

## READING TEST

35 Minutes—40 Questions

**DIRECTIONS:** There are several passages in this test. Each passage is accompanied by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding oval on your answer document. You may refer to the passages as often as necessary.

## Passage I

**LITERARY NARRATIVE:** The following excerpt is adapted from the short story "Unaccustomed Earth" by Jhumpa Lahiri (©2008 by Jhumpa Lahiri).

Ruma is trying to decide whether to ask her father, who is visiting, to move in with her family.

"My dad's planting flowers in the backyard," she told Adam that night on the phone.

"Does he plan to be around to take care of them?"

His flippancy irritated her, and she felt defensive on her father's behalf. "I don't know."

"It's Thursday, Ruma. How long are you going to torture yourself?"

She didn't feel tortured any longer. She had planned to tell Adam this, but now she changed her mind. Instead she said, "I want to wait a few more days. Make sure everyone gets along."

"For heaven's sake, Ruma," Adam said. "He's your father. You've known him all your life."

And yet, until now, she had not known certain things about him. She had not known how self-sufficient he could be, how helpful, to the point where she had not had to wash a dish since he'd arrived. At dinner he was flexible, appreciating the grilled fish and chicken breasts she began preparing after the Indian food ran out, making do with a can of soup for lunch. But it was her son Akash who brought out a side of her father that surprised Ruma most. In the evenings her father stood beside her in the bathroom as she gave Akash his bath, scrubbing the caked-on dirt from his elbows and knees. He helped put on his pajamas, brush his teeth, and comb back his soft damp hair. When Akash had fallen asleep one afternoon on the living-room carpet, her father made sure to put a pillow under his head, drape a cotton blanket over his body. By now Akash insisted on being read to at night by her father, sleeping downstairs in her father's bed.

The first night Akash slept with her father she went downstairs to make sure he'd fallen asleep. She saw a sliver of light under her father's door and heard

the sound of his voice, reading *Green Eggs and Ham*. She imagined them both under the covers, their heads reclining against the pillows, the book between them, Akash turning the pages as her father read. It was obvious that her father did not know the book by heart, as she did, that he was encountering it for the first time in his life. He read awkwardly, pausing between the sentences, his voice oddly animated as it was not in ordinary speech. Still, his effort touched her, and as she stood by the door she realized that for the first time in his life her father had fallen in love. She was about to knock and tell her father that it was past Akash's bedtime, that he should turn out the light. But she stopped herself, returning upstairs, briefly envious of her own son.

The garden was coming along nicely. It was a futile exercise, he knew. He could not picture his daughter or his son-in-law caring for it properly, noticing what needed to be done. In weeks, he guessed, it would be overgrown with weeds, the leaves chewed up by slugs. Then again, perhaps they would hire someone to do the job. He would have preferred to put in vegetables, but they required more work than flowers. It was a modest planting, some slow-growing myrtle and phlox under the trees, two azalea bushes, a row of hostas, a clematis to climb one of the posts of the porch, and in honor of his wife, a small hydrangea. In a plot behind the kitchen, unable to resist, he also put in a few tomatoes, along with some marigolds and impatiens; there was just time for a small harvest to come in by the fall. He spaced out the delphiniums, tied them to stalks, stuck some gladiolus bulbs into the ground. He missed working outside, the solid feeling of dirt under his knees, getting into his nails, the smell of it lingering on his skin even after he'd scrubbed himself in the shower. It was the one thing he missed about the old house, and when he thought about his garden was when he missed his wife most keenly. She had taken that from him. For years, after the children had grown, it had just been the two of them, but she managed to use up all the vegetables, putting them into dishes he did not know how to prepare himself. In addition, when she was alive, they regularly entertained, their guests marveling that the potatoes were from their own backyard, taking away bagfuls at evening's end.

He looked over at Akash's little plot, the dirt carefully mounded up around his toys, pens and pencils

stuck into the ground. Pennies were there, too, all the spare ones he'd had in his pocket.

85 "When will the plants come out?" Akash called out from the swimming pool, where he stood crouching over a little sailboat.

"Soon."

"Tomorrow?"

