Reading Section

This section measures your ability to understand academic passages in English. You can skip questions and go back to them later as long as there is time remaining.

Now begin the Reading section.
RUNNING WATER ON MARS?

Paragraph 1 Photographic evidence suggests that liquid water once existed in great quantity on the surface of Mars. Two types of flow features are seen: runoff channels and outflow channels. Runoff channels are found in the southern highlands. These flow features are extensive systems—sometimes hundreds of kilometers in total length—of interconnecting, twisting channels that seem to merge into larger, wider channels. They bear a strong resemblance to river systems on Earth, and geologists think that they are dried-up beds of long-gone rivers that once carried rainfall on Mars from the mountains down into the valleys. Runoff channels on Mars speak of a time 4 billion years ago (the age of the Martian highlands), when the atmosphere was thicker, the surface warmer, and liquid water widespread.

Paragraph 2 Outflow channels are probably relics of catastrophic flooding on Mars long ago. They appear only in equatorial regions and generally do not form extensive interconnected networks. Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped “islands” (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon river. Flooding shaped the outflow channels approximately 3 billion years ago, about the same time as the northern volcanic plains formed.

Paragraph 3 Some scientists speculate that Mars may have enjoyed an extended early period during which rivers, lakes, and perhaps even oceans adorned its surface. A 2003 Mars Global Surveyor image shows what mission specialists think may be a delta—a fan-shaped network of channels and sediments where a river once flowed into a larger body of water, in this case a lake filling a crater in the southern highlands. Other researchers go even further, suggesting that the data provide evidence for large open expanses of water on the early Martian surface. A computer-generated view of the Martian north polar region shows the extent of what may have been an ancient ocean covering much of the northern lowlands. The Hellas Basin, which measures some 3,000 kilometers across and has a floor that lies nearly 9 kilometers below the basin’s rim, is another candidate for an ancient Martian sea.
These ideas remain controversial. Proponents point to features such as the terraced “beaches” shown in one image, which could conceivably have been left behind as a lake or ocean evaporated and the shoreline receded. But detractors maintain that the terraces could also have been created by geological activity, perhaps related to the geologic forces that depressed the Northern Hemisphere far below the level of the south, in which case they have nothing whatever to do with Martian water. Furthermore, Mars Global Surveyor data released in 2003 seem to indicate that the Martian surface contains too few carbonate rock layers—layers containing compounds of carbon and oxygen—that should have been formed in abundance in an ancient ocean. Their absence supports the picture of a cold, dry Mars that never experienced the extended mild period required to form lakes and oceans. However, more recent data imply that at least some parts of the planet did in fact experience long periods in the past during which liquid water existed on the surface.

Aside from some small-scale gullies (channels) found since 2000, which are inconclusive, astronomers have no direct evidence for liquid water anywhere on the surface of Mars today, and the amount of water vapor in the Martian atmosphere is tiny. Yet even setting aside the unproven hints of ancient oceans, the extent of the outflow channels suggests that a huge total volume of water existed on Mars in the past. Where did all the water go? The answer may be that virtually all the water on Mars is now locked in the permafrost layer under the surface, with more contained in the planet’s polar caps.

Directions: Now answer the questions.

1. The word “merge” in the passage is closest in meaning to
   (A) expand
   (B) separate
   (C) straighten out
   (D) combine

2. What does the discussion in paragraph 1 of runoff channels in the southern highlands suggest about Mars?
   (A) The atmosphere of Mars was once thinner than it is today.
   (B) Large amounts of rain once fell on parts of Mars.
   (C) The river systems of Mars were once more extensive than Earth’s.
   (D) The rivers of Mars began to dry up about 4 billion years ago.

