Reading

Ancient Athens

One of the most important changes in Greece during the period from 800 B.C. to 500 B.C. was the rise of the **polis**, or city-state, and each **polis** developed a system of government that was appropriate to its circumstances. The problems that were faced and solved in Athens were the sharing of political power between the established aristocracy and the emerging other classes, and the adjustment of aristocratic ways of life to the ways of life of the new **polis**. It was the harmonious blending of all of these elements that was to produce the classical culture of Athens.

Entering the **polis** age, Athens had the traditional institutions of other Greek protodemocratic states: an assembly of adult males, an aristocratic council, and annually elected officials. Within this traditional framework the Athenians, between 600 B.C. and 450 B. C., evolved what Greeks regarded as a fully fledged democratic constitution, though the right to vote was given to fewer groups of people than is seen in modem times.

The first steps toward change were taken by Solon in 594 B. C.， when he broke the aristocracy's stranglehold on elected offices by establishing wealth rather than birth as the basis of office holding, abolishing the economic obligations of ordinary Athenians to the aristocracy, and allowing the assembly (of which all citizens were equal members) to overrule the decisions of local courts in certain cases. The strength of the Athenian aristocracy was further weakened during the rest of the century by the rise of a type of government known as a tyranny, which is a form of interim rule by a popular strongman (not rule by a ruthless dictator as the modern use of the term suggests to us). The Peisistratids, as the succession of tyrants were called (after the founder of the dynasty, Peisistratos), strengthened Athenian central administration at the expense of the aristocracy by appointing judges throughout the region, producing Athens' first national coinage, and adding and embellishing festivals that tended to focus attention on Athens rather than on local villages of the surrounding region. By the end of the century, the time was ripe for more change: the tyrants were driven out, and in 508 B C a new reformer, Cleisthenes, gave final form to the developments reducing aristocratic control already under way.

Cleisthenes' principal contribution to the creation of democracy at Athens was to complete the long process of weakening family and clan structures, especially among the aristocrats, and to set in their place locality-based corporations called **demes**, which became the point of entry for all civic and most religious life in Athens. Out of the **demes** were created 10 artificial tribes of roughly equal population. From the **demes**, by either election or selection, came 500 members of a new council, 6,000 jurors for the courts, 10 generals, and hundreds of commissioners. The assembly was sovereign in all matters but in practice delegated its power to subordinate bodies such as the council, which prepared the agenda for the meetings of the assembly, and me courts, which took care of most judicial matters. Various committees acted as an executive branch, implementing policies of the assembly and supervising, for instance, the food and water supplies and public buildings. This wide-scale participation by the citizenry in the government distinguished the democratic form of the Athenian **polis** from other, less liberal forms.

The effect of Cleisthenes' reforms was to establish the superiority of the Athenian community as a whole over local institutions without destroying them. National politics rather than local or deme politics became the focal point. At the same time, entry into national politics began at the

deme level and gave local loyalty a new focus: Athens itself. Over the next two centuries the implications of Cleisthenes' reforms were fully exploited.

During the fifth century B. C. the council of 500 was extremely influential in shaping policy. In the next century, however, it was the mature assembly that took on decision-making responsibility. By any measure other than that of the aristocrats, who had been upstaged by the supposedly inferior "people," the Athenian democracy was a stunning success. Never before, or since, have so many people been involved in the serious business of self-governance. It was precisely this opportunity to participate in public life that provided a stimulus for the brilliant unfolding of classical Greek culture.

paragraph 1

One of the most important changes in Greece during the period from 800 B.C. to 500 B.C. was the rise of the **polis**, or city-state, and each **polis** developed a system of government that was appropriate to its circumstances. The problems that were faced and solved in Athens were the sharing of political power between the established aristocracy and the emerging other classes, and the adjustment of aristocratic ways of life to the ways of life of the new **polis**. It was the harmonious blending of all of these elements that was to produce the classical culture of Athens.

1. Paragraph 1 supports which of the following statements about the Greek city- states?

A. Most city-states followed the model provided by Athens.

B. Most city-states were based on aristocratic rule.

C. Different types of government and organization were used by different city- states.

D. By 500 B C. the city-states were no longer powerful.

paragraph 2

Entering the **polis** age, Athens had the traditional institutions of other Greek proto-democratic states: an assembly of adult males, an aristocratic council, and annually elected officials. Within this traditional framework the Athenians, between 600 B.C. and 450 B C., evolved what Greeks regarded as a fully fledged democratic constitution, though the right to vote was given to fewer groups of people than is seen in modem times.

