

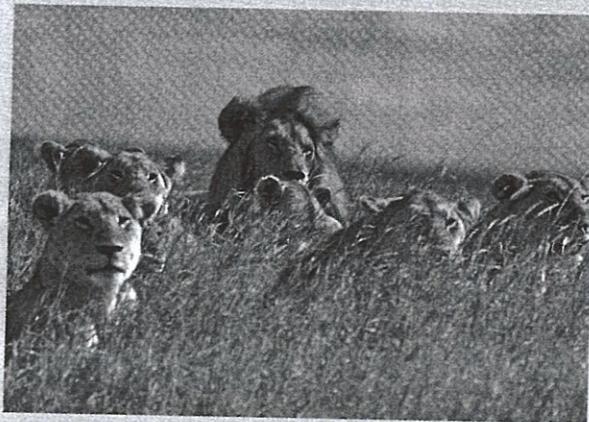
Actual Test



03



Lion Prides



A lion pride

Lions are native to Africa, where they primarily reside in the southeast part of the continent in regions with grassy plains upon which numerous large herds of prey animals roam. Among the most social of all animals, lions live in groups called prides, which consist of two to four males, three or more females, and their offspring, called cubs. The pride controls the territory in which it hunts, and defending this region is essential to the survival of every member. [Within a lion pride, there are special relationships between the males and females, the females and their cubs, and the cubs and the males. Additionally, each lion has a specific role it must play to guarantee that the pride thrives and is not overtaken by predators.] Thesis) Lion

The male lions rule the pride and defend it and its territory from predators, including other lions, which they do by patrolling their claimed land and marking it with chemical scents their bodies produce. If other lions approach, the males will fight in defense of their territory and pride. However, this fight may simply be a show of strength intended to frighten off their opponents rather than an actual battle because, in a physical confrontation, the slightest injury could kill a lion if it suffers an infection from a cut. As they age, the males become less able to defend their pride, so, eventually, they are killed or driven off by younger, stronger lions. Old males that survive after being ousted from their prides typically live lonely lives by themselves on the fringes of controlled territories until they die. Male → Protect

The females in a pride are the most numerous and are related to one another as well. They do the majority of the hunting for the pride by running down and killing prey, and then the males and the cubs share the kill. While the males almost always claim the choicest morsels, they are not so greedy that they consume an entire kill by themselves. Anytime a female lion goes into estrus, or heat, she is able to become pregnant. When one female in the pride reaches this stage, the other females—except for those already pregnant or with young cubs to care for—do the same. The males sense when the females are in

heat and copulate with them several times over a period of a few days. Zoologists believe the extreme amount of copulation is necessary because the females have difficulty getting pregnant. Despite that hardship, **several** usually become pregnant and then give birth at roughly the same time, whereupon the young cubs are raised together and protected by all of the adult females.

As the cubs mature, they take their place in the pride. The female cubs eventually reach their offspring-bearing years and subsequently join their female relatives on hunts and become adult members of the pride. The male cubs, however, receive treatment of a different nature. When they are around three or four years of age, they become too big and boisterous to remain in the pride. Since lions do not mate with their siblings, these males must depart to find mates of their own. The males, which are brothers or cousins, leave the pride together, form a coalition, and live near the territories of other lions while hunting and surviving to the best of their ability.

Soon, these males will feel the urge to mate and will desire to form a pride of their own, but the only way to do this is to attack the males in an existing pride and to drive them off or to kill them. Once the coalition succeeds in taking over a pride, its members want the females to go into heat as soon as possible; however, a female with cubs cannot do that again until her cubs are nearly two years old. The new male lions, unwilling to wait that long to pass on their genes to a new generation, therefore kill every cub in the pride they have taken over. Soon afterward, every female goes into heat, and the new males then have a chance to father their own cubs and to assert their position as the leaders of their pride.

*Glossary

- estrus:** a period when a female is in heat and is capable of becoming pregnant
copulate: to engage in sexual activity

PASSAGE 1



HIDE TIME 00:54:00

Beginning ▲

- 1 According to paragraph 1, which of the following is NOT true about lions?
- (A) They are only found living on grassy plains in the northeastern region of Africa.
 - (B) They live together in groups that have males, females, and cubs.
 - (C) They all work together by doing specific tasks so that their pride can do well.
 - (D) They must protect the area that they consider their own in order to survive.

Paragraph 1 is marked with an arrow (➡).