3. The word “relics” in the passage is closest in meaning to
   (A) remains
   (B) sites
   (C) requirements
   (D) sources
4. The word “miniature” in the passage is closest in meaning to
   (A) temporary
   (B) small
   (C) multiple
   (D) familiar

5. In paragraph 2, why does the author include the information that 105 tons of water flow through the Amazon River per second?
   (A) To emphasize the great size of the volume of water that seems to have flowed through Mars’ outflow channels
   (B) To indicate data used by scientists to estimate how long ago Mars’ outflow channels were formed
   (C) To argue that flash floods on Mars may have been powerful enough to cause tear-shaped “islands” to form
   (D) To argue that the force of flood waters on Mars was powerful enough to shape the northern volcanic plains

6. According to paragraph 2, all of the following are true of the outflow channels on Mars EXCEPT:
   (A) They formed at around the same time that volcanic activity was occurring on the northern plains.
   (B) They are found only on certain parts of the Martian surface.
   (C) They sometimes empty onto what appear to have once been the wet sands of tidal beaches.
   (D) They are thought to have carried water northward from the equatorial regions.

7. All of the following questions about geological features on Mars are answered in paragraph 3 EXCEPT:
   (A) What are some regions of Mars that may have once been covered with an ocean?
   (B) Where do mission scientists believe that the river forming the delta emptied?
   (C) Approximately how many craters on Mars do mission scientists believe may once have been lakes filled with water?
   (D) During what period of Mars’ history do some scientists think it may have had large bodies of water?

8. According to paragraph 3, images of Mars’ surface have been interpreted as support for the idea that
   (A) the polar regions of Mars were once more extensive than they are now
   (B) a large part of the northern lowlands may once have been under water
   (C) deltas were once a common feature of the Martian landscape
   (D) the shape of the Hellas Basin has changed considerably over time

9. What can be inferred from paragraph 3 about liquid water on Mars?
   (A) If ancient oceans ever existed on Mars’ surface, it is likely that the water in them has evaporated by now.
   (B) If there is any liquid water at all on Mars’ surface today, its quantity is much smaller than the amount that likely existed there in the past.
   (C) Small-scale gullies on Mars provide convincing evidence that liquid water existed on Mars in the recent past.
   (D) The small amount of water vapor in the Martian atmosphere suggests that there has never been liquid water on Mars.
10. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

(A) But detractors argue that geological activity may be responsible for the water associated with the terraces.
(B) But detractors argue that the terraces may have been formed by geological activity rather than by the presence of water.
(C) But detractors argue that the terraces may be related to geological forces in the Northern Hemisphere of Mars, rather than to Martian water in the south.
(D) But detractors argue that geological forces depressed the Northern Hemisphere so far below the level of the south that the terraces could not have been formed by water.

11. According to paragraph 4, what do the 2003 Global Surveyor data suggest about Mars?

(A) Ancient oceans on Mars contained only small amounts of carbon.
(B) The climate of Mars may not have been suitable for the formation of large bodies of water.
(C) Liquid water may have existed on some parts of Mars’ surface for long periods of time.
(D) The ancient oceans that formed on Mars dried up during periods of cold, dry weather.

12. The word “hints” in the passage is closest in meaning to

(A) clues
(B) features
(C) arguments
(D) effects

13. In paragraph 2 of the passage, there is a missing sentence. The paragraph is repeated below and shows four letters (A, B, C, and D) that indicate where the following sentence could be added.

These landscape features differ from runoff channels in a number of ways.

Where would the sentence best fit?

Outflow channels are probably relics of catastrophic flooding on Mars long ago. (A) They appear only in equatorial regions and generally do not form extensive interconnected networks. (B) Instead, they are probably the paths taken by huge volumes of water draining from the southern highlands into the northern plains. (C) The onrushing water arising from these flash floods likely also formed the odd teardrop-shaped “islands” (resembling the miniature versions seen in the wet sand of our beaches at low tide) that have been found on the plains close to the ends of the outflow channels. (D) Judging from the width and depth of the channels, the flow rates must have been truly enormous—perhaps as much as a hundred times greater than the 105 tons per second carried by the great Amazon River. Flooding shaped the outflow channels approximately 3 billion years ago, about the same time as the northern volcanic plains formed.

(A) Option A
(B) Option B
(C) Option C
(D) Option D
14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. *This question is worth 2 points.*

Write your answer choices in the spaces where they belong. You can either write the letter of your answer choice or you can copy the sentence.

There is much debate concerning whether Mars once had water.

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**Answer Choices**

(A) Various types of images have been used to demonstrate that most of the Martian surface contains evidence of flowing water.