2. According to paragraph 2, Athens had all of the following before becoming a city- state EXCEPT

A. a council made up of aristocrats

B. an assembly made up of men

C. a constitution that was fully democratic

D. officials who were elected yearly

paragraph 3

The first steps toward change were taken by Solon in 594 B C， when he broke the aristocracy's stranglehold on elected offices by establishing wealth rather than birth as the basis of office holding, abolishing the economic obligations of ordinary Athenians to the aristocracy, and allowing the assembly (of which all citizens were equal members) to overrule the decisions of local courts in certain cases. The strength of the Athenian aristocracy was further weakened during

the rest of the century by the rise of a type of government known as a tyranny, which is a form of interim rule by a popular strongman (not rule by a ruthless dictator as the modern use of the term suggests to us). The Peisistratids, as the succession of tyrants were called (after the founder of the dynasty. Peisistratos), strengthened Athenian central administration at the expense of the aristocracy by appointing judges throughout the region, producing Athens' first national coinage, and adding and embellishing festivals that tended to focus attention on Athens rather than on local villages of the surrounding region. By the end of the century, the time was ripe for more change the tyrants were driven out, and in 508 B C a new reformer, Cleisthenes gave final form to the developments reducing aristocratic control already under way.

3. According to paragraph 3, an important effect of making wealth the basis of office holding was to
A. make fewer people qualified to be members of the assembly
B. make it possible for non-aristocrats to hold office
C. help the aristocrats maintain power
D. Increase economic opportunities for all Athenian citizens

4. The word "abolishing" in the passage is closest in meaning to
A. limiting
B. eliminating
C. revising
D. supervising

5. In paragraph 3, the author's explanation of the word "tyranny" indicates that
A. most Athenians were opposed to rule by the Peisistratids
B. the word had a somewhat different meaning for the Athenians than it does for people today
C. the tyrants were supported by the aristocracy
D. the word can be applied only to ruthless dictators

6. According to paragraph 3, all of the following were true of the Peisistratids' rule EXCEPT:
A. A national system of coins was created.
B. Judges were appointed across the region.
C. New festivals were added.
D. Increased attention was focused on local villages.

7. The word "embellishing" in the passage is closest in meaning to
A. making more attractive
B. providing support for
C. duplicating
D. controlling

8. 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. Cleisthenes, a reformer who recognized that aristocratic control had been decreasing since the end of the previous century, finally drove the tyrants out of Athens in 508 B. C.

B. The tyrants were driven out, and in 508 B.C. Cleisthenes put in place the structures that completed the weakening of the aristocracy.

C. By driving out the tyrants, Cleisthenes enabled the reforms that had been under way since the end of the century to reach their final form in 508 B. C.

D. Toward the end of the century, the tyrants were driven out, and in 508 B. C. Cleisthenes saw that it was time to change the structures that had reduced aristocratic control

paragraph 4

Cleisthenes' principal contribution to the creation of democracy at Athens was to complete the long process of weakening family and clan structures, especially among the aristocrats, and to set in their place locality-based corporations called **demes** which became the point of entry for all civic and most religious life in Athens. Out of the **demes** were created 10 artificial tribes of roughly equal population. From the **demes**, by either election or selection, came 500 members of a new council, 6,000 jurors for the courts, 10 generals, and hundreds of commissioners. The assembly was sovereign in all matters but in practice delegated its power to subordinate bodies such as the council, which prepared the agenda for the meetings of the assembly, and me courts, which took care of most judicial matters Various committees acted as an executive branch, implementing policies of the assembly and supervising, for instance, the food and water supplies and public buildings. This wide-scale participation by the citizenry in the government distinguished the democratic form of the Athenian **polis** from other, less liberal forms.

9. According to paragraph 4, one effect of making the demes the point of entry for civic life was to

A. ensure that every region had the same number of commissioners

B. distribute the population more equally throughout the Athens region

C. limit the number of aristocratic clans

D. reduce the importance of family connections

10. According to paragraph 4, one role of the new council was to

A. determine what issues came before the assembly

B. prepare the agenda for the courts

C. carry out the assembly's policies

D. oversee the distribution of food and water

paragraph 5

The effect of Cleisthenes' reforms was to establish the superiority of the Athenian community as a whole over local institutions without destroying them. National politics rather than local or deme politics became the focal point. At the same time, entry into national politics began at the deme level and gave local loyalty a new focus: Athens itself. Over the next two centuries the implications of Cleisthenes' reforms were fully exploited.

11. The word "exploited" in the passage is closest in meaning to

A. separated
B. understood
C. utilized
D. exported

paragraph 6

During the fifth century B. C. the council of 500 was extremely influential in shaping policy. In the next century, however, it was the mature assembly that took on decision-making responsibility. By any measure other than that of the aristocrats, who had been upstaged by the supposedly inferior "people," the Athenian democracy was a stunning success. Never before, or since, have so many people been involved in the serious business of self-governance. It was precisely this opportunity to participate in public life that provided a stimulus for the brilliant unfolding of classical Greek culture.