Lion Prides

➡ Lions are native to Africa, where they primarily reside in the southeast part of the continent in regions with grassy plains upon which numerous large herds of prey animals roam. Among the most social of all animals, lions live in groups called prides, which consist of two to four males, three or more females, and their offspring, called cubs. The pride controls the territory in which it hunts, and defending this region is essential to the survival of every member. Within a lion pride, there are special relationships between the males and females, the females and their cubs, and the cubs and the males. Additionally, each lion has a specific role it must play to guarantee that the pride thrives and is not overtaken by predators.

PASSAGE 1



REVIEW



HELP



BACK



NEXT

HIDE TIME 00:54:00

More Available

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

However, this fight may simply be a show of strength intended to frighten off their opponents rather than an actual battle because, in a physical confrontation, the slightest injury could kill a lion if it suffers an infection from a cut.

- (A) Since lions might die if they get a cut which then gets infected, they usually only engage in displays meant to scare away other animals instead of physically fighting with them.
- (B) Lions often engage both in shows of strength as well as actual battles with other lions, but they sometimes die because they get infections in one of the cuts they obtain while fighting.
- (C) More lions die from infections that happen when they get cut than from engaging in physical battles with other lions that are trying to take over their prides.
- (D) When a show of strength against an opponent does not succeed in frightening it off, a lion may be forced to battle another one in a fight that involves physical violence.

- 3 The word “fringes” in the passage is closest in meaning to

- (A) sidelines
- (B) outskirts
- (C) communities
- (D) frontiers

→ The male lions rule the pride and defend it and its territory from predators, including other lions, which they do by patrolling their claimed land and marking it with chemical scents their bodies produce. If other lions approach, the males will fight in defense of their territory and pride. **However, this fight may simply be a show of strength intended to frighten off their opponents rather than an actual battle because, in a physical confrontation, the slightest injury could kill a lion if it suffers an infection from a cut.** As they age, the males become less able to defend their pride, so, eventually, they are killed or driven off by younger, stronger lions. Old males that survive after being ousted from their prides typically live lonely lives by themselves on the **fringes** of controlled territories until they die.

4 In paragraph 3, why does the author mention “Zoologists”?

- (A) To describe their efforts to increase the population of wild lions
- (B) To discuss one of their theories on the reproductive habits of lions
- (C) To note one of their attempts at researching lions in their natural habitats
- (D) To explain their theory on why male and female lions act differently

Paragraph 3 is marked with an arrow (➡).

5 The word “boisterous” in the passage is closest in meaning to

- (A) violent
- (B) famished
- (C) inconsiderate
- (D) energetic

6 According to paragraph 4, why do young male lions leave their prides?

- (A) They are in search of unrelated female lions that they can mate with.
- (B) The older male lions force them to depart from the pride.
- (C) They feel an instinctual need to rule over a pride of their own.
- (D) The females refuse to hunt for them, so they leave in search of food.

Paragraph 4 is marked with an arrow (⇒).

➡ The females in a pride are the most numerous and are related to one another as well. They do the majority of the hunting for the pride by running down and killing prey, and then the males and the cubs share the kill. While the males almost always claim the choicest morsels, they are not so greedy that they consume an entire kill by themselves.

Anytime a female lion goes into estrus, or heat, she is able to become pregnant. When one female in the pride reaches this stage, the other females—except for those already pregnant or with young cubs to care for—do the same. The males sense when the females are in heat and copulate with them several times over a period of a few days. Zoologists believe the extreme amount of copulation is necessary because the females have difficulty getting pregnant. Despite that hardship, several usually become pregnant and then give birth at roughly the same time, whereupon the young cubs are raised together and protected by all of the adult females.

➡ As the cubs mature, they take their place in the pride. The female cubs eventually reach their offspring-bearing years and subsequently join their female relatives on hunts and become adult members of the pride. The male cubs, however, receive treatment of a different nature. When they are around three or four years of age, they become too big and boisterous to remain in the pride. Since lions do not mate with their siblings, these males must depart to find mates of their own. The males, which are brothers or cousins, leave the pride together, form a coalition, and live near the territories of other lions while they hunting and surviving to the best of their ability.

*Glossary

estrus: a period when a female is in heat and is capable of becoming pregnant

copulate: to engage in sexual activity

PASSAGE 1



HIDE TIME 00:54:00

End

- 7 Which of the following can be inferred from paragraphs 4 and 5 about male lions?
- (A) A few of them prefer living by themselves, so they do not attempt to take over a pride.
 - (B) They will fight with one another to determine which one is the alpha male of the group.
 - (C) They consume up to twice as much food as female lions the same age as them.
 - (D) All of the male lions that belong to the same pride are related to one another.

