

Questions 1–13

Cellular Slime Molds

Cellular slime molds are extraordinary life forms that exhibit features of both fungi and protozoa, although often classed for convenience with fungi. At one time they were regarded as organisms of ambiguous taxonomic status, but more recent analysis of DNA sequences has shown that slime molds should be regarded as inhabiting their own separate kingdom. Their uniqueness lies in their unusual life cycle, which alternates between a feeding stage in which the organism is essentially unicellular and a reproductive stage in which the organism adopts a multicellular structure. At the first stage they are free-living, separate amoebae, usually inhabiting the forest floor and ingesting bacteria found in rotting wood, dung, or damp soil. But their food supplies are relatively easily exhausted since the cells' movements are restricted and their food requirements rather large.

When the cells become starved of nutrition, the organism initiates a new genetic program that permits the cells to eventually find a new, food-rich environment. At this point, the single-celled amoebae combine together to form what will eventually become a multicellular creature. The mechanism by which the individual members become a single entity is essentially chemical in nature. At first, a few of the amoebae start to produce periodic chemical pulses that are detected, amplified, and relayed to the surrounding members, which then move toward the pulse origin. In time, these cells form many streams of cells, which then come together to form a single hemispherical mass. This mass sticks together through the secretion of adhesion molecules.

The mass now develops a tip, which elongates into a finger-like structure of about 1 or 2 millimeters in length. This structure eventually falls over to form a miniature slug, moving as a single entity orienting itself toward light. During this period the cells within the mass differentiate into two distinct kinds of cell. Some become prestalk cells, which later form into a vertical stalk, and others form prespore cells, which become the spore head.

As the organism migrates, it leaves behind a track of slime rather like a garden slug. Once a favorable location has been found with a fresh source of bacteria to feed on, the migration stops and the colony metamorphoses into a fungus-like organism in a process known as "culmination." The front cells turn into a stalk, and the back cells climb up the stalk and form a spherical-shaped head, known as the sorocarp. This final fruiting body is about 2 millimeters in height. The head develops into spores, which are dispersed into the environment and form the next generation of amoebae cells. Then the life cycle is repeated. Usually the stalk disappears once the spores have been released.

The process by which the originally identical cells of the slime mold become transformed into multicellular structures composed of two different cell types – spore and stalk – is of great interest to developmental biologists since it is analogous* to an important process found in higher organisms in which organs with highly specialized functions are formed from unspecialized stem cells. Early experiments showed which parts of the slime mold organism contributed to the eventual stalk and which parts to the head. Scientists stained the front part of a slug with a red dye and attached it to the back part of a different slug. The hybrid creature developed as normal. The experimenters then noted that the stalk of the fruiting body was stained red and that the spore head was unstained. Clearly, the anterior part of the organism culminated in the stalk and the posterior part in the spore head. Nowadays, experiments using DNA technology and fluorescent proteins or enzymes to label the prespore and prestalk cells have been undertaken. This more molecular approach gives more precise results than using staining dyes but has essentially backed up the results of the earlier dye studies.

***analogous:** similar

1. According to paragraph 1, how the slime mold should be classified used to be

(A) unknown
 (B) uncertain
 (C) controversial
 (D) unfamiliar

Paragraph 1 is marked with an arrow [➡].

➡ Cellular slime molds are extraordinary life forms that exhibit features of both fungi and protozoa, although often classed for convenience with fungi. At one time they were regarded as organisms of ambiguous taxonomic status, but more recent analysis of DNA sequences has shown that slime molds should be regarded as inhabiting their own separate kingdom. Their uniqueness lies in their unusual life cycle, which alternates between a feeding stage in which the organism is essentially unicellular and a reproductive stage in which the organism adopts a multicellular structure. At the first stage they are free-living, separate amoebae, usually inhabiting the forest floor and ingesting bacteria found in rotting wood, dung, or damp soil. But their food supplies are relatively easily exhausted since the cells' movements are restricted and their food requirements rather large.