12. The word "stunning" in the passage is closest in meaning to
A. popular
B. universal
C. impressive
D. continuing

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

Indeed, at the height of Athenian democracy there was no government separate from its citizenry.

Where would the sentence best fit? Click on square [■] to add the sentence to the passage

During the fifth century B. C. the council of 500 was extremely influential in shaping policy. [■] In the next century, however, it was the mature assembly that took on decision-making responsibility. [■] By any measure other than that of the aristocrats, who had been upstaged by the supposedly inferior "people," the Athenian democracy was a stunning success. Never before, or since, have so many people been involved in the serious business of self-governance. [■] It was precisely this opportunity to participate in public life that provided a stimulus for the brilliant unfolding of classical Greek culture.[■]

14. Directions:An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selected 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.

Drag your choices to the spaces where they belong. To review the passage, click on View Text

Between 600 B.C. and 450 B.C., Athens changed the distribution of political power between the aristocracy and ordinary citizens.

Answer Choices

A. The rise of the city-state put enormous pressure on the aristocracy to change its traditional way of life to make it appear more in harmony with the values of classical Athenian culture.

B. The aristocrats staged elaborate festivals that focused attention on Athens instead of the surrounding villages.

C. Cleisthenes' reforms reduced aristocratic power by reorganizing the citizen body and changing the entry points to civic life so that political power did not rely on traditional family and clan structures.

D. The aristocracy’s monopoly on political power ended with Solon’s reforms, and its political influence was further eroded by the centralization of administration under the tyrants.

E. Cleisthenes gave each tribe an equal number of council members, jurors, generals, and commissioners.

F. Over time, as the all-citizen assembly took on more and more of the actual exercise of political power, ordinary citizens participated in public life more fully than ever before.

Latitude and Biodiversity

When we look at the way in which biodiversity (biological diversity) is distributed over the land surface of the planet, we find that it is far from even. The tropics contain many more species overall than an equivalent area at the higher latitudes. This seems to be true for many different groups of animals and plants.

Why is it that higher latitudes have lower diversities than the tropics? Perhaps it is simply a matter of land area. The tropics contain a larger surface area of land than higher latitudes—a fact that is not always evident when we examine commonly used projections of Earth's curved surface, since this tends to exaggerate the areas of land in the higher latitudes—and some biogeographers regard the differences in diversity as a reflection of this effect. But an analysis of the data by biologist Klaus Rohde does not support this explanation. Although area may contribute to biodiversity, it is certainly not the whole story; otherwise, large landmasses would always be richer in species.

Productivity seems to be involved instead, though perhaps its influence is indirect. Where conditions are most suitable for plant growth—that is, where temperatures are relatively high and uniform and where there is an ample supply of water—one usually finds large masses of vegetation. This leads to a complex structure in the layers of plant material In a tropical rain forest, for example, a very large quantity of plant material builds up above the surface of the ground .There is also a large mass of material, developed below ground as root tissues, but this is less apparent. Careful analysis of the above ground material reveals that it is arranged in a series of layers, the precise number of layers varying with age and the nature of the forest. The arrangement of the biological mass ("biomass") of the vegetation into layered forms is termed its "structure" (as opposed to its "composition," which refers to the species of organisms forming the community) Structure is essentially the architecture of vegetation, and as in the case of tropical forests, it can be extremely complicated. In a mature floodplain tropical forest in the Amazon River basin, the canopy (the uppermost layers of a forest, formed by the crowns of trees) takes on a stratified structure. There are three clear peaks in leaf cover at heights of approximately 3, 6, and 30 meters above the ground; and the very highest layer, at 50 meters, corresponds to the very tall trees that stand free of the main canopy and form an open layer of their own. So, such a forest contains essentially four layers of canopy. Forests in temperate lands often have just two canopy layers, so they have much less complex architecture.

Structure has a strong influence on the animal life inhabiting a site. It forms the spatial environment within which an animal feeds, moves around shelters, lives, and breeds. It even affects the climate on a very local level (the "microclimate") by influencing light intensity, humidity, and both the range and extremes of temperature. An area of grassland vegetation with very simple structure, for example, has a very different microclimate at the ground level from that experienced in the upper canopy. Wind speeds are lower, temperatures are lower during the day (but warmer at night), and the relative humidity is much greater near the ground. The complexity of the microclimate is closely related to the complexity of structure in vegetation, and generally speaking, the more complex the structure of vegetation, the more species of animal are able to make a living there. The high plant biomass of the tropics leads to a greater spatial complexity in the environment, and this leads to a higher potential for diversity in the living things that can occupy a region. The climates of the higher latitudes are generally less favorable for the accumulation of large quantities of biomass; hence, the structure of vegetation is simpler and the

animal diversity is consequently lower.

paragraph 1

When we look at the way in which biodiversity (biological diversity) is distributed over the land surface of the planet, we find that it is far from even. The tropics contain many more species overall than an equivalent area at the higher latitudes. This seems to be true for many different groups of animals and plants.