Paragraphs 4 and 5 are marked with arrows (➡) and (➡).

- 8 According to paragraph 5, why do male lions that take over a pride kill all of the cubs?
- (A) To reduce the size of the pride to a more manageable level
 - (B) To prevent the cubs from growing older and then attacking them
 - (C) To force every female to go into estrus so that they can mate
 - (D) To ensure that the adult lions get a sufficient amount of food to eat

Paragraph 5 is marked with an arrow (➡).

➡ As the cubs mature, they take their place in the pride. The female cubs eventually reach their offspring-bearing years and subsequently join their female relatives on hunts and become adult members of the pride. The male cubs, however, receive treatment of a different nature. When they are around three or four years of age, they become too big and boisterous to remain in the pride. Since lions do not mate with their siblings, these males must depart to find mates of their own. The males, which are brothers or cousins, leave the pride together, form a coalition, and live near the territories of other lions while hunting and surviving to the best of their ability.

➡ Soon, these males will feel the urge to mate and will desire to form a pride of their own, but the only way to do this is to attack the males in an existing pride and to drive them off or to kill them. Once the coalition succeeds in taking over a pride, its members want the females to go into heat as soon as possible; however, a female with cubs cannot do that again until her cubs are nearly two years old. The new male lions, unwilling to wait that long to pass on their genes to a new generation, therefore kill every cub in the pride they have taken over. Soon afterward, every female goes into heat, and the new males then have a chance to father their own cubs and to assert their position as the leaders of their pride.

- 9 Look at the four squares [■] that indicate where the following sentence could be added to the passage.

One place that lions may be found in Africa is the Serengeti, an extensive plain located in Tanzania and Kenya.

Where would the sentence best fit?

Click on a square [■] to add the sentence to the passage.

Lions are native to Africa, where they primarily reside in the southeast part of the continent in regions with grassy plains upon which numerous large herds of prey animals roam. 1 Among the most social of all animals, lions live in groups called prides, which consist of two to four males, three or more females, and their offspring, called cubs. 2 The pride controls the territory in which it hunts, and defending this region is essential to the survival of every member. 3 Within a lion pride, there are special relationships between the males and females, the females and their cubs, and the cubs and the males. 4 Additionally, each lion has a specific role it must play to guarantee that the pride thrives and is not overtaken by predators.

PASSAGE 1

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HIDE TIME 00:54:00

- 10 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 of the passage. Some sentences do not belong because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Drag your answer choices to the spaces where they belong. To remove an answer choice, click on it.
To review the passage, click on **VIEW TEXT**.

The male and female members of a lion pride each have a variety of roles that they must do.

-
-
-

ANSWER CHOICES

- [1] Male lions protect the territory that they have claimed as their own from other lions.
- [2] There are many male lions that have no pride, so they wander the land in small groups of two to four.
- [3] The number of lions living in the wild is decreasing because of hunting by poachers.
- [4] The female lions in a pride take care of the cubs and also do a great deal of hunting.
- [5] All of the cubs in a pride are killed if a new group of males takes over the leadership.
- [6] Female lions go into estrus and later give birth to cubs soon after the old males in a pride are defeated.

Gated Communities

Around the world, there are areas in cities in which some residences are surrounded by walls accessed solely by gates in various locations. Only the residents and their invited guests are permitted entry into these gated communities, as they are called. The gates themselves are manned by security personnel, who also patrol the community. Most gated communities, which offer protection from crime, are enclaves for the wealthy or retirement villages for the elderly. Within them, there are normally amenities such as health clubs, swimming pools, tennis courts, golf courses, beaches, playgrounds, and even restaurants and stores. While gated communities have a great amount of appeal to many people, they have a few drawbacks as well.

The greatest advantage gated communities offer is that they increase the safety of the people living in them in numerous ways. With no through traffic, there are fewer traffic accidents, which provides parents with children more peace of mind when their young ones are playing outside or returning home from school. Gated communities further provide more protection from criminals. Thanks to their gates, walls, cameras, and security personnel, most criminals are deterred from entering gated communities, so their crime rates are lower than those in neighboring districts. The people who live in gated communities tend to be close to one another, too. One reason is that the communities sponsor frequent social events, so there are chances for families to meet one another and to become friends who look out for the welfare of their neighbors.