90 "Not so soon. These things take time, Akash. Do you remember what I taught you this morning?"

And Akash recited his numbers in Bengali from one to ten.

1. The point of view from which the passage is told is best described as that of:
  - A. an unidentified narrator relating the thoughts and actions of both Ruma and Ruma's father.
  - B. an unidentified narrator relating the thoughts and actions of both Ruma and Adam.
  - C. Ruma, who relates her own thoughts and actions.
  - D. Ruma's father, who relates his own thoughts and actions.
2. The passage can best be described as an exploration of a:
  - F. family's ongoing disagreement.
  - G. family's shifting dynamics.
  - H. husband's relationship with his wife.
  - J. mother's struggle with raising a child.
3. Based on the passage, Akash's attitude toward Ruma's father can best be described as:
  - A. patient.
  - B. diffident.
  - C. resentful.
  - D. adoring.
4. In the context of the passage, the word "drape" (line 29) mainly serves to highlight the:
  - F. hasty way in which Akash covers himself with the blanket.
  - G. attentive way in which Ruma's father tends to Akash.
  - H. endearing way in which Akash is sprawled on the ground for his nap.
  - J. meticulous way in which Ruma's father tidies Ruma's home.
5. Which of the following statements most effectively summarizes the action described in the eighth paragraph (lines 32–49)?
  - A. Ruma goes to see if Akash is sleeping, overhears her father reading him a book, and decides not to interrupt them.
  - B. Ruma tells her father that it's past Akash's bedtime but allows Akash and her father to finish the book they are reading.
  - C. Ruma goes to get Akash ready for bed and overhears him and her father taking turns reading a book.
  - D. Ruma overhears her father reading Akash a book, tells her father that it's past Akash's bedtime, and returns upstairs.
6. Based on the passage, Ruma's father plants fewer vegetables in Ruma's garden than he would have liked because he:
  - F. knows that Ruma is unlikely to incorporate the vegetables into the meals she serves.
  - G. has lost interest in growing and harvesting most types of vegetables.
  - H. knows that Ruma and Adam are unlikely to put in the work it takes to tend the vegetables.
  - J. is worried that Akash will trample his vegetable plot.
7. In the context of the passage, the detail about the toys, pens, pencils, and pennies in the ground mainly serves to indicate that:
  - A. Akash often leaves his things in the backyard.
  - B. Ruma's father has more work to do in order to clean up Ruma's garden.
  - C. Ruma has neglected the garden in the backyard.
  - D. Akash has been inspired by his grandfather to start a garden of his own.
8. In the context of the passage, the detail that Ruma is "briefly envious of her own son" (lines 48–49) suggests that Ruma:
  - F. believes that her father and Akash's relationship is stronger than her and her father's relationship.
  - G. wishes that Akash would show her the same level of affection that he shows her father.
  - H. is less patient with Akash than she would like to be.
  - J. is less emotionally mature than Akash is.
9. According to the passage, Ruma's father plants a small hydrangea in the garden mainly because he:
  - A. knows that it is easy to take care of.
  - B. remembers that it is Ruma's favorite.
  - C. wants to honor his wife's memory.
  - D. believes it will bring Ruma and Adam good luck.
10. As it is used in line 64, the phrase *come in* most nearly means:
  - F. take part.
  - G. approach.
  - H. perform.
  - J. mature.

## Passage II

**SOCIAL SCIENCE:** This passage is adapted from the book *Atlantic* by Simon Winchester (©2010 by Simon Winchester)

The Minoans and Phoenicians are ancient cultures known for sailing the Mediterranean Sea. The Pillars of Hercules are the rocks on each side of the Strait of Gibraltar, which separates Spain from Morocco.

The Phoenicians were the first to build proper ships and to brave the rough waters of the Atlantic.

To be sure, the Minoans before them traded with great vigor and defended their Mediterranean trade routes with swift and vicious naval force. Their ships—built with tools of sharp-edged bronze—were elegant and strong: they were made of cypress trees, sawn in half and lapped together, with white-painted and sized linen stretched across the planks, and with a sail suspended from a mast of oak, and oars to supplement their speed. But they worked only by day, and they voyaged only between the islands within a few days' sailing of Crete; never once did any Minoan dare venture beyond the Pillars of Hercules, into the crashing waves of the Sea of Perpetual Gloom.