1. The word "distributed" in the passage is closest in meaning to
A. represented
B. collected
C. spread
D. managed

2. The word "overall" in the passage is closest in meaning to
A. considered as a whole
B. to some degree
C. possibly
D. evidently

paragraph 2

Why is it that higher latitudes have lower diversities than the tropics? Perhaps it is simply a matter of land area. The tropics contain a larger surface area of land than higher latitudes—a fact that is not always evident when we examine commonly used projections of Earth's curved surface, since this tends to exaggerate the areas of land in the higher latitudes—and some biogeographers regard the differences in diversity as a reflection of this effect. But an analysis of the data by biologist Klaus Rohde does not support this explanation. Although area may contribute to biodiversity, it is certainly not the whole story; otherwise, large landmasses would always be richer in species.

3. 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. Some biogeographers believe that the tropics have larger surface areas than they actually do because of the distortions produced by projections of Earth's curved surface
B. High levels of diversity in the tropics are sometimes attributed to the fact that the tropics have more surface area of land than the higher latitudes do, though distortions in commonly used projections may seem to suggest otherwise.
C. Because biogeographers disagree on whether or not the tropics are correctly represented in projections of Earth s surface, it is difficult to determine the relationship their surface area has to their diversity
D. Most biogeographers agree that the tropics contain a larger surface area of land than higher latitudes do， but they disagree on whether or not the tropics' level of diversity is a reflection of that larger surface area.

4. Why does the author mention “Klaus Rohde” in the passage?

A. To support the argument that large landmasses are usually richer in species than smaller ones are

B. To introduce the argument that there are other factors contributing to species diversity besides land area

C. To cast doubt on whether the tropics actually contain higher species diversity than land at higher latitudes does

D. To emphasize that biogeographers and biologists differ in their approaches to biodiversity

paragraph 3

Productivity seems to be involved instead, though perhaps its influence is indirect Where conditions are most suitable for plant growth—that is, where temperatures are relatively high and uniform and where there is an ample supply of water—one usually finds large masses of vegetation. This leads to a complex structure in the layers of plant material. In a tropical rain forest, for example, a very large quantity of plant material builds up above the surface of the ground.There is also a large mass of material, developed below ground as root tissues, but this is less apparent Careful analysis of the above ground material reveals that it is arranged in a series of layers, the precise number of layers varying with age and the nature of the forest. The arrangement of the biological mass ("biomass") of the vegetation into layered forms is termed its "structure" (as opposed to its “composition,” which refers to the species of organisms forming the community) Structure is essentially the architecture of vegetation, and as in the case of tropical forests, it can be extremely complicated. In a mature floodplain tropical forest in the Amazon River basin, the canopy (the uppermost layers of a forest, formed by the crowns of trees) takes on a stratified structure. There are three clear peaks in leaf cover at heights of approximately 3, 6, and 30 meters above the ground; and the very highest layer, at 50 meters, corresponds to the very tall trees that stand free of the main canopy and form an open layer of their own. So, such a forest contains essentially four layers of canopy. Forests in temperate lands often have just two canopy layers, so they have much less complex architecture.

5. Which of the following is NOT mentioned in paragraph 3 as a condition that benefits plant growth?

A. High temperatures

B. Steady temperatures

C. High latitude

D. Plentiful water

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

A. exact

B. predicted

C. approximate

D. required

7. Paragraph 3 mentions which of the following as creating the structural complexity of a forest?
A. The height of the very tallest trees in the forest
B. The number of layers of canopy
C. The frequency of floods along the plain
D. The age of the root tissues below the ground

8. According to paragraph 3, which of the following statements best describes the difference between structure and composition?
A. “Structure” refers to the arrangement of plant material above the ground surface; “composition” refers to the arrangement of root tissues below the surface of the ground.
B. “Structure” refers to the age of the forest; “composition” refers to the forest's nature.
C. “Structure” refers to the arrangement of plant species in an area, “composition” refers to which plant species are present in the area.
D. “Structure” refers to the shape of the forest canopy; “composition” refers to the number of crowns forming the canopy.