On the other hand, the homes in gated communities are typically much more expensive than others, so houses are often out of the price ranges of all but the wealthiest members of society. Furthermore, the cost of maintaining the gates, walls, and security is borne by the people living in the communities. There is also the bothersome task of having to use an access card or key code to open and close the gates to enter and depart the community. Finally, most gated communities have strict rules on what people can and cannot do with their property. Any renovations and landscaping changes must usually be approved by a committee of community representatives.

Gated communities are occasionally criticized for the fact that they may appear safer than they actually are. While they offer the perception of safety, some do not have lower crime rates than non-gated communities. A study carried out in the American state of Florida in 2005 showed that even though there were fewer traffic violations and accidents in gated communities, there were similar rates of car theft and burglary in gated and non-gated communities. The main problem concerned the proper usage and maintenance of the gates and security systems. Damaged and nonfunctioning gates, broken security cameras, a lack of proper patrolling, and low walls all permitted criminals easily to enter gated communities. Additionally, gates that require access codes are no barrier to keeping nonresidents out

since many of them know the codes. For example, family members of the residents almost always know the codes as do individuals working for the residents. Among these people are maids, babysitters, and gardeners. Lastly, delivery personnel from the post office, restaurants, and other places almost always know the proper codes to gain access. With so many people cognizant of the entry codes, it is no surprise that they often end up in the hands of criminals.

Despite these drawbacks, the number of gated communities is growing around the world. In the United States, nearly eleven million households were located inside gated communities in 2009. In other nations, there are wide gaps between the rich and the poor, and crime is rampant, so gated communities are frequently the only bastions of safety for worried citizens. In Brazil, gated communities are popular on the peripheries of the crime-ridden urban areas of Rio de Janeiro and Sao Paulo. Mexico and South Africa, which both have high crime rates, are seeing many members of their middle and upper classes hiding themselves behind the walls of gated communities. While these places do not always provide the protection that people seek, they at least comfort people by providing them with the perception that they are safe.

*Glossary

- enclave:** a distinct area that is located inside another region but which is physically separated from it
periphery: a border; an edge

PASSAGE 2



HIDE TIME 00:54:00

Beginning

- 11 Which of the following can be inferred from paragraph 1 about gated communities?
- (A) The only nations in which they currently exist are developed countries.
 - (B) The people who live in them frequently have their workplaces in them, too.
 - (C) A limited number of people are permitted to gain access to them.
 - (D) The vast majority of people who live in them are childless retirees.

Paragraph 1 is marked with an arrow (➡).

- 12 In stating that most criminals are “deterred” from even entering gated communities, the author means that criminals
- (A) will rob homes in them
 - (B) consider stealing from them
 - (C) never enter them
 - (D) are discouraged to go into them

- 13 According to paragraph 2, which of the following is NOT true about the advantages of gated communities?
- (A) There are not as many car accidents in them as there are in other places.
 - (B) The families living in them often spend time socializing together with one another.
 - (C) Children have many places where they can spend time playing with their friends.
 - (D) Their emphasis on safety means that they do not have to deal with many criminals.

Paragraph 2 is marked with an arrow (▷).

Gated Communities

→ Around the world, there are areas in cities in which some residences are surrounded by walls accessed solely by gates in various locations. Only the residents and their invited guests are permitted entry into these gated communities, as they are called. The gates themselves are manned by security personnel, who also patrol the community. Most gated communities, which offer protection from crime, are enclaves for the wealthy or retirement villages for the elderly. Within them, there are normally amenities such as health clubs, swimming pools, tennis courts, golf courses, beaches, playgrounds, and even restaurants and stores. While gated communities have a great amount of appeal to many people, they have a few drawbacks as well.

⇒ The greatest advantage gated communities offer is that they increase the safety of the people living in them in numerous ways. With no through traffic, there are fewer traffic accidents, which provides parents with children more peace of mind when their young ones are playing outside or returning home from school. Gated communities further provide more protection from criminals. Thanks to their gates, walls, cameras, and security personnel, most criminals are deterred from entering gated communities, so their crime rates are lower than those in neighboring districts. The people who live in gated communities tend to be close to one another, too. One reason is that the communities sponsor frequent social events, so there are chances for families to meet one another and to become friends who look out for the welfare of their neighbors.

*Glossary

enclave: a distinct area that is located inside another region but which is physically separated from it

PASSAGE 2



HIDE TIME 00:54:00

More Available

- 14 In paragraph 3, the author implies that the usage of key codes in gated communities
- (A) is the primary reason that they have lower crime rates than other areas
 - (B) is considered to be more convenient than having residents use access cards
 - (C) should not be required when residents are trying to leave the areas
 - (D) is regarded as an annoyance by some of the people who live in them

Paragraph 3 is marked with an arrow (➡).