2. The word “**ingesting**” in the passage is closest in meaning to

(A) chewing
 (B) catching
 (C) absorbing
 (D) consuming

Cellular slime molds are extraordinary life forms that exhibit features of both fungi and protozoa, although often classed for convenience with fungi. At one time they were regarded as organisms of ambiguous taxonomic status, but more recent analysis of DNA sequences has shown that slime molds should be regarded as inhabiting their own separate kingdom. Their uniqueness lies in their unusual life cycle, which alternates between a feeding stage in which the organism is essentially unicellular and a reproductive stage in which the organism adopts a multicellular structure. At the first stage they are free-living, separate amoebae, usually inhabiting the forest floor and **ingesting** bacteria found in rotting wood, dung, or damp soil. But their food supplies are relatively easily exhausted since the cells' movements are restricted and their food requirements rather large.

3. According to the passage, what is unusual about the slime molds' life cycle?

(A) They inhabit their own kingdom.
 (B) They are organisms whose classification is ambiguous.
 (C) They alternate between unicellular and multicellular structures.
 (D) They are free-living organisms.

[Refer to the full passage.]

4. According to the passage, what is the primary reason the cells need to combine into a single larger creature?
- (A) To move to find a new food source
(B) To slow the rate of ingesting food
(C) To become separate creatures
(D) To create their own kingdom

[Refer to the full passage.]

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

Starvation is reached when the population of cells is high in relation to the abundance of the food source.

Where would the sentence best fit?

Choose the letter of the square that shows where the sentence should be added.

When the cells become starved of nutrition, the organism initiates a new genetic program that permits the cells to eventually find a new, food-rich environment. **A** At this point, the single-celled amoebae combine together to form what will eventually become a multicellular creature. **B** The mechanism by which the individual members become a single entity is essentially chemical in nature. **C** At first, a few of the amoebae start to produce periodic chemical pulses that are detected, amplified, and relayed to the surrounding members, which then move toward the pulse origin. **D** In time, these cells form many streams of cells, which then come together to form a single hemispherical mass. This mass sticks together through the secretion of adhesion molecules.

6. The word “entity” in the passage is closest in meaning to

- (A) division
(B) species
(C) piece
(D) unit

When the cells become starved of nutrition, the organism initiates a new genetic program that permits the cells to eventually find a new, food-rich environment. At this point, the single-celled amoebae combine together to form what will eventually become a multicellular creature. The mechanism by which the individual members become a single **entity** is essentially chemical in nature. At first, a few of the amoebae start to produce periodic chemical pulses that are detected, amplified, and relayed to the surrounding members, which then move toward the pulse origin. In time, these cells form many streams of cells, which then come together to form a single hemispherical mass. This mass sticks together through the secretion of adhesion molecules.

7. The word “others” in the passage refers to

- (A) cells
(B) stalks
(C) spores
(D) kinds

The mass now develops a tip, which elongates into a finger-like structure of about 1 or 2 millimeters in length. This structure eventually falls over to form a miniature slug, moving as a single entity orienting itself toward light. During this period the cells within the mass differentiate into two distinct kinds of cell. Some become prestalk cells, which later form into a vertical stalk, and **others** form prespore cells, which become the spore head.

8. All of the following are mentioned in paragraph 4 as being parts of the multicellular slug EXCEPT

- (A) the head
- (B) the stalk
- (C) legs
- (D) spores

Paragraph 4 is marked with an arrow [➡].

➡ As the organism migrates, it leaves behind a track of slime rather like a garden slug. Once a favorable location has been found with a fresh source of bacteria to feed on, the migration stops and the colony metamorphoses into a fungus-like organism in a process known as “culmination.” The front cells turn into a stalk, and the back cells climb up the stalk and form a spherical-shaped head, known as the sorocarp. This final fruiting body is about 2 millimeters in height. The head develops into spores, which are dispersed into the environment and form the next generation of amoebae cells. Then the life cycle is repeated. Usually the stalk disappears once the spores have been released.

9. In paragraph 4, why does the author refer to the fungus-like organism as a fruiting body?

- (A) Because it has become one entity
- (B) Because it is 2 millimeters in height
- (C) Because it now has a stalk and head
- (D) Because it has reached its reproductive stage

Paragraph 4 is marked with an arrow [➡].