9. Why does the author mention “ mature floodplain tropical forest in the Amazon River basin” in the passage?
A. To dispute the idea that tropical forests are arranged in layers
B. To give an example of the complex architecture vegetation displays in a dense area
C. To suggest that the layers of canopy in some tropical forests can exceed the usual three or four
D. To emphasize that the layers of canopy in a tropical forest give evidence of the number of layers of root tissues below the ground

paragraph 4

Structure has a strong influence on the animal life inhabiting a site. It forms the spatial environment within which an animal feeds, moves around shelters, lives, and breeds. It even affects the climate on a very local level (the "microclimate") by influencing light intensity, humidity, and both the range and extremes of temperature. An area of grassland vegetation with very simple structure, for example, has a very different microclimate at the ground level from that experienced in the upper canopy. Wind speeds are lower, temperatures are lower during the day (but warmer at night), and the relative humidity is much greater near the ground. The complexity of the microclimate is closely related to the complexity of structure in vegetation, and generally speaking, the more complex the structure of vegetation, the more species of animal are able to make a living there. The high plant biomass of the tropics leads to a greater spatial complexity in the environment, and this leads to a higher potential for diversity in the living things that can occupy a region. The climates of the higher latitudes are generally less favorable for the accumulation of large quantities of biomass; hence, the structure of vegetation is simpler and the animal diversity is consequently lower.

10. Which of the following is NOT mentioned in paragraph 4 as an aspect of microclimate?
A. Temperature range
B. Relative humidity
C. Light intensity
D. Seasonal variations

11. What can be inferred from paragraph 4 about a region with a high level of diversity of animal species?

A. It also has a high level of plant species diversity.

B. It has relatively few microclimates

C. It develops a less complex structure than does a region with a high plant species diversity.

D. It develops a biomass similar to that of higher latitudes

12.The word "consequently" in the passage is closest in meaning to

A. usually

B. obviously

C. however

D. therefore

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

One example of such tropical abundance is found in Panama, which has 667 species of breeding birds — three times the number found in Alaska.

Where would the sentence best fit? Click on square [■] to add the sentence to the passage.

When we look at the way in which biodiversity (biological diversity) is distributed over the land surface of the planet, we find that it is far from even. The tropics contain many more species overall than an equivalent area at the higher latitudes. This seems to be true for many different groups of animals and plants. [■]

Why is it that higher latitudes have lower diversities than the tropics? [■] Perhaps it is simply a matter of land area. [■] The tropics contain a larger surface area of land than higher latitudes—a fact that is not always evident when we examine commonly used projections of Earth's curved surface, since this tends to exaggerate the areas of land in the higher latitudes—and some biogeographers regard the differences in diversity as a reflection of this effect. [■] But an analysis of the data by biologist Klaus Rohde does not support this explanation. Although area may contribute to biodiversity, it is certainly not the whole story; otherwise, large landmasses would always be richer in species.

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A number of factors may help account for the difference in biodiversity between low and high latitudes.

Answer Choices

A. Though land area may be related to a region's biodiversity, it is not a primary determining factor

B. A structure of varying heights is found in both tropical and temperate forests.

C. The more complex the structure of the vegetation of a region, the more species it is able to support.

D. Regions possessing conditions that are favorable for plant growth tend to have abundant and diverse vegetation that supports a large number of species.

E. The difference in microclimate between a ground-level canopy and an upper-level canopy is responsible for the number of species that inhabit each canopy.

F. The temperature range of a region determines the number of animals that feed, move around, shelter themselves, live, and breed in that region.

Amphibian Thermoregulation

In contrast to mammals and birds, amphibians are unable to produce thermal energy through their metabolic activity, which would allow them to regulate their body temperature independent of the surrounding or ambient temperature. However, the idea that amphibians have no control whatsoever over their body temperature has been proven false because their body temperature does not always correspond to the surrounding temperature. While amphibians are poor thermoregulators, they do exercise control over their body temperature to a limited degree.

Physiological adaptations can assist amphibians in colonizing habitats where extreme conditions prevail. The tolerance range in body temperature represents the range of temperatures within which a species can survive. One species of North American newt is still active when temperatures drop to -2° C while one South American frog feels comfortable even when temperatures rise to 41° C—the highest body temperature measured in a free-ranging amphibian. Recently it has been shown that some North American frog and toad species can survive up to five days with a body temperature of -6° C with approximately one-third of their body fluids frozen. The other tissues are protected because they contain the frost-protective agents glycerin or glucose Additionally, in many species the tolerance boundaries are flexible and can change as a result of acclimatization (long-term exposure to particular conditions).

Frog species that remain exposed to the sun despite high diurnal (daytime) temperatures exhibit some fascinating modifications in the skin structure that function as morphological adaptations. Most amphibian skin is fully water permeable and is therefore not a barrier against evaporation or solar radiation. The African savanna frog **Hyperolius viridiflavus** stores guanine crystals in its skin, which enable it to better reflect solar radiation, thus providing protection against overheating. The tree frog **Phyllomedusa sauvagei** responds to evaporative losses with gland secretions that provide a greasy film over its entire body that helps prevent desiccation (dehydration).

