movie scores, and albums. In addition to developing his craft as a musician, the use of equipment such as amplifiers and mixing consoles has been mastered by Zabrocki as well as music software such as Cubase and Pro Tools. Zabrocki believes that this broad set of skills is essential for professional musicians: "My creative field is as a guitarist," he asserts.

13

- A) NO CHANGE
- B) primally
- C) primary
- D) primacy

14

Which choice provides the most effective transition from the previous sentence?

- A) NO CHANGE
- B) Deciding to move to Litchfield, Connecticut, in part because of a downturn in the music business in New York City,
- Working first for these friends and acquaintances, and later, as his reputation grew, for a broader group of clients,
- Although many of these musicians and peers had interesting stories related to their own career paths,

15

- A) NO CHANGE
- B) amplifiers and mixing consoles are examples of equipment Zabrocki has mastered
- C) Zabrocki's mastery of equipment extends to amplifiers and mixing consoles
- D) Zabrocki has mastered the use of equipment such as amplifiers and mixing consoles

16

Which quotation of Ron Zabrocki's from an interview published in 2015 by *Pacific Standard* magazine best illustrates the point made earlier in the sentence?

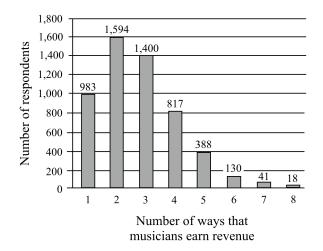
- A) NO CHANGE
- B) "Once you're established...it's not that bad,"
- C) "You make money by diversifying,"
- "You have to get your name out there,"

Zabrocki's experience working in many different capacities in the music industry is a common one: a 2011 survey of 5,371 performers conducted by the nonprofit Future of Music Coalition demonstrated the vast majority of respondents earned revenue in multiple ways. Researchers identified eight types of work that musicians commonly do to earn revenue, including composing original music, writing lyrics, and performing live. Only

983 respondents—roughly 18 percent—said that all of their revenue came from a single type of work.

More respondents reported having four revenue streams than reported having five.

Number of Revenues Streams That Make Up the Incomes of Professional Musicians



Adapted from Kristin Thomson, "On the Money: Examining Musicians' Income." ©2012 be Future of Music Coalition.

17

Which choice provides accurate information from the graph?

- A) NO CHANGE
- B) 817
- C) 388
- D) 130

18

Which choice most effectively concludes the paragraph with relevant information from the graph?

- A) NO CHANGE
- B) Most reported having two or three revenue streams, and many reported having even more.
- C) About half as many respondents reported having four revenue streams as reported having two.
- Very few respondents derived income from all of the revenue sources included in the survey.

Zabrocki is one of the musicians who do number of types of work in excess of three to earn income. In addition to playing, mixing, and editing music, he composes original songs teaches guitar lessons, and writes for the magazine Guitar World. Having multiple roles have helped him build his reputation and earn repeat business. As he explains, doing good work on one job frequently leads to others: "After I've gained [clients'] trust and they like what I do, I suggest that I could help them in other areas."

<u>Authorization</u> <u>Although it can be difficult to develop the diverse skills and professional relationships necessary for such a career, the effort is worth it for many people who love making music, even if they are not in the spotlight.</u>

9

- A) NO CHANGE
- B) numerous types of work—more than three—in order
- C) types of work that number more than three
- D) more than three types of work

20

- A) NO CHANGE
- B) songs,
- C) songs;
- D) songs:

21

- A) NO CHANGE
- B) would have
- C) will have
- D) has

22

Which choice most effectively combines the sentences at the underlined portion?

- A) Zabrocki, someone who has cultivated loyal clients who hire him and recommend his services to others,
- B) By cultivating loyal clients who hire him and recommend his services to others, Zabrocki
- In his cultivation of loyal clients, along with their hiring him and recommending his services to others, Zabrocki
- D) Zabrocki cultivates loyal clients who hire him and recommend his services to others; he

Question 23-33 are based on the following passage.