➡ As the organism migrates, it leaves behind a track of slime rather like a garden slug. Once a favorable location has been found with a fresh source of bacteria to feed on, the migration stops and the colony metamorphoses into a fungus-like organism in a process known as “culmination.” The front cells turn into a stalk, and the back cells climb up the stalk and form a spherical-shaped head, known as the sorocarp. This final fruiting body is about 2 millimeters in height. The head develops into spores, which are dispersed into the environment and form the next generation of amoebae cells. Then the life cycle is repeated. Usually the stalk disappears once the spores have been released.

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

- (A) The next generation of amoebae cells disperses into the environment by attaching themselves to spores on the head.
- (B) After the spores that form the head are scattered around the area, they develop into a new generation of amoebae cells.
- (C) The spores develop into amoebae cells and then become spread around the head of the slug.
- (D) The spores spread throughout an area and develop into a new generation of amoebae cells.

As the organism migrates, it leaves behind a track of slime rather like a garden slug. Once a favorable location has been found with a fresh source of bacteria to feed on, the migration stops and the colony metamorphoses into a fungus-like organism in a process known as “culmination.” The front cells turn into a stalk, and the back cells climb up the stalk and form a spherical-shaped head, known as the sorocarp. This final fruiting body is about 2 millimeters in height. The head develops into spores, which are dispersed into the environment and form the next generation of amoebae cells. Then the life cycle is repeated. Usually the stalk disappears once the spores have been released.

Part 2 Building Skills

11. It can be inferred that developmental biologists are especially interested in the slime mold because
- (A) the change in degree of specialization in its cells helps them to understand cell development in more complex organisms
 - (B) it is convenient to perform experiments on a creature that is composed of two different cell types
 - (C) scientists could form hybrid organisms in their experiments using the same process that slime mold uses to transform itself
 - (D) it is easy to find specimens on which to perform experiments

[Refer to the full passage.]

12. According to the passage, the recent DNA studies
- (A) give similar results to the dye studies
 - (B) contradict the dye studies
 - (C) are less exact than the dye studies
 - (D) have introduced confusion about the dye study results

[Refer to the full passage.]

13. **Directions:** Select the appropriate phrases from the answer choices and match them to the stage of slime mold life cycle to which they relate. TWO of the answer choices will NOT be used. This question is worth 4 points.

Write the letters of the answer choices in the spaces where they belong.
Refer to the full passage.

| Answer Choices | Unspecialized Cells | Specialized Cells |
|---|---------------------|-------------------|
| (A) Alteration between feeding and reproduction | • | |
| (B) Bacteria-consuming amoebae inhabiting the forest floor | • | |
| (C) Culmination of dyed cells in stalk and head | • | |
| (D) Development of sorocarp | | |
| (E) Dispersal of spores | | |
| (F) Mass formed through the secretion of adhesion molecules | • | |
| (G) Migration oriented to fresh source of food | • | |
| (H) Production of chemical pulses causing members to merge | | |
| (I) Transformation of cells into stalk and head | | |

Questions 14–26

The Coriolis Force

In the early part of the twentieth century, the Norwegian scientist and polar explorer Fridtjof Nansen noted that icebergs did not follow the path of the wind as common sense had assumed. Instead they tended to move to the right side of the direction in which the wind blew. A student of Nansen's, V. W. Ekman, showed that the rotation of the Earth leading to an inertial force known as the Coriolis force was responsible for this phenomenon. He further demonstrated that in the Northern Hemisphere the deflection was toward the right of the prevailing wind, and in the Southern Hemisphere the deflection was toward the left. The icebergs observed by Nansen were moved by ocean currents that also moved at an angle to the prevailing wind.

The Coriolis force itself is caused by the fact that the Earth rotates on its axis once per day, and hence all points on the planet have the same rotational velocity; that is, they take one whole day to complete a rotational circle. However, since a complete rotation around the Earth is shorter the further one is away from the equator, different points on the Earth travel at different speeds depending on degree of latitude. For example, a point on the equator travels the whole distance around the sphere (about 40,000 kilometers), whereas a point near the poles will travel a much shorter distance. Therefore, we can say that the linear speed of a point depends on its latitude above or below the equator. Thus the actual linear speed of a point on the surface is faster the nearer that point is to the equator.