(B) The runoff and outflow channels of Mars apparently carried a higher volume of water and formed more extensive networks than do Earth's river systems.

(C) Mars' runoff and outflow channels are large-scale, distinctive features that suggest that large quantities of liquid water once flowed on Mars.

(D) Although some researchers claim that Mars may once have had oceans, others dispute this, pointing to an absence of evidence or offering alternative interpretations of evidence.

(E) While numerous gullies have been discovered on Mars since 2000, many astronomers dismiss them as evidence that Mars once had liquid water.

(F) There is very little evidence of liquid water on Mars today, and it is assumed that all the water that once existed on the planet is frozen beneath its surface.
ANCIENT ROME AND GREECE

Paragraph 1
There is a quality of cohesiveness about the Roman world that applied neither to Greece nor perhaps to any other civilization, ancient or modern. Like the stones of a Roman wall, which were held together both by the regularity of the design and by that peculiarly powerful Roman cement, so the various parts of the Roman realm were bonded into a massive, monolithic entity by physical, organizational, and psychological controls. The physical bonds included the network of military garrisons, which were stationed in every province, and the network of stone-built roads that linked the provinces with Rome. The organizational bonds were based on the common principles of law and administration and on the universal army of officials who enforced common standards of conduct. The psychological controls were built on fear and punishment—on the absolute certainty that anyone or anything that threatened the authority of Rome would be utterly destroyed.

Paragraph 2
The source of the Roman obsession with unity and cohesion may well have lain in the pattern of Rome’s early development. Whereas Greece had grown from scores of scattered cities, Rome grew from one single organism. While the Greek world had expanded along the Mediterranean sea lanes, the Roman world was assembled by territorial conquest. Of course, the contrast is not quite so stark: in Alexander the Great the Greeks had found the greatest territorial conqueror of all time; and the Romans, once they moved outside Italy, did not fail to learn the lessons of sea power. Yet the essential difference is undeniable. The key to the Greek world lay in its high-powered ships; the key to Roman power lay in its marching legions. The Greeks were wedded to the sea; the Romans, to the land. The Greek was a sailor at heart; the Roman, a landsman.

Paragraph 3
Certainly, in trying to explain the Roman phenomenon, one would have to place great emphasis on this almost animal instinct for the territorial imperative. Roman priorities lay in the organization, exploitation, and defense of their territory. In all probability it was the fertile plain of Latium, where the Latins who founded Rome originated, that created the habits and skills of landed settlement, landed property, landed economy, landed administration, and a land-based society. From this arose the Roman genius for military organization and orderly government. In turn, a deep attachment to the land, and to the stability which rural life engenders, fostered the Roman virtues: gravitas, a sense of responsibility, peitas, a sense of devotion to family and country, and iustitia, a sense of the natural order.

Paragraph 4
Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. At the same time, there is a solid body of opinion that dislikes Rome. For many, Rome is at best the imitator and the continuator of Greece on a larger scale. Greek civilization had quality; Rome, mere
Paragraph

quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. "Had the Greeks held novelty in such disdain as we," asked Horace in his *Epistles*, "what work of ancient date would now exist?"

5 Rome's debt to Greece was enormous. The Romans adopted Greek religion and moral philosophy. In literature, Greek writers were consciously used as models by their Latin successors. It was absolutely accepted that an educated Roman should be fluent in Greek. In speculative philosophy and the sciences, the Romans made virtually no advance on early achievements.

6 Yet it would be wrong to suggest that Rome was somehow a junior partner in Greco-Roman civilization. The Roman genius was projected into new *spheres*—especially into those of law, military organization, administration, and engineering. Moreover, the tensions that arose within the Roman state produced literary and artistic sensibilities of the highest order. It was no accident that many leading Roman soldiers and statesmen were writers of high caliber.

Directions: Now answer the questions.

15. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

(A) The regularity and power of stone walls inspired Romans attempting to unify the parts of their realm.

(B) Although the Romans used different types of designs when building their walls, they used regular controls to maintain their realm.

(C) Several types of control united the Roman realm, just as design and cement held Roman walls together.

(D) Romans built walls to unite the various parts of their realm into a single entity, which was controlled by powerful laws.