Preserving the Digital World on Permanent Paper

In the future, historians attempting to comprehend life in the early twenty-first century had faced serious challenges. Much information of historical significance now exists solely in digital form, and those formats are far from permanent. Because of data degradation and the rapid obsolescence of technologies, digital files have a lifespan of a few decades at best. Texts printed on high-quality archival paper, conversely, can remain intact for up to 500 years. It would therefore be wise for national archives and other repositories of important records to preserve essential data. By returning to an older method of storing information: printing it out on paper.

23

- A) NO CHANGE
- B) will face
- C) are facing
- D) do face

- A) NO CHANGE
- B) data; by
- C) data by
- D) data, and by

There are already significant gaps in records of recent history because of storage formats that are now inaccessible. For example, some NASA information from mid-twentieth-century flights to the Moon has been lost because it was stored on tapes playable only by machines that no longer exist. Even many digital files from the 1990s are incompatible with modern computers. In contrast, if stored properly in archives to prevent damage, some kinds of paper can last for centuries with no special equipment needed to access their content.

25

Which choice most effectively introduces the discussion in the paragraph?

- A) NO CHANGE
- B) Various methods can be employed to transfer information from one format to another.
- C) The study of ancient texts constitutes an important branch of historical research.
- D) The preservation of photographs has also been subject to complex technological problems.

- A) NO CHANGE
- B) mismatched with
- C) uncongenial to
- D) antagonistic toward

For example, the United Kingdom has suffered little loss of historical documents by preserving them on parchment even up through the modern day; from Magna Carta to the Domesday Book to recent acts of Parliament. Traditionally, these documents have been printed on vellum, a long-lasting calfskin parchment. This calfskin vellum is now expensive and difficult to obtain. However, development has progressed significantly on many kinds of archival paper, which is made of fibrous, durable materials like cotton or wood pulp from which lignin, a plant-based organic polymer, is removed. Archival paper is chemically stable and less

27

- A) NO CHANGE
- B) day—from
- C) day. From
- D) day from,

28

Which choice most effectively combines the sentences at the underlined portion?

- A) parchment, it being the case that now vellum is
- B) parchment, and it is this material that is
- C) parchment that is now
- D) parchment so

29

The writer is considering revising the underlined portion to the following.

removed to prevent the paper from becoming brown and brittle.

Should the writer make this revision?

- A) Yes, because it anticipates the claim made about costliness in the next paragraph.
- B) Yes, because it clarifies the purpose of the extraction process described in the sentence.
- C) No, because it fails to set up the details about archival paper provided in the next sentence.
- No, because it contradicts information about parchment provided earlier in the paragraph.

susceptible than regular paper to damage from light, heat, and it being too humid. In 2016, recognizing archival paper as a cost-efficient and still long-lasting alternative, Parliament began debating the option of using them instead of vellum in the United Kingdom's national archives.

30

- A) NO CHANGE
- B) it can get damaged from humidity.
- C) humidity.
- D) sometimes the humidity is too high.

31

- A) NO CHANGE
- B) it
- C) one
- D) those

32

At this point, the writer is considering adding the following sentence.

The Parliament of the United Kingdom passed 37 bills in 2015, making them official law.

Should the writer make this addition here?

- A) Yes, because it underscores the importance of maintaining the historical record.
- B) Yes, because it demonstrates the significant volume of information that must be recorded each year.
- C) No, because it does not directly relate to the discussion of how best to preserve documents.
- D) No, because it does not detail the scope or influence of those acts of Parliament.

Some archivists may be hesitant about preserving content on paper. High-quality archival paper is still more expensive than data storage; furthermore, physical archives occupy far more space than digital ones. But for important documents, the cost and effort is worthwhile. "We don't have the ability to look back and say we know for a fact in 200 years' time we'll still have [information stored only in digital form]." said Jenny Mitcham, digital archivist at the University of York. If more documents are not preserved on paper, the past and present may become a closed book to future generations.

33

Which choice concludes the paragraph most effectively?

- A) NO CHANGE
- B) The government of the United States should take a cue from other countries and consider recording its official acts on vellum.
- C) Digital preservation of important documents will therefore depend on continued innovation in computer science.
- D) Future historians should look instead to the wealth of information that can be gleaned from popular culture and the arts.

Question 34-44 are based on the following passage.