Now if an untethered object (or current) is moving northward away from the equator in the Northern Hemisphere, it will also maintain the initial speed imparted to it by the eastward rotation of the Earth. That eastward deflection is faster at the equator than at more northerly (or southerly) latitudes, and thus, when the object reaches a more northerly point, it will be traveling faster in an eastward direction than the surrounding ground or water. The moving object will appear to be forced away from its path by some mysterious phenomenon. In reality the ground is simply moving at a different speed from the original speed at the object's (or current's) home position. The resulting direction of movement will therefore be at an angle of about 45 degrees to the original direction, so an object traveling north will move to the right in the Northern Hemisphere and to the left in the Southern Hemisphere with respect to the rotating Earth. An object traveling south will be deflected to the left in the Northern Hemisphere and to the right in the Southern Hemisphere.

As the surface water in the ocean is moved by the wind, it tends to veer* off at an angle of 45 degrees to the right or left. This movement exerts a drag on the water immediately below it, and the Coriolis force causes this layer to move and also to deflect to the right or left. This layer in turn drags the layer below, which in turn is deflected. At successively deeper layers, the water is deflected in relation to the layer above until at a depth of around 150 meters, the water is moving in a direction opposite to the surface water. At successively greater depths, the frictional forces between layers reduce the energy of the flow, causing water to move more slowly the deeper the layer. The resulting deflections produce a spiral pattern known as the Ekman spiral. The net movement of water is roughly at 90 degrees from the wind direction and is known as Ekman transport.

This phenomenon is an important factor in the movement of water in the oceans. Among other things, it creates zones of upwelling by forcing surface waters apart and other zones of downwelling by forcing surface waters together. For example, wind blowing parallel to the shore may create a net movement of water at 90 degrees away from the shore. Nutrient-rich deeper ocean water will upwell to take the place of the displaced water and thus profoundly influence the marine ecosystem.

*veer: to suddenly change direction

14. The phrase “path of the wind” in the passage is closest in meaning to

(A) wind strength
 (B) wind variation
 (C) wind direction
 (D) wind phenomenon

In the early part of the twentieth century, the Norwegian scientist and polar explorer Fridtjof Nansen noted that icebergs did not follow the path of the wind as common sense had assumed. Instead they tended to move to the right side of the direction in which the wind blew. A student of Nansen's, V. W. Ekman, showed that the rotation of the Earth leading to an inertial force known as the Coriolis force was responsible for this phenomenon. He further demonstrated that in the Northern Hemisphere the deflection was toward the right of the prevailing wind, and in the Southern Hemisphere the deflection was toward the left. The icebergs observed by Nansen were moved by ocean currents that also moved at an angle to the prevailing wind.

15. The phrase “this phenomenon” in the passage refers to

(A) the movement of icebergs
 (B) the rotation of the Earth
 (C) the direction of the wind
 (D) the inertial Coriolis force

In the early part of the twentieth century, the Norwegian scientist and polar explorer Fridtjof Nansen noted that icebergs did not follow the path of the wind as common sense had assumed. Instead they tended to move to the right side of the direction in which the wind blew. A student of Nansen's, V. W. Ekman, showed that the rotation of the Earth leading to an inertial force known as the Coriolis force was responsible for this phenomenon. He further demonstrated that in the Northern Hemisphere the deflection was toward the right of the prevailing wind, and in the Southern Hemisphere the deflection was toward the left. The icebergs observed by Nansen were moved by ocean currents that also moved at an angle to the prevailing wind.

16. The word “rotates” in the passage is closest in meaning to

(A) spins
 (B) travels
 (C) twirls
 (D) swivels

The Coriolis force itself is caused by the fact that the Earth rotates on its axis once per day, and hence all points on the planet have the same rotational velocity; that is, they take one whole day to complete a rotational circle. However, since a complete rotation around the Earth is shorter the further one is away from the equator, different points on the Earth travel at different speeds depending on degree of latitude. For example, a point on the equator travels the whole distance around the sphere (about 40,000 kilometers), whereas a point near the poles will travel a much shorter distance. Therefore, we can say that the linear speed of a point depends on its latitude above or below the equator. Thus the actual linear speed of a point on the surface is faster the nearer that point is to the equator.