The Minoans, like most of their rival thalassocracies, accepted without demur the legends that enfolded the Atlantic, the stories and the sagas that conspired to keep even the boldest away. The waters beyond the Pillars, beyond the known world, beyond what the Greeks called the *oekumen*, the inhabited earth, were simply too fantastic and frightful to even think of braving. There might have been some engaging marvels: close inshore, the Gardens of the Hesperides, and somewhat farther beyond, that greatest of all Greek philosophical wonderlands, Atlantis. But otherwise the ocean was a place wreathed in terror: *I can find no way whatever of getting out of this gray surf*, Odysseus might well have complained, *no way out of this gray sea*. The winds howled too fiercely, the storms blew up without warning, the waves were of a scale and ferocity never seen in the Mediterranean.

Nevertheless, the relatively peaceable inland sea of the Western classical world was to prove a training ground, a nursery school, for those sailors who in time, and as an inevitable part of human progress, would prove infinitely more daring and commercially ambitious than the Minoans. At just about the time that Santorini erupted and, as many believe, gave the final fatal blow to Minoan ambitions, so the more mercantile of the Levantines awoke. From their sliver of coastal land—a sliver that, in time, would become Lebanon, Palestine, and Israel—the big Phoenician ships ventured out and sailed westward, trading, battling, dominating.

When they came to the Pillars of Hercules, some time around the seventh century B.C., they, unlike all of their predecessors, decided not to stop. Their captains, no doubt bold men and true, decided to sail right through, into the onrushing waves and storms, and see before all other men just what lay beyond.

The men from the port of Tyre appear to have been the first to do so. Their boats, broad-beamed, sickle-shaped "round ships" or *galloi*—so called because of the sinuous fat curves of the hulls, and often with two sails suspended from hefty masts, one at midships and one close to the forepeak—were made of locally felled and surprisingly skillfully machined cedar planks, fixed throughout with mortise and tenon joints and sealed with tar. Most of the long-haul vessels from Tyre, Byblos, and Sidon had oarsmen, too—double banks of thirteen oarsmen on either side of the larger ships, which gave them a formidable accelerative edge. Their decorations were grand and often deliberately intimidating—enormous painted eyes on the prow, many-toothed dragons and roaring tigers tipped with metal ram-blades, in contrast to the figureheads of women later beloved by Western sailors.

Phoenician ships were built for business. The famous Bronze Age wreck discovered at Uluburun in southern Turkey by a sponge diver in 1982 (and which, while not definitely Phoenician, was certainly typical of the period) displayed both the magnificent choice of trade goods available in the Mediterranean and the vast range of journeys to be undertaken. The crew on this particular voyage had evidently taken her to Egypt, to Cyprus, to Crete, to the mainland of Greece, and possibly even as far as Spain. When they sank, presumably when the cargo shifted in a sudden storm, the holds of the forty-five-foot-long *galloi* contained a bewildering and fatally heavy amassment of delights, far more than John Masfield, who wrote a poem about ships' cargoes, could ever have fancied. There were ingots of copper and tin, blue glass and ebony, amber, ostrich eggs, an Italian sword, a Bulgarian axe, figs, pomegranates, a gold scarab with the image of Nefertiti, a set of bronze tools, a ton of terebinth resin, hosts of jugs and vases and Greek storage jars, silver and gold earrings, and innumerable lamps.

11. In the fourth paragraph (lines 33–45), the focus of the passage shifts from information about the Minoans to a discussion of the:

- A. reasons that the Phoenicians traded with various other nations.
- B. shipbuilding and sailing prowess of the Phoenicians.
- C. first Phoenician ship to sail into and return from the Atlantic.
- D. specific journeys Phoenicians are known to have taken.