- 15 According to paragraph 4, which of the following is true about the study carried out in Florida in 2005?
- (A) Gated communities saw an increase in the number of car accidents.
 - (B) There were more murders in gated communities than in other areas.
 - (C) Gated communities had fewer traffic violations than other regions.
 - (D) There were fewer car thefts in gated communities than in other places.

Paragraph 4 is marked with an arrow (⇨).

- 16 In paragraph 4, the author uses “delivery personnel” as an example of
- (A) individuals who may give key codes for gated communities to criminals
 - (B) laborers who can be trusted to move around by themselves in gated communities
 - (C) people who know how to gain access to gated communities
 - (D) workers who visit gated communities more often than maids and gardeners

Paragraph 4 is marked with an arrow (⇨).

➡ On the other hand, the homes in gated communities are typically much more expensive than others, so houses are often out of the price ranges of all but the wealthiest members of society. Furthermore, the cost of maintaining the gates, walls, and security is borne by the people living in the communities. There is also the bothersome task of having to use an access card or key code to open and close the gates to enter and depart the community. Finally, most gated communities have strict rules on what people can and cannot do with their property. Any renovations and landscaping changes must usually be approved by a committee of community representatives.

⇨ Gated communities are occasionally criticized for the fact that they may appear safer than they actually are. While they offer the perception of safety, some do not have lower crime rates than non-gated communities. A study carried out in the American state of Florida in 2005 showed that even though there were fewer traffic violations and accidents in gated communities, there were similar rates of car theft and burglary in gated and non-gated communities. The main problem concerned the proper usage and maintenance of the gates and security systems. Damaged and nonfunctioning gates, broken security cameras, a lack of proper patrolling, and low walls all permitted criminals easily to enter gated communities. Additionally, gates that require access codes are no barrier to keeping nonresidents out since many of them know the codes. For example, family members of the residents almost always know the codes as do individuals working for the residents. Among these people are maids, babysitters, and gardeners. Lastly, delivery personnel from the post office, restaurants, and other places almost always know the proper codes to gain access. With so many people cognizant of the entry codes, it is no surprise that they often end up in the hands of criminals.

17 The word “rampant” in the passage is closest in meaning to

- (A) worrisome
- (B) widespread
- (C) unsolved
- (D) violent

18 According to paragraph 5, people in Brazil often live in gated communities because

- (A) they appear to provide safe havens from nearby areas with many criminals
- (B) the murder rates in other parts of large cities there are very high
- (C) wealthy members of the upper class there are expected to reside in them
- (D) these neighborhoods receive the most patrolling by local police

Paragraph 5 is marked with an arrow (➡).

➡ Despite these drawbacks, the number of gated communities is growing around the world. In the United States, nearly eleven million households were located inside gated communities in 2009. In other nations, there are wide gaps between the rich and the poor, and crime is rampant, so gated communities are frequently the only bastions of safety for worried citizens. In Brazil, gated communities are popular on the peripheries of the crime-ridden urban areas of Rio de Janeiro and São Paulo. Mexico and South Africa, which both have high crime rates, are seeing many members of their middle and upper classes hiding themselves behind the walls of gated communities. While these places do not always provide the protection that people seek, they at least comfort people by providing them with the perception that they are safe.

*Glossary

periphery: a border; an edge

PASSAGE 2



REVIEW



HELP



BACK



NEXT

HIDE TIME 00:54:00

More Available

- 19 Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This can create bad feelings at times when requests made by homeowners are rejected by the group for whatever reasons.

Where would the sentence best fit?

Click on a square [■] to add the sentence to the passage.

On the other hand, the homes in gated communities are typically much more expensive than others, so houses are often out of the price ranges of all but the wealthiest members of society. Furthermore, the cost of maintaining the gates, walls, and security is borne by the people living in the communities. 1 There is also the bothersome task of having to use an access card or key code to open and close the gates to enter and depart the community. 2 Finally, most gated communities have strict rules on what people can and cannot do with their property. 3 Any renovations and landscaping changes must usually be approved by a committee of community representatives. 4

- 20 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 of the passage. Some sentences do not belong because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

Drag your answer choices to the spaces where they belong. To remove an answer choice, click on it. To review the passage, click on VIEW TEXT.

Although gated communities have been growing in popularity in recent years, they have some drawbacks in addition to their many benefits.