17. We can infer that rotational velocity is

(A) the same as speed in kph
 (B) different at different latitudes
 (C) the same at different latitudes
 (D) dependent on latitude

[Refer to the full passage.]

18. In paragraph 2, the author explains the differences in linear speed by
- arguing that an object moving north moves faster
 - describing the linear velocity of the Earth
 - identifying the eastward deflection of a current
 - relating speed to the distance of a point from the equator

Paragraph 2 is marked with an arrow [➡].

➡ The Coriolis force itself is caused by the fact that the Earth rotates on its axis once per day, and hence all points on the planet have the same rotational velocity; that is, they take one whole day to complete a rotational circle. However, since a complete rotation around the Earth is shorter the further one is away from the equator, different points on the Earth travel at different speeds depending on degree of latitude. For example, a point on the equator travels the whole distance around the sphere (about 40,000 kilometers), whereas a point near the poles will travel a much shorter distance. Therefore, we can say that the linear speed of a point depends on its latitude above or below the equator. Thus the actual linear speed of a point on the surface is faster the nearer that point is to the equator.

19. According to the passage, a point near the equator in the Northern Hemisphere travels
- at the same speed as any other point
 - faster than a point at a higher latitude
 - slower than a point in the Southern Hemisphere
 - at different speeds in different seasons

[Refer to the full passage.]

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

And conversely, if the object is traveling southward toward the equator, it will be moving more slowly than the surrounding land or water.

Where would the sentence best fit?

Choose the letter of the square that shows where the sentence should be added.

Now if an untethered object (or current) is moving northward away from the equator in the Northern Hemisphere, it will also maintain the initial speed imparted to it by the eastward rotation of the Earth. A That eastward deflection is faster at the equator than at more northerly (or southerly) latitudes, and thus, when the object reaches a more northerly point, it will be traveling faster in an eastward direction than the surrounding ground or water. B The moving object will appear to be forced away from its path by some mysterious phenomenon. In reality the ground is simply moving at a different speed from the original speed at the object's (or current's) home position. C The resulting direction of movement will therefore be at an angle of about 45 degrees to the original direction, so an object traveling north will move to the right in the Northern Hemisphere and to the left in the Southern Hemisphere with respect to the rotating Earth. D An object traveling south will be deflected to the left in the Northern Hemisphere and to the right in the Southern Hemisphere.

21. According to paragraph 4, where does water move in a direction contrary to surface layers of water?

- (A) Directly below the surface
- (B) At 90 degrees to the surface
- (C) At all depths below the surface
- (D) At 150 meters below the surface

Paragraph 4 is marked with an arrow [➡].

➡ As the surface water in the ocean is moved by the wind, it tends to veer off at an angle of 45 degrees to the right or left. This movement exerts a drag on the water immediately below it, and the Coriolis force causes this layer to move and also to deflect to the right or left. This layer in turn drags the layer below, which in turn is deflected. At successively deeper layers, the water is deflected in relation to the layer above until at a depth of around 150 meters, the water is moving in a direction opposite to the surface water. At successively greater depths, the frictional forces between layers reduce the energy of the flow, causing water to move more slowly the deeper the layer. The resulting deflections produce a spiral pattern known as the Ekman spiral. The net movement of water is roughly at 90 degrees from the wind direction and is known as Ekman transport.

22. In paragraph 4, why does the author explain that the wind tends to deflect the water to the right or left?

- (A) To explain the concept of upwelling
- (B) To demonstrate the effect of the Coriolis force
- (C) To point out causes of rotational velocity
- (D) To introduce the movement of ocean currents

Paragraph 4 is marked with an arrow [➡].

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23. The word “deflected” in the passage is closest in meaning to

- (A) turned
- (B) pushed
- (C) shoved
- (D) urged

As the surface water in the ocean is moved by the wind, it tends to veer off at an angle of 45 degrees to the right or left. This movement exerts a drag on the water immediately below it, and the Coriolis force causes this layer to move and also to deflect to the right or left. This layer in turn drags the layer below, which in turn is deflected. At successively deeper layers, the water is deflected in relation to the layer above until at a depth of around 150 meters, the water is moving in a direction opposite to the surface water. At successively greater depths, the frictional forces between layers reduce the energy of the flow, causing water to move more slowly the deeper the layer. The resulting deflections produce a spiral pattern known as the Ekman spiral. The net movement of water is roughly at 90 degrees from the wind direction and is known as Ekman transport.