However, behavior is by far the most important factor in thermoregulation. The principal elements in behavioral thermoregulation are basking (heliothermy), heat exchange with substrates such as rock or earth (thigmothermy), and diurnal and annual avoidance behaviors, which include moving to shelter during the day for cooling and hibernating or estivating (reducing activity during cold or hot weather, respectively) Heliothermy is especially common among frogs and toads: it allows them to increase their body temperature by more than 10° C. The Andean toad **Bufo spinulosus** exposes itself immediately after sunrise on moist ground and attains its preferred body temperature by this means, long before either ground or air is correspondingly warmed. A positive side effect of this approach is that it accelerates the digestion of the prey consumed overnight, thus also accelerating growth. Thigmothermy is a behavior present in most amphibians, although pressing against the ground serves a dual purpose: heat absorption by conductivity and water absorption through the skin. The effect of thigmothermy is especially evident in the Andean toad during rainfall: its body temperature corresponds to the temperature of the warm earth and not to the much cooler air temperature.

Avoidance behavior occurs whenever physiological and morphological adaptations are insufficient to maintain body temperature within the vital range. Nocturnal activity in amphibians with low tolerance for high ambient temperatures is a typical thermoregulatory behavior of avoidance. Seasonal avoidance behavior is extremely important in many amphibians. Species

whose habitat lies in the temperate latitudes are confronted by lethal low temperatures in winter, while species dwelling in semi- and regions are exposed to long dry, hot periods in summer.

In amphibians hibernation occurs in mud or deep holes away from frost. North of the Pyrenees Mountains, the natterjack toad offers a good example of hibernation, passing the winter dug deep into sandy ground. Conversely, natterjacks in southern Spain remain active during the mild winters common to the region and are instead forced into inactivity during the dry, hot summer season. Summer estivation also occurs by burrowing into the ground or hiding in cool, deep rock crevasses to avoid desiccation and lethal ambient temperature. Amphibians are therefore hardly at mercy of ambient temperature, since by means of the mechanisms described above they are more than)exercise some control over their body temperature.

paragraph 1

In contrast to mammals and birds, amphibians are unable to produce thermal energy through their metabolic activity, which would allow them to regulate their body temperature independent of the surrounding or ambient temperature. However, the idea that amphibians have no control whatsoever over their body temperature has been proven false because their body temperature does not always correspond to the surrounding temperature While amphibians are poor thermoregulators, they do exercise control over their body temperature to a limited degree.

1.According to paragraph 1, what indicates that amphibians have some control over their body temperature?

A. Amphibians can regulate their metabolic rates to generate energy.

B. Amphibians use the same means of thermoregulation as mammals and birds do.

C. The body temperature of amphibians sometimes differs from the temperature of their surroundings.

D. The body temperature of amphibians is independent of their metabolic activity.

paragraph 2

Physiological adaptations can assist amphibians in colonizing habitats where extreme conditions prevail. The tolerance range in body temperature represents the range of temperatures within which a species can survive. One species of North American newt is still active when temperatures drop to -2 ° C while one South American frog feels comfortable even when temperatures rise to 41° C—the highest body temperature measured in a free-ranging amphibian Recently it has been shown that some North American frog and toad species can survive up to five days with a body temperature of -6° C with approximately one-third of their body fluids frozen. The other tissues are protected because they contain the frost-protective agents glycerin or glucose Additionally, in many species the tolerance boundaries are flexible and can change as a result of acclimatization (long-term exposure to particular conditions)

2.Why does the author mention a "South American frog" species in the passage?

A. To make the point that an amphibian's temperature tolerance depends on a number of factors

B. To indicate how precise the range of body temperatures is for certain amphibians

C. To contrast its ability to adapt to that of the North American newt

D. To help illustrate the range of environmental conditions to which amphibians have adapted

3. According to paragraph 2, what allows some North American frog and toad species to survive in ambient temperatures well below freezing?

A. Their internal body temperatures never fall below -6° C.

B. They do not remain at temperatures below freezing for very long periods of time.

C. Their tolerance boundaries are flexible

D. Some of their body tissues contain substances that prevent freezing.

paragraph 3

Frog species that remain exposed to the sun despite high diurnal (daytime) temperatures exhibit some fascinating modifications in the skin structure that function as morphological adaptations. Most amphibian skin is fully water permeable and is therefore not a barrier against evaporation or solar radiation. The African savanna frog **Hyperolius viridiflavus** stores guanine crystals in its skin, which enable it to better reflect solar radiation, thus providing protection against overheating The tree frog **Phyllomedusa sauvagei** responds to evaporative losses with gland secretions that provide a greasy film over its entire body that helps prevent desiccation (dehydration).