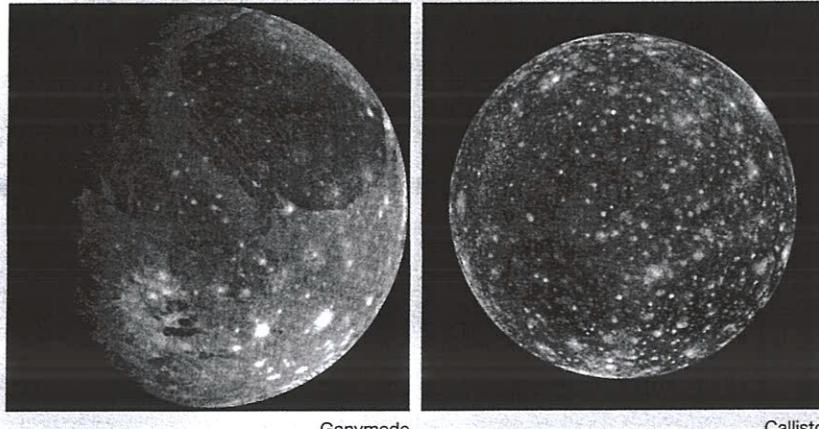
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ANSWER CHOICES

- [1] While most gated communities claim to have lower crime rates, a study has shown that is not always true of them.
- [2] The United States has the greatest number of people living in gated communities, but they are popular in South Africa as well.
- [3] Because living in gated communities is an expensive venture, only people with access to a lot of money can move into them.
- [4] A large number of gated communities function as retirement homes for the elderly and allow them to live in relative comfort.
- [5] People in countries around the world are moving into gated communities in order to escape from nearby areas with high crime rates.
- [6] Security guards often man the gates and also patrol the streets of most gated communities in the United States.

PASSAGE 3

Ganymede and Callisto



Ganymede

Callisto

The four largest moons of the planet Jupiter are called the Galilean moons because they were discovered by Italian astronomer Galileo Galilei in 1601. The two smallest, Io and Europa, orbit closer to Jupiter than Ganymede and Callisto, the two largest. Ganymede and Callisto are similar in several ways but also have some profound differences. Several, particularly the dissimilarity between their surfaces, were first noticed when the *Voyager 1* and *Voyager 2* space probes passed through the Jovian system in 1979 and closely observed Jupiter and its moons.

With a diameter of 5,268 kilometers, Ganymede is the largest moon in the solar system and is bigger than Mercury and nearly as large as Mars. Were it not for the fact that Ganymede orbits Jupiter, it would likely be classified as a planet. Ganymede is extremely old, having formed around 4.5 billion years ago, which was roughly when Jupiter itself came into being. Primarily composed of ice and rock, Ganymede has a surface that is mainly ice. Yet its surface is not even in composition, for large areas of it are darker than other parts. These dark regions comprise about forty percent of the moon's surface and have many impact craters whereas the lighter regions have fewer craters despite being the majority of the moon's surface. The light regions show evidence of recent geological activity, which may explain why they are less cratered. As for Ganymede's interior, it is believed to have a solid, rocky core with layers of rock and ice between the core and the surface. Ganymede has a thin oxygen atmosphere insufficient to support life and is the only moon in the solar system to have its own magnetosphere.

At 4,820 kilometers in diameter, Callisto is smaller than Ganymede, but the two are the same age. Similar to Ganymede, it is made of rock and ice and has a predominantly ice surface. Nevertheless, Callisto's surface is much darker than Ganymede's and reflects little light. Callisto is one of the most heavily cratered celestial objects in the solar system. The presence of so many craters indicates that

Callisto has no tectonic forces changing its surface, a fact that induces most astronomers to regard it as a dead world. However, the craters on Callisto have not been totally unaffected; they are smoother than those on other worlds and lack the deep depressions and high perimeter walls the craters on Earth's moon have. These characteristics may be a result of Callisto's icy surface smoothing out the craters as the ice moves, something which also happens on Ganymede. Additionally, like Ganymede, Callisto has a thin atmosphere, but it is composed mainly of carbon dioxide.

Another characteristic both moons share is that it is likely that at least one internal ocean exists on each of them. Ganymede is believed to have one or more oceans stacked between the layers of ice making up its interior. Furthermore, there is evidence suggesting that Callisto may have an internal ocean of unfrozen salt water between fifty and 200 kilometers beneath its surface. Some astronomers speculate that each moon may contain alien life in its subsurface waters.