Part 2 Building Skills

24. Based on the information in paragraphs 1 and 4, which of the following best explains the term "Coriolis force"?
- (A) The force that creates currents
 - (B) The force that moves icebergs
 - (C) The force that opposes wind movement
 - (D) The force that deflects ocean water

[Refer to the full passage.]

25. According to the passage, the Ekman spiral may affect
- (A) the distribution of ocean life forms
 - (B) the direction of the wind
 - (C) the speed of ocean currents
 - (D) the frictional forces of water layers

[Refer to the full passage.]

26. **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 the letters of the answer choices in the spaces where they belong.

Refer to the full passage.

Different linear speeds at different latitudes on the Earth cause the prevailing winds in the Earth's Northern and Southern Hemispheres to deflect water movements, thus creating Ekman spirals.

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-
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Answer Choices

- (A) Due to the Coriolis force, icebergs move at a right angle to the prevailing wind.
- (B) Because of the Earth's rotation, objects moving away from or toward the equator travel at different speeds in relation to fixed points at different latitudes.
- (C) In order to reach the correct destination, an airplane pilot must adjust direction to compensate for the Coriolis force.
- (D) Because of deflection and differences in linear speed, ocean currents move at an angle to the wind.
- (E) Water at successively lower levels is deflected at an angle to the layer immediately above it, and this creates a spiral.
- (F) Due to upwelling of water, marine life is rich in areas where Ekman spirals operate.

Questions 27–39

The Battle of Gettysburg

In June 1863, a Confederate army under the command of General Lee encountered a Union army commanded by General Meade near the town of Gettysburg, Pennsylvania. The ensuing battle, which lasted three days, is considered the most important single engagement of the American Civil War in that it effectively ended the Confederates' last major invasion of the North. Once the Southern Confederate army's offensive strategy was destroyed at Gettysburg, the Southern states were forced to fight a defensive war in which their weaker manufacturing capacity and transportation infrastructure led ultimately to defeat.

General Lee had ordered his Confederate army to invade the northern state of Pennsylvania in the hope of enticing the Union army into a vulnerable position. The strategy was also aimed at increasing the war weariness of the North and ultimately at leading Abraham Lincoln's government into concluding a peace deal and recognizing the independence of the Confederate South.

On the morning of July 1, the battle opened with Confederate troops attacking a Union cavalry division to the west of Gettysburg at McPherson Ridge. The Union forces were outnumbered but managed to hold their positions initially. Reinforcements came to both sides, but eventually the Union forces were overpowered and were driven back to the south of Gettysburg. Thousands of their soldiers were captured in this retreat. During the night the bulk of the Union army arrived and the troops labored to create strong defensive positions along Cemetery Ridge, a long rise of land running southward from outside the town, and on two hills just to the north and east of this crest. When it was fully assembled, the whole Union army formed a defensive arc resembling a fishhook. The Confederate forces, about one mile distant, faced the Union positions from the west and north in a larger concave arc.

Throughout July 2 Lee's forces attacked both Union flanks, leaving thousands of dead on both sides. To the south the Confederates overran the Union's advance lines, but they failed to dislodge the Union forces from their main positions. A strategically important hill on the Union army's left flank known as Little Round Top was stormed by the Confederates, but Meade's forces fought a skillful defensive battle and the attacks were unsuccessful. There was a devastating number of casualties on both sides.

On the third day of battle, General Lee decided to concentrate his attack on the center of the Union forces ranged along Cemetery Ridge. He reasoned, against the advice of others in his senior staff, that since the Union forces had reinforced both their flanks, their central defensive positions would be weaker and easier to overrun. As a prelude to the attack, the Confederate artillery bombarded the ridge for two hours, but inflicted less damage than they had expected, due to poor visibility. When the bombardment ceased, a Confederate infantry force of about 13,000 men charged courageously across the open land toward the Union lines on Cemetery Ridge about a mile away. This attack, now known as Pickett's Charge after the general whose division led it, failed in its objective to break the Union line.