4. "**Phyllomedusa sauvager** " is mentioned as an example of a frog with an adaptation that

A. protects its glandular system

B. helps reduce its secretions

C. increases the amount of solar radiation that its skin can reflect

D. modifies its skin structure to protect against the drying effects of the sun

paragraph 4

However, behavior is by far the most important factor in thermoregulation. The principal elements in behavioral thermoregulation are basking (heliothermy), heat exchange with substrates such as rock or earth (thigmothermy), and diurnal and annual avoidance behaviors, which include moving to shelter during the day for cooling and hibernating or estivating (reducing activity during cold or hot weather, respectively) Heliothermy is especially common among frogs and toads: it allows them to increase their body temperature by more than 10° C. The Andean toad **Bufo spinulosus** exposes itself immediately after sunrise on moist ground and attains its preferred body temperature by this means, long before either ground or air is correspondingly warmed. A positive side effect of this approach is that it accelerates the digestion of the prey consumed overnight, thus also accelerating growth Thigmothermy is a behavior present in most amphibians, although pressing against the ground serves a dual purpose heat absorption by conductivity and water absorption through the skin The effect of thigmothermy is especially evident in the Andean toad during rainfall its body temperature corresponds to the temperature of the warm earth and not to the much cooler air temperature.

5. Paragraph 4 mentions each of the following as an example of behavioral thermoregulation EXCEPT

A. pressing against the ground

B. speeding up of the metabolism

C. reducing activity during the summer
D. adjusting exposure to the sun

6. The "Andean toad **Bufo spinulosus**" illustrates which of the following behavioral modifications?
A. Heliothermy and thigmothermy
B. Diurnal avoidance behavior
C. Absorbing heat from the air
D. Moving to shelter during the summer

7. The word "attains" in the passage is closest in meaning to
A. raises
B. lowers
C. reaches
D. regulates

8. The phrase "this approach" in the passage refers to
A gradually increasing body temperature by 10° C
B. basking as soon as the sun comes up
C. waiting for the ground and air to warm
D. keeping body temperature above the temperature of the air

paragraph 5

Avoidance behavior occurs whenever physiological and morphological adaptations are insufficient to maintain body temperature within the vital range Nocturnal activity in amphibians with low tolerance for high ambient temperatures is a typical thermoregulatory behavior of avoidance. Seasonal avoidance behavior is extremely important in many amphibians. Species whose habitat lies in the temperate latitudes are confronted by lethal low temperatures in winter, while species dwelling in semi- and regions are exposed to long dry, hot periods in summer.

9. According to paragraph 5, why is avoidance behavior important for some amphibians?
A. Amphibians' habitats are areas where temperatures vary from day to day.
B. Amphibians have less tolerance for high ambient temperatures than for low ambient temperatures.
C. Amphibians lack adequate physiological adaptations for dealing with ambient temperatures.
D. Amphibians cannot protect themselves from the extreme summer heat by being active only at night.

10. The word "dwelling" in the passage is closest in meaning to
A. arriving
B. originating
C. evolving
D. living

paragraph 6

In amphibians hibernation occurs in mud or deep holes away from frost North of the Pyrenees Mountains, the natterjack toad offers a good example of hibernation, passing the winter dug deep into sandy ground. Conversely, natterjacks in southern Spain remain active during the mild winters common to the region and are instead forced into inactivity during the dry, hot summer season. Summer estivation also occurs by burrowing into the ground or hiding in cool, deep rock crevasses to avoid desiccation and lethal ambient temperature. Amphibians are therefore hardly at mercy of ambient temperature, since by means of the mechanisms described above they are more than exercise some control over their body temperature.

11. In paragraph 6, which of the following can be inferred from the discussion of the natterjack?

A. Amphibians have greater tolerance for heat than for cold.

B. Desiccation is not a threat to amphibians

C. Both hibernation and estivation may serve as avoidance behaviors depending on the climate

D. Some species of amphibians are active only in the spring and in the fall

12. 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. Thus, although amphibians use the various mechanisms described above, they have hardly any control of their body temperature

B. Thus, by the mechanisms described above, amphibians are quite capable of controlling their body temperature to survive extreme ambient temperatures.

C. Thus, unless they can use the mechanisms described above, amphibians are at the mercy of ambient temperatures.

D. Thus, the mechanisms described above give amphibians control over much more than just their body temperature

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

On the other hand, amphibians in very hot climates use secretions from the mucus glands to decrease their temperature through evaporative cooling on the skin.

Where would the sentence best fit? Click on square [■] to add the sentence to the passage.

Physiological adaptations can assist amphibians in colonizing habitats where extreme conditions prevail. The tolerance range in body temperature represents the range of temperatures within which a species can survive. One species of North American newt is still active when temperatures drop to -2° C while one South American frog feels comfortable even when temperatures measured to 41° C — the highest body temperature measured in a free-ranging amphibian. [■] Recently it has been shown that some North American frog and toad species can survive up to five days with a body temperature of -6° C with approximately one-third of their body fluids frozen. [■] The other tissues are protected because they contain the frost-protective agents glycerin or glucose. [■] Additionally, in many species the tolerance boundaries are flexible

and can change as a result of acclimatization (long-term exposure to particular conditions).[■]

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selected 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.