12. Based on the passage, the Minoans and Phoenicians were similar in that their primary reason for sailing was to:
- F. explore unknown regions.
  - G. trade with other nations.
  - H. conquer neighboring nations.
  - J. keep their lands safe from attack.
13. The passage makes clear that Minoan ships and Phoenician ships were similar in that most featured:
- A. mortise and tenon joints for stability.
  - B. hulls made from cypress trees.
  - C. oars for added speed.
  - D. two masts.
14. The main idea of the third paragraph (lines 16–32) is that the Minoans and other sailors at the time:
- F. created myths about the Atlantic to prevent people from exploring it.
  - G. told terrifying tales of the voyages they took near the Atlantic.
  - H. feared the Atlantic because of its storms and the legends told about it.
  - J. lacked the skills and tools necessary for navigating the Atlantic.
15. Details in the passage suggest that the author considers the Phoenicians' venturing into the Atlantic to be an act that was both:
- A. ambitious and unnecessary.
  - B. unwise and ill-fated.
  - C. brave and foolish.
  - D. courageous and inevitable.
16. Which of the following statements about Minoan sailors is most strongly supported by the passage?
- F. They frequently battled the Phoenicians.
  - G. They traded only with Greece and Egypt.
  - H. They sailed only during the daytime.
  - J. They painted elaborate designs on their ships.
17. The passage states that, according to many people, the fatal blow to Minoan ambitions occurred when:
- A. the Phoenicians reached the Pillars of Hercules.
  - B. the Minoans lost control of their trade routes.
  - C. Minoan was conquered.
  - D. Santorini erupted.
18. According to the passage, the first Phoenicians to sail through the Pillars of Hercules were most likely from:
- F. Crete.
  - G. Byblos.
  - H. Sidon.
  - J. Tyre.
19. In the passage, what contrast does the author establish between Phoenician ships and the Western ships that came later?
- A. Phoenician ships' decorations were designed to be more intimidating than those of Western ships that came later.
  - B. Phoenician ships' sails were designed to be stronger than those of Western ships that came later.
  - C. Phoenician ships' hull size was more impressive than that of Western ships that came later.
  - D. Phoenician ships' acceleration was more formidable than that of Western ships that came later.
20. Based on the passage, the statement that the ship discovered at Uluburun sank when the cargo shifted in a storm can best be described as a:
- F. fact supported by the damage that the ship's hull sustained in the storm.
  - G. fact supported by an entry in ancient shipping records.
  - H. reasoned judgment supported by the evidence of the heavy load the ship was carrying.
  - J. reasoned judgment supported by how the cargo was spread out on the scafloor.

## Passage III

**HUMANITIES:** Passage A is adapted from the article "Heroes and Wretches" by Suzie Mackenzie (©2004 by Guardian News and Media Limited). Passage B is adapted from the article "Alice Neel: The Art Modernism Neglected" by Jeremy Lewison (©2010 by Telegraph Media Group Limited)

## Passage A by Suzie Mackenzie

Francis Bacon used to say that no artist in their lifetime can possibly know whether or not he/she is any good. Only time, he said, could sort out the twin perils that beset every artist: theory, by which "most people enter a painting", and fashion—what an audience feels it should or should not be moved by. Bacon reckoned this "sort out" period to be somewhere between 75 and 100 years, by which time the artist would most likely be dead. For this reason, he also said, success in an artist's lifetime is no indicator of greatness—on the contrary. Every artist works within a void "and will never know".

In this sense, if no other, the American portrait artist Alice Neel can be said to have been lucky. She can never have had any expectations, because to be a woman and an artist on the cusp of the 20th century was to cast yourself into a void. Neel was born in 1900, into a middle-class Philadelphia family, at a time when, as Henry James had observed only 19 years earlier, to be a lady was to be a portrait. She worked all her long life: against the prevailing theory of what it was to be a woman, that it was not becoming for a woman to be an artist, to have a public life, that women were framed for the interior. And against fashion: she remained a figurative artist when the rest of the New York art establishment was in the grip of abstract expressionism. Neel doesn't seem ever to have had any notion of "becoming" an artist, or even "being" an artist. She simply was an artist. Even after the mid-1970s, when she finally did become "fashionable"—helped by a major retrospective at New York's Whitney Museum of American Art in 1974—Neel rarely took commissions. She painted for herself.