As for the primary difference between the two moons, it is their surfaces, which were photographed up close by the *Voyager* probes. The high number of craters on Callisto is most likely the result of it—as well as many other objects in the solar system—being subjected to a massive series of impacts during the Late Heavy Bombardment Period approximately 3.8 billion years ago. Ganymede was also caught in this bombardment of celestial objects, yet it orbits closer to Jupiter, so as the giant planet's gravity pulled many meteorites toward it, an even larger number managed to strike Ganymede. These impacts forced the icy surface to melt and pushed rocks deep into its core. The impacts drove heat into the core. This heat is still creating internal tectonic forces on Ganymede, which, in turn, cause its surface to change and many craters to disappear over time. Callisto, being further away from Jupiter, was hit with fewer impacts, which drove fewer rocks and less heat into its core. Resultantly, Callisto has had virtually no tectonic forces at work, so its surface has remained mostly unchanged for billions of years.

*Glossary

Jovian: relating to the planet Jupiter

magnetosphere: an area of space around a celestial object that contains charged particles due to its magnetic field

PASSAGE 3



HIDE TIME 00:54:00

Beginning

21 In paragraph 1, why does the author mention “Italian astronomer Galileo Galilei”?

- (A) To point out an astronomical discovery that he made
- (B) To focus on his dispute with the Catholic Church
- (C) To claim that he named the largest of Jupiter’s moons
- (D) To emphasize his role in the history of astronomy

Paragraph 1 is marked with an arrow (→).

22 The word “profound” in the passage is closest in meaning to

- (A) traumatic
- (B) sincere
- (C) stark
- (D) potential

Ganymede and Callisto

→ The four largest moons of the planet Jupiter are called the Galilean moons because they were discovered by Italian astronomer Galileo Galilei in 1601. The two smallest, Io and Europa, orbit closer to Jupiter than Ganymede and Callisto, the two largest. Ganymede and Callisto are similar in several ways but also have some profound differences. Several, particularly the dissimilarity between their surfaces, were first noticed when the *Voyager 1* and *Voyager 2* space probes passed through the Jovian system in 1979 and closely observed Jupiter and its moons.

*Glossary

Jovian: relating to the planet Jupiter

23 The word “it” in the passage refers to

- (A) Ganymede
- (B) Callisto
- (C) a thin atmosphere
- (D) carbon dioxide

24 Which of the following can be inferred from paragraphs 2 and 3 about Callisto?

- (A) The atmosphere on it is capable of supporting some life found on Earth.
- (B) It first came into existence sometime around 4.5 billion years in the past.
- (C) Earth's moon has roughly the same number of craters as it does.
- (D) The internal ocean lying close to the moon's surface causes it to be so dark.

Paragraphs 2 and 3 are marked with arrows (➡) and (⇒).

25 In paragraph 3, the author's description of Callisto mentions all of the following EXCEPT:

- (A) the amount of time it takes to complete an orbit of Jupiter
- (B) the reason that it has so many craters on its surface
- (C) the gas that makes up the main portion of its atmosphere
- (D) how large it is in comparison with another Jovian moon

Paragraph 3 is marked with an arrow (⇒).

➡ With a diameter of 5,268 kilometers, Ganymede is the largest moon in the solar system and is bigger than Mercury and nearly as large as Mars. Were it not for the fact that Ganymede orbits Jupiter, it would likely be classified as a planet. Ganymede is extremely old, having formed around 4.5 billion years ago, which was roughly when Jupiter itself came into being.

Primarily composed of ice and rock, Ganymede has a surface that is mainly ice. Yet its surface is not even in composition, for large areas of it are darker than other parts. These dark regions comprise about forty percent of the moon's surface and have many impact craters whereas the lighter regions have fewer craters despite being the majority of the moon's surface. The light regions show evidence of recent geological activity, which may explain why they are less cratered. As for Ganymede's interior, it is believed to have a solid, rocky core with layers of rock and ice between the core and the surface. Ganymede has a thin oxygen atmosphere insufficient to support life and is the only moon in the solar system to have its own magnetosphere.

⇒ At 4,820 kilometers in diameter, Callisto is smaller than Ganymede, but the two are the same age. Similar to Ganymede, it is made of rock and ice and has a predominantly ice surface. Nevertheless, Callisto's surface is much darker than Ganymede's and reflects little light. Callisto is one of the most heavily cratered celestial objects in the solar system. The presence of so many craters indicates that Callisto has no tectonic forces changing its surface, a fact that induces most astronomers to regard it as a dead world. However, the craters on Callisto have not been totally unaffected; they are smoother than those on other worlds and lack the deep depressions and high perimeter walls the craters on Earth's moon have. These characteristics may be a result of Callisto's icy surface smoothing out the craters as the ice moves, something which also happens on Ganymede. Additionally, like Ganymede, Callisto has a thin atmosphere, but it is composed mainly of carbon dioxide.