With the failure of Pickett's Charge, the battle was essentially over and Lee's retreat began the following day. His exhausted army staggered toward safer territory in the South, leaving behind a scene of terrible devastation. Both sides had suffered excessive losses of men, but the Union had succeeded in preventing the Confederates from invading the North. So Gettysburg proved to be a decisive turning point in the Civil War and was celebrated as the biggest Union victory of the war.

27. The word “engagement” in the passage is closest in meaning to

(A) agreement
(B) meeting
(C) battle
(D) defeat

In June 1863, a Confederate army under the command of General Lee encountered a Union army commanded by General Meade near the town of Gettysburg, Pennsylvania. The ensuing battle, which lasted three days, is considered the most important single engagement of the American Civil War in that it effectively ended the Confederates' last major invasion of the North. Once the Southern Confederate army's offensive strategy was destroyed at Gettysburg, the Southern states were forced to fight a defensive war in which their weaker manufacturing capacity and transportation infrastructure led ultimately to defeat.

28. In paragraph 1, the author suggests that the Confederates lost the Civil War largely because their

(A) leaders were ineffective
(B) industrial capacity was weaker
(C) soldiers were unprofessional
(D) strategy was poorly planned

Paragraph 1 is marked with an arrow [➡].

➡ In June 1863, a Confederate army under the command of General Lee encountered a Union army commanded by General Meade near the town of Gettysburg, Pennsylvania. The ensuing battle, which lasted three days, is considered the most important single engagement of the American Civil War in that it effectively ended the Confederates' last major invasion of the North. Once the Southern Confederate army's offensive strategy was destroyed at Gettysburg, the Southern states were forced to fight a defensive war in which their weaker manufacturing capacity and transportation infrastructure led ultimately to defeat.

29. 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) General Lee tried to lure his soldiers into invading the North in order to defeat the Union army.
(B) The Union army was in danger of an invasion by General Lee's army due to its location in Pennsylvania.
(C) In the hope of luring the Union army into an exposed situation, General Lee's forces marched into Pennsylvania.
(D) The state of Pennsylvania was a suitable location for drawing out the Union army into a dangerous situation.

General Lee had ordered his Confederate army to invade the northern state of Pennsylvania in the hope of enticing the Union army into a vulnerable position. The strategy was also aimed at increasing the war weariness of the North and ultimately at leading Abraham Lincoln's government into concluding a peace deal and recognizing the independence of the Confederate South.

30. What can be inferred from paragraph 2 about the North's attitude about the war?
- It was angry at the loss of freedoms.
 - It was keen on continuing the war.
 - It was keen on independence.
 - It was tired of waging war.

► General Lee had ordered his Confederate army to invade the northern state of Pennsylvania in the hope of enticing the Union army into a vulnerable position. The strategy was also aimed at increasing the war weariness of the North and ultimately at leading Abraham Lincoln's government into concluding a peace deal and recognizing the independence of the Confederate South.

Paragraph 2 is marked with an arrow (►).

31. We can infer from the passage that, at Gettysburg, the Union army largely played which kind of strategy?
- An offensive strategy
 - A strategy of hit and run
 - A defensive strategy
 - A strategy of wait and see

[Refer to the full passage.]

32. The phrase “this crest” in the passage refers to
- the Confederate forces
 - Cemetery Ridge
 - Union army reinforcements
 - the town of Gettysburg

On the morning of July 1, the battle opened with Confederate troops attacking a Union cavalry division to the west of Gettysburg at McPherson Ridge. The Union forces were outnumbered but managed to hold their positions initially. Reinforcements came to both sides, but eventually the Union forces were overpowered and were driven back to the south of Gettysburg. Thousands of their soldiers were captured in this retreat. During the night the bulk of the Union army arrived and the troops labored to create strong defensive positions along Cemetery Ridge, a long rise of land running southward from outside the town, and on two hills just to the north and east of this crest. When it was fully assembled, the whole Union army formed a defensive arc resembling a fishhook. The Confederate forces, about one mile distant, faced the Union positions from the west and north in a larger concave arc.