At the Victoria Miro Gallery in London is the first ever solo exhibition of Neel's work in Europe—a collection spanning three decades, curated by Jeremy Lewison. Looking back now, 20 years after Neel's death, it is possible to see how she took a quintessentially bourgeois form—the portrait—and radically transformed it, while making the innate constraints of portraiture work for her. Hers are not portraits as advertising, they don't flatter the sitter or inspire envy in the viewer. You don't look at a Neel painting and recognise power, affluence, beauty—though these ingredients may be there. Her greatest gift as a portraitist, Lewison says, is her psychological acuity.

## Passage B by Jeremy Lewison

Neel had a natural flair for paint. She painted thick and thin, dry and wet, and in the later stages of her career ignored any conventions of finish, rather deciding for herself when a work was complete enough. At

50 times she felt that a painting had reached a point where to go further would spoil it. In some instances she painted a second version. Ultimately what mattered to Neel was to keep the painting fresh and alive.

In our present era portraiture has been relegated to a minor art. The portrait survives largely in the wooden paintings commissioned by academic colleges or national portrait galleries from artists who have facility but little flair or psychological understanding or vision.

Photography has replaced painting as the means of choice for portraiture but photography is concerned with capturing the moment. Painting is about the synthesis of time. Moreover a photograph, with its smooth reflective surface, printed by a chemical reaction or digitally manipulated with no material depth or presence, is entirely different from a painted portrait.

Neel's work is an assimilation of many different moments and moods, a distillation of many hours of scrutiny of the subject that concludes in a single summarising image where the impressions captured over time are related not simply through an image but through the material quality of paint, the flicks of the wrist and the movements of an arm, paint laid on hastily and contours outlined slowly.

Neel's art displays a range of marks made in the service of communicating an image rather than at the behest of any conceptual programme, for Neel is a natural painter and apparently unselfconscious.

Looking at Neel's work now is to see a review of the twentieth century in New York. She represents changes in fashion and social mores, racial and gender issues, class differential, political agendas, feminist advances; in short her work effortlessly reflects a century of change as much as that of any photographer from the same era. With the abandonment of the modernist project, museums and galleries now make room for multiple voices to be heard, to uncover the art of those whom modernism neglected.

## Questions 21–23 ask about Passage A.

21. The main purpose of the first paragraph of Passage A is to:
- A. establish the idea that artists who are popular during their lives tend to stand the test of time.
  - B. question Bacon's ideas about artists' long-term success and begin to debunk them.
  - C. argue that artists who manage to satisfy both theory and fashion will likely be successful.
  - D. present a philosophy of evaluating artistic success before considering one particular artist.

22. When the author of Passage A states that during Neel's time, "women were framed for the interior" (lines 22–23), she most nearly means that women were:
- F. often the subjects of commissioned portraits.
  - G. expected to lead private lives in the home.
  - H. thought to have superior interior design skills.
  - J. ineligible to paint portraits of public figures.

23. As it is used in line 25, the phrase "in the grip of" most nearly means:

- A. misled by.
- B. forced into.
- C. immersed in.
- D. squeezed by.

Questions 24–27 ask about Passage B.

24. The claim in Passage B that "Neel is a natural painter and apparently unselfconscious" (lines 76–77) is one the author supports by:
- F. providing information about Neel's instructors and mentors.
  - G. describing Neel's approach to painting her portraits.
  - H. including statements Neel made during her lifetime.
  - J. discussing specific portraits Neel painted over the years.
25. Based on Passage B, compared to photographic portraits, painted portraits:
- A. are worth more money because they take longer to produce.
  - B. have become the method of choice for most artists.
  - C. represent the subject over time rather than in just one moment.
  - D. are not able to convey the richness of photographs.
26. The main idea of the last paragraph of Passage B is that Neel's work:
- F. reflected societal changes that occurred during her lifetime.
  - G. mostly depicted the concerns of the wealthy and influential.
  - H. caused changes in public policy in response to social ills.
  - J. proved that painting is a better medium than photography.