*Glossary

magnetosphere: an area of space around a celestial object that contains charged particles due to its magnetic field

PASSAGE 3



HIDE TIME 00:54:00

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- 26 The word “stacked” in the passage is closest in meaning to

- (A) dispersed
- (B) trapped
- (C) organized
- (D) layered

- 27 According to paragraph 4, which of the following is true about Ganymede and Callisto?

- (A) Most scientists agree that they harbor extraterrestrial life in their oceans.
- (B) There is a strong chance that both of them have oceans under their surfaces.
- (C) Each of them has liquid water, but Callisto has more of it than Ganymede does.
- (D) The amount of water located on each moon is equivalent to the amount on Earth.

Paragraph 4 is marked with an arrow (➡).

- 28 According to paragraph 5, there are tectonic forces at work on Ganymede because

- (A) meteorites colliding with it heated the core of the moon
- (B) there is still a great amount of volcanic activity happening on it
- (C) the effect of Jupiter’s gravity on the moon is so powerful
- (D) a great amount of ice was once pushed into its center

Paragraph 5 is marked with an arrow (⇒).

➡ Another characteristic both moons share is that it is likely that at least one internal ocean exists on each of them. Ganymede is believed to have one or more oceans stacked between the layers of ice making up its interior. Furthermore, there is evidence suggesting that Callisto may have an internal ocean of unfrozen salt water between fifty and 200 kilometers beneath its surface. Some astronomers speculate that each moon may contain alien life in its subsurface waters.

⇒ As for the primary difference between the two moons, it is their surfaces, which were photographed up close by the Voyager probes. The high number of craters on Callisto is most likely the result of it—as well as many other objects in the solar system—being subjected to a massive series of impacts during the Late Heavy Bombardment Period approximately 3.8 billion years ago.

Ganymede was also caught in this bombardment of celestial objects, yet it orbits closer to Jupiter, so as the giant planet’s gravity pulled many meteorites toward it, an even larger number managed to strike Ganymede. These impacts forced the icy surface to melt and pushed rocks deep into its core. The impacts drove heat into the core. This heat is still creating internal tectonic forces on Ganymede, which, in turn, cause its surface to change and many craters to disappear over time. Callisto, being further away from Jupiter, was hit with fewer impacts, which drove fewer rocks and less heat into its core. Resultantly, Callisto has had virtually no tectonic forces at work, so its surface has remained mostly unchanged for billions of years.

- 29 Look at the four squares [■] that indicate where the following sentence could be added to the passage.

It is highly unlikely that this theory will be proven until probes—or perhaps even manned missions—are sent to explore the surfaces of the moons themselves.

Where would the sentence best fit?

Click on a square [■] to add the sentence to the passage.

Another characteristic both moons share is that it is likely that at least one internal ocean exists on each of them. 1 Ganymede is believed to have one or more oceans stacked between the layers of ice making up its interior. 2 Furthermore, there is evidence suggesting that Callisto may have an internal ocean of unfrozen salt water between fifty and 200 kilometers beneath its surface. 3 Some astronomers speculate that each moon may contain alien life in its subsurface waters. 4

PASSAGE 3

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HIDE TIME 00:54:00

- 30 Directions: Select the appropriate statements from the answer choices and match them to the moon of Jupiter to which they relate. TWO of the answer choices will NOT be used. This question is worth 3 points.

Drag your answer choices to the spaces where they belong. To remove an answer choice, click on it. To review the passage, click on VIEW TEXT.

ANSWER CHOICES

- 1 Is thought to have a saltwater ocean around 200 kilometers beneath its surface
- 2 Has some parts with many craters and other parts with smaller numbers of them
- 3 Has craters that have deep depressions and high walls around their perimeters
- 4 Has a dark surface from which only a small amount of light is reflected
- 5 Is larger in diameter than one of the planets in the solar system
- 6 Orbits the planet Jupiter closer than either the moons Io and Europa do
- 7 Has tectonic forces that are at work changing the face of its surface

MOON OF JUPITER

Ganymede (Select 3)

-
-
-

Callisto (Select 2)

-
-