33. Why does the author say the positions of the Union army resembled a fishhook?
- To give the reader a mental picture of the troops' positions
 - To explain the appearance of the sharp pointed hooks used as weapons
 - To suggest that taking a fishhook formation is a good tactic in war
 - To imply that the ridge had a curved shape like that of a fishhook

[Refer to the full passage.]

34. The word “devastating” in the passage is closest in meaning to

- (A) important
- (B) desperate
- (C) decisive
- (D) ruinous

Throughout July 2 Lee's forces attacked both Union flanks, leaving thousands of dead on both sides. To the south the Confederates overran the Union's advance lines, but they failed to dislodge the Union forces from their main positions. A strategically important hill on the Union army's left flank known as Little Round Top was stormed by the Confederates, but Meade's forces fought a skillful defensive battle and the attacks were unsuccessful. There was a devastating number of casualties on both sides.

35. All of the following are implied in paragraph 5 as contributing to the failure of Pickett's Charge EXCEPT

- (A) General Lee's refusal to listen to his generals' opinion
- (B) the Confederate artillery's failure to cause much damage
- (C) the Union's center being stronger than anticipated
- (D) the Confederate infantry not performing at full strength

Paragraph 5 is marked with an arrow (➡).

➡ On the third day of battle, General Lee decided to concentrate his attack on the center of the Union forces ranged along Cemetery Ridge. He reasoned, against the advice of others in his senior staff, that since the Union forces had reinforced both their flanks, their central defensive positions would be weaker and easier to overrun. As a prelude to the attack, the Confederate artillery bombarded the ridge for two hours, but inflicted less damage than they had expected, due to poor visibility. When the bombardment ceased, a Confederate infantry force of about 13,000 men charged courageously across the open land toward the Union lines on Cemetery Ridge about a mile away. This attack, now known as Pickett's Charge after the general whose division led it, failed in its objective to break the Union line.

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

They were subjected to heavy artillery and rifle fire and sustained a huge number of casualties.

Where would the sentence best fit?

Choose the letter of the square that shows where the sentence should be added.

On the third day of battle, General Lee decided to concentrate his attack on the center of the Union forces ranged along Cemetery Ridge. **A** He reasoned, against the advice of others in his senior staff, that since the Union forces had reinforced both their flanks, their central defensive positions would be weaker and easier to overrun. **B** As a prelude to the attack, the Confederate artillery bombarded the ridge for two hours, but inflicted less damage than they had expected, due to poor visibility. **C** When the bombardment ceased, a Confederate infantry force of about 13,000 men charged courageously across the open land toward the Union lines on Cemetery Ridge about a mile away. **D** This attack, now known as Pickett's Charge after the general whose division led it, failed in its objective to break the Union line.

37. According to the passage, the battle of Gettysburg ended with
- (A) Lee signing a document of surrender
 - (B) the Southern territories becoming much safer
 - (C) Lee's army devastating the countryside in their retreat
 - (D) a high death toll for both the Union and the Confederates

[Refer to the full passage.]

38. According to the passage, why was the battle of Gettysburg so decisive?
- (A) The Confederates lost so many troops.
 - (B) It created war weariness on both sides.
 - (C) The Confederates failed to capture Northern territory.
 - (D) The Union troops gained confidence.

[Refer to the full passage.]

39. 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 the letters of the answer choices in the spaces where they belong.
Refer to the full passage.

The battle of Gettysburg was the battle that turned the tide of the American Civil War.

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Answer Choices

- (A) The Confederate army's strategy was aimed at getting the North to seek a peace deal.
- (B) The fighting was heavy from the beginning, and after two indecisive but bloody days, the main battle lines were drawn with reinforcements coming to both sides.
- (C) The initial fighting was heavy, but at the end of the first two days General Meade's army seemed to be in a superior position.
- (D) The Union army successfully overran most of General Meade's positions on the Confederates' left flank.
- (E) A large-scale and devastating infantry advance by troops of the Confederate army failed to dislodge the Union army from their positions.
- (F) The invading Confederate army retreated, leaving the North in a stronger position militarily and strategically.