27. According to Passage B, compared to art museums during the era when modernism was at its height, today's art museums are:

- A. more likely to acquire the best modernist works.
- B. more likely to feature previously neglected artists.
- C. less likely to include the works of female artists.
- D. less likely to exhibit photographic portraits.

Questions 28–30 ask about both passages.

28. Both passages are written from the perspective of writers who are:
- F. supportive of Neel's work and want to bring attention to it.
  - G. critical of Neel's work and question her status as a great artist.
  - H. neutral in their feelings about Neel's importance.
  - J. uninformed about the significance of Neel's work.
29. Passage A differs from Passage B in that Passage A:
- A. explains why Neel was not discovered until the 1970s, while Passage B provides a history of the modernist movement.
  - B. describes the challenges Neel faced as an artist, while Passage B focuses on the art of portraiture and Neel's place in it.
  - C. shows how conforming to social norms ensured Neel's success, while Passage B examines Neel's biography.
  - D. focuses on Bacon's theory of evaluating artistic greatness, while Passage B applies that theory to Neel and her work.
30. Based on both passages, it can reasonably be inferred that during most of Neel's career, figurative portraits such as hers were generally considered by the art establishment to be:
- F. sophisticated.
  - G. unfashionable.
  - H. difficult to understand.
  - J. deserving of more attention.

## Passage IV

**NATURAL SCIENCE:** This passage is adapted from *Lost Discoveries: The Ancient Roots of Modern Science—from the Babylonians to the Maya* by Dick Teresi (©2002 by Dick Teresi).

Antoine-Laurent Lavoisier (1743–1794) was a financier, established a system of weights and measures that led to the metric system, lived through the early turmoil of the French Revolution, and was a pioneer in scientific agriculture. He has been called the father of modern chemistry, and, in the course of his busy life, he brought Europe out of the dark ages of that science.

One of Lavoisier's early contributions resulted from his boiling water for long periods of time. In eighteenth-century Europe, many scientists believed in transmutation. They thought, for instance, that water could be transmuted into earth, among other things. Chief among the evidence for this was water boiling in a pot. Solid residue forms on the inside surface. Scientists proclaimed this to be water turning into a new element. Robert Boyle, the great seventeenth-century British chemist and physicist who flourished a hundred years before Lavoisier, believed in transmutation. Having watched plants grow by soaking up water, he concluded, as many had before him, that water can be transformed into leaves, flowers, and berries. In the words of chemist Harold Goldwhite, of California State University, Los Angeles, "Boyle was an active alchemist."

Lavoisier noticed that weight was the key, and that measurement was critical. He poured distilled water into a special "tea kettle" called a pelican, an enclosed pot with a spherical cap, which caught the water vapor and returned it to the base of the pot via two handlelike tubes. He boiled the water for 101 days and found substantial residue. He weighed the water, the residue, and the pelican. The water weighed exactly the same. The pelican weighed slightly less, an amount equal to the weight of the residue. Thus, the residue was not a transmutation, but part of the pot—dissolved glass, silica, and other matter.

As scientists continued to believe that water was a basic element, Lavoisier performed another crucial experiment. He invented a device with two nozzles and squirted different gases from one into the other, to see what they made. One day, he mixed oxygen with hydrogen, expecting to get acid. He got water. He percolated the water through a gun barrel filled with hot iron rings, splitting the water back into hydrogen and oxygen and confirming that water was not an element.

Lavoisier measured everything, and on each occasion that he performed this experiment, he got the same numbers. Water always yielded oxygen and hydrogen in a weight proportion of 8 to 1. What Lavoisier saw was that nature paid strict attention to weight and proportion. Ounces or pounds of matter did not disappear or appear at random, and the same ratios of gases always

yielded the same compounds. Nature was predictable . . . and therefore malleable.

Ancient Chinese alchemy, circa 300 to 200 B.C., was built around the concept of two opposing principles. These could be, for example, active and passive, male and female, or sun and moon. The alchemists saw nature as having a circular balance. Substances could be transformed from one principle to another, and then rendered back to their original state.