16. According to paragraph 1, all of the following are controls that held together the Roman world EXCEPT

(A) administrative and legal systems

(B) the presence of the military

(C) a common language

(D) transportation networks

17. The phrase “obsession with” in the passage is closest in meaning to

(A) thinking about

(B) fixation on

(C) interest in

(D) attitude toward
18. According to paragraph 2, which of the following was NOT characteristic of Rome’s early development?
   (A) Expansion by sea invasion
   (B) Territorial expansion
   (C) Expansion from one original settlement
   (D) Expansion through invading armies

19. Why does the author mention “Alexander the Great” in the passage?
   (A) To acknowledge that Greek civilization also expanded by land conquest
   (B) To compare Greek leaders to Roman leaders
   (C) To give an example of a Greek leader whom Romans studied
   (D) To indicate the superior organization of the Greek military

20. The word “fostered” in the passage is closest in meaning to
   (A) accepted
   (B) combined
   (C) introduced
   (D) encouraged

21. Paragraph 3 suggests which of the following about the people of Latium?
   (A) Their economy was based on trade relations with other settlements.
   (B) They held different values than the people of Rome.
   (C) Agriculture played a significant role in their society.
   (D) They possessed unusual knowledge of animal instincts.

22. Paragraph 4 indicates that some historians admire Roman civilization because of
   (A) the diversity of cultures within Roman society
   (B) its strength
   (C) its innovative nature
   (D) the large body of literature that it developed

23. In paragraph 4, the author develops a description of Roman civilization by
   (A) comparing the opinions of Roman intellectuals to Greek intellectuals
   (B) identifying which characteristics of Roman civilization were copied from Greece
   (C) explaining how the differences between Rome and Greece developed as time passed
   (D) contrasting characteristics of Roman civilization with characteristics of Greek civilization

24. According to paragraph 4, intellectual Romans such as Horace held which of the following opinions about their civilization?
   (A) Ancient works of Greece held little value in the Roman world.
   (B) The Greek civilization had been surpassed by the Romans.
   (C) Roman civilization produced little that was original or memorable.
   (D) Romans valued certain types of innovations that had been ignored by ancient Greeks.

25. The word “spheres” in the passage is closest in meaning to
   (A) abilities
   (B) areas
   (C) combinations
   (D) models
26. Which of the following statements about leading Roman soldiers is supported by paragraphs 5 and 6?

(A) They could read and write the Greek language.
(B) They frequently wrote poetry and plays.
(C) They focused their writing on military matters.
(D) They wrote according to the philosophical laws of the Greeks.

27. In paragraph 4 of the passage, there is a missing sentence. The paragraph is repeated below and shows four letters (A, B, C, and D) that indicate where the following sentence could be added.

They esteem symbols of Roman power, such as the massive Colosseum.

Where would the sentence best fit?

Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. (A) As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. (B) At the same time, there is a solid body of opinion that dislikes Rome. (C) For many, Rome is at best the imitator and the continuator of Greece on a larger scale. (D) Greek civilization had quality; Rome, mere quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. “Had the Greeks held novelty in such disdain as we,” asked Horace in his Epistles, “what work of ancient date would now exist?”

(A) Option A
(B) Option B
(C) Option C
(D) Option D

28. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Write your answer choices in the spaces where they belong. You can either write the letter of your answer choice or you can copy the sentence.

The Roman world drew its strength from several important sources.

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**Answer Choices**

(A) Numerous controls imposed by Roman rulers held its territory together.
(B) The Roman military was organized differently from older military organizations.
(C) Romans valued sea power as did the Latins, the original inhabitants of Rome.
(D) Roman values were rooted in a strong attachment to the land and the stability of rural life.
(E) Rome combined aspects of ancient Greek civilization with its own contributions in new areas.
(F) Educated Romans modeled their own literature and philosophy on the ancient Greeks.
READING SECTION

Reading Practice Set 1
1. D
2. B
3. A
4. B
5. A
6. C
7. C
8. B
9. B
10. B
11. B
12. A
13. A
14. C, D, F

Reading Practice Set 2
15. C
16. C
17. B
18. A
19. A
20. D
21. C
22. B
23. D
24. C
25. B
26. A
27. B
28. A, D, E