Never Judge a Pocket Book by Its Cover

In the 1930s, people who wanted a cheap and convenient way to read certain kinds of literature faced significant barriers. Cheap dime novels (such as romances and Westerns, had been around in paperback for decades, but respected fiction could be found only in pricey hardback. A copy of The Grapes of Wrath, for instance, sold for 2.75 (\$40 by today's standards)—and this at a time when a movie ticket cost only 20 cents. Hardback books were expensive to produce. Hardback books were also difficult for most people to obtain because there were only about 500 bookstores in the United States. But on June 19, 1939, a full-page ad in the New York Times made a bold announcement: "Out today—the new Pocket Books that may revolutionize New York's reading habits."

34

- A) NO CHANGE
- B) Westerns)
- C) Westerns;
- D) Westerns

35

Which choice most effectively combines the underlined sentences?

- A) Hardback books were expensive to produce and, because there were only about 500 bookstores in the United States, difficult for most people to obtain.
- B) Expensive-to-produce hardback books were difficult for most people to obtain because there were only about 500 bookstores in the United States.
- C) Because there were only about 500 bookstores in the United States, hardback books were expensive to produce and difficult for most people to obtain
- D) Hardback books were expensive to produce, while only about 500 bookstores in the United States made them difficult for most people to obtain.

The ad's creator was Robert de Graff, whose new mass-market paperback books had been anticipated by publishers in Germany and the United Kingdom.

Though de Graff had great confidence in his endeavor, but his business parterres were concerned that readers might deem the new Pocket Books flimsy and unsophisticated and therefore be reluctant to buy them. However, that prospect didn't worry de Graff, who, perhaps detecting the recent success of Penguin paperbacks in the United Kingdom, were sure there was a market for literature that was accessible and portable. He also calculated that larger print runs would reduce cost, he could offer people the books they wanted

to read for only 25 cents each.

36

Which choice most effectively sets up the next sentence?

- A) NO CHANGE
- B) whose achievements were later documented in the book *Two-Bit Culture*.
- C) Who was launching the first major line of paperback books in the United States.
- D) who had repaired cars and served as a solider in the First World War before becoming a publisher.

37

- A) NO CHANGE
- B) and
- C) yet
- D) DELETE the underlined portion.

38

- A) NO CHANGE
- B) observing
- C) scanning
- D) viewing

- A) NO CHANGE
- B) was
- C) have been
- D) are

After obtaining the backing of a publisher and reprinting rights to several works, including
Shakepeare's tragedies and Emily Bronte's Wuthering
Heights, he engaged in an aggressive marketing
campaign. He also customized each four-by-six-inch
book cover with colorful, eye-catching artwork. Lastly, to
ensure his products would be accessible to

everyone, he employed magazine distributors so the books would be available in a variety of locations, from drugstores to subway stations. When Pocket Books appeared in June 1939, the first 100,000 copies could be found just about everywhere—and they sold out in a week.

40

Which choice most effectively introduces the topic of the paragraph?

- A) De Graff had planned carefully for the launch of Pocket Books.
- B) De Graff found that people wanted to own copies of well-known works of literature.
- C) De Graff knew that his books would have to be small enough to fit in a pocket or purse.
- D) De Graff had to address financial and legal considerations before releasing Pocket Books

41

- A) NO CHANGE
- B) everyone—he
- C) everyone; he
- D) everyone. He

42

The writer is considering deleting the underlined sentence. Should the sentence be kept or deleted?

- A) Kept, because it restates and clarifies a point made in an earlier paragraph.
- B) Kept, because it supports and expands on an idea raised in the previous sentence
- C) Deleted, because it distracts from the main discussion of the paragraph
- D) Deleted, because it contradicts a claim made later in the passage.

People could literally carry the small books in their pockets, and they could read anywhere at any time: travelers on a train, workers on a lunch break, even soldiers at the front read Pocket Books. By the mid-1940s, Pocket Books were sold in 70,000 outlets across the United States and were one of the nation's favorite forms of entertainment. By the mid-1960s, more than 300 million copies had been sold. De Graff eventually lost much of the paperback market on competing companies trying to cash in on the new format; furthermore, he had in fact made good on his promise to change the way people read books.

43

- A) NO CHANGE
- B) to
- C) in
- D) for

44

- A) NO CHANGE
- B) accordingly,
- C) consequently,
- D) nevertheless,

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.