A prime example is cinnabar, known commonly today as mercuric sulfide, a heavy red mineral that is the principal ore of mercury. Using fire, these early alchemists decomposed cinnabar into mercury and sulfur dioxide. Then they found that mercury would combine with sulfur to form a black substance called metacinnabar, "which then can be sublimed into its original state, the bright red cinnabar, when once more heated," according to science historian Wang Kuik. Both mercury's liquid quality and the cyclic transformation from cinnabar to mercury and back again gave it magical qualities. Kuik calls mercury "huandan, a cyclically transformed regenerative elixir" associated with longevity. These ancient practitioners became familiar with the concept that substances could be transformed and then come full circle to their original state. They developed exact proportions of the amounts of mercury and sulfur, as well as recipes for the exact length and intensity of the heating required. Most important, according to Kuik, these operations could be performed "without the slightest loss of the total weight."

It would appear that the ancient Chinese alchemists were empirically familiar with the conservation of mass fifteen hundred years before Lavoisier's experiment. He and his alchemist precursors discovered that the weight of the products in a chemical reaction equal the weight of the reactants.

31. In the sixth paragraph (lines 55–61), the focus of the passage shifts from a discussion of:

- A. Lavoisier's system of weights and measures to a description of ancient Chinese measurement systems.
- B. the findings of European alchemists to an explanation of how ancient Chinese alchemy undermined these findings.
- C. some of Lavoisier's most important scientific findings to a discussion of similar, earlier findings in China.
- D. Boyle's influence on Lavoisier's work to a discussion of how Chinese alchemists influenced Lavoisier's work.

32. One of the main purposes of the passage is to:
- F. provide a historical overview of how alchemy evolved.
  - G. highlight scientific experiments that prove that mass is always conserved.
  - H. demonstrate how ancient Chinese science experiments inform studies in science today.
  - J. describe the importance of a few chemical elements in famous historical experiments.
33. The passage suggests that, regarding the method Lavoisier used to conduct his experiments, what was most critical was:
- A. using the most accessible chemical elements.
  - B. inventing the equipment to use in his experiments.
  - C. consulting the research of his contemporaries.
  - D. ensuring precise measurements.
34. Based on the passage, Lavoisier's hydrogen-and-oxygen experiment and the ancient Chinese cinnabar experiment have in common the fact that they both:
- F. disproved earlier scientific theories about weight and proportion.
  - G. involved minerals associated with longevity.
  - H. transformed substances to different forms and then back to their original states.
  - J. required specially designed equipment.
35. The main purpose of the first paragraph is to introduce Lavoisier by:
- A. noting his varied accomplishments and historical importance.
  - B. describing his contributions to science and the French Revolution.
  - C. subtly questioning his title as the father of modern chemistry.
  - D. suggesting that his pioneering work in scientific agriculture brought Europe out of the Dark Ages.
36. The main idea of the second paragraph (lines 8–24) is that:
- F. in the eighteenth century, Boyle and Lavoisier were leading scientists who made significant contributions to alchemy.
  - G. Lavoisier hypothesized that boiled water would transmute into a new element.
  - H. Boyle developed the theory of transmutation after watching plants soak up water and grow leaves, flowers, and berries.
  - J. transmutation was a long-held theory that, among other things, explained why residue remained in a pot after boiling water.
37. It can logically be concluded that Lavoisier's hydrogen-and-oxygen experiment was "crucial" (line 38) mainly because it:
- A. was the first to mix naturally occurring elements.
  - B. refuted an established scientific belief.
  - C. introduced new methods of measurement.
  - D. led to the invention of a device used in other experiments.
38. As it is used in line 14, the word *forms* most nearly means:
- F. constitutes.
  - G. models.
  - H. arranges.
  - J. accumulates.
39. According to the passage, when Lavoisier first mixed oxygen with hydrogen, he expected to get:
- A. water.
  - B. acid.
  - C. vapor.
  - D. sulfur.
40. The example of the sun and moon in the passage helps illustrate the point that Chinese alchemists:
- F. focused on the concept of two opposing principles.
  - G. were some of the earliest scientific practitioners.
  - H. often transformed substances from one principle to another.
  - J. believed nature was predictable and malleable.

END OF TEST 3

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO A PREVIOUS TEST.