Drag your choices to the spaces where they belong. To review the passage, click on View Text.

A number of factors may help account for the difference in biodiversity between low and high latitudes.

Answer Choices

A. Frogs, which survive temperature ranges from as low as -2°C to as high as 41°C, are evidence that amphibians are independent of ambient temperatures

B. Amphibians can increase their body temperature by exposing themselves to the sun (heliothermy) and by pressing against the ground (thigmothermy).

C. Avoidance behaviors, such as sheltering from the sun, as well as estivation and hibernation，help amphibians control their body temperature.

D. Physical adaptations offer amphibians a number of ways to protect against extreme or dangerous climate conditions.

E. Sunrise is the time when some amphibian species have the greatest need for thermoregulatory mechanisms.

F. Hibernation always involves digging deep holes in mud or sand, whereas estivation sometimes involves nothing more than hiding in deep rock crevasses

Writing

TASK 1 Integrated Writing

Many scientists believe it would be possible to maintain a permanent human presence on Mars or the Moon. On the other hand, conditions on Venus are so extreme and inhospitable that maintaining a human presence there would be impossible

First, atmospheric pressure at Venus' surface is at least 90 times greater than the pressure at Earth's surface This means that a force of 100 kilograms is pressing down on every square centimeter of surface All spacecraft that have landed on Venus have been crushed by this extreme pressure within an hour of landing. Almost anything humans might land on Venus would be crushed as well.

Second, as far as we know, there are no reservoirs of water on Venus' surface, and the planet s atmosphere, made up mostly of carbon dioxide, nitrogen, and sulfuric acid, contains hardly any oxygen or water vapor Water and oxygen would therefore probably have to be supplied to Venus from Earth. The idea of ensuring a regular supply of water and oxygen from Earth is impractical in the extreme and would probably defeat the purpose of establishing a permanent station on Venus.

Third, very little sunlight reaches the planet s surface. About 60 percent of the sunlight that hits Venus is reflected back into space by the thick clouds that fill the atmosphere, which means that only 40 percent of the sunlight can get through the clouds Below these clouds is a dense layer of carbon dioxide, which blocks even more light, so very little light reaches the surface. The lack of light would prevent the use of solar power cells, so humans could not get electricity to power their machines and equipment.

Directions

You have 20 minutes to plan and write your response. Your response will be judged on the basis of the quality of your writing and on how well your response presents the points in the lecture and their relationship to the reading passage. Typically, an effective response will be 150 to 225 words.

Essay Topic

Summarize the points made in the lecture, being sure to explain how the proposal discussed in the lecture would solve the specific challenges described in the reading passage.

TASK 2 Independent Writing

Directions

Read the question below. You have 30 minutes to plan, write, and revise your essay. Typically, an effective response will contain a minimum of 300 words.

Question:

Essay Topic

Some parents offer their school-age children money for each high grade (mark) they get in school. Do you think this is a good idea?

Use specific reasons and examples to support your answer.

Listening

Conversation 1

QUESTIONS

1. **Why does the student go to see the professor?**

a. To find out all the requirements for a project
b. To discuss a service gap at a restaurant
c. To get help understanding concepts relevant to his project
d. To get help with designing a business plan

2. **Why does the professor mention a student in another class?**

a. To describe an interesting topic for a project
b. To explain the cause of her initial confusion
c. To point out that she has not received e-mails from all her students yet
d. To indicate that she has several students doing projects about restaurants

3. **Why does the professor talk about the cafeteria on campus?**

a. To give an example of an effective service design
b. To illustrate how service standards can inform service design
c. To help the man understand a service problem
d. To illustrate the concept of a service gap

4. **What do the speakers imply about the bakery the student went to recently? Click on 2 answers.**

a. The apple pie he bought there was not as good as it usually is.
b. The bakery's service design was inefficient.
c. The bakery needs additional employees to fix a service gap.
d. The bakery did not meet a service standard.

5. **What does the professor say the student should do for his project?**

a. Compare an on-campus service model with an off-campus one
b. Interview the service manager and employees at the cafeteria
c. Recommend service improvements at the cafeteria and the bookstore
d. Analyze the service design of a nearby restaurant

Lecture 1(Art History)

QUESTIONS

1. What point does the professor make about the writing of a formal analysis in art history?

a. Its objective is to identify common features of several works of art.
b. Its most important part is the explanation of an artwork's significance.
c. Several styles of writing a formal analysis are used by art historians.
d. A particular approach is required to present Information about an artwork.

2. According to the professor, what will students need to do before writing the art history paper?

a. Look at examples of formal analysis in textbooks
b. Take notes on the artwork they will write about
c. Go to different museums before selecting a topic for the paper
d. Study the historical context of the artwork they will write about

3. Why does the professor mention an English class?

a. To explain the difference between visual language and written language
b. To explain that students need good writing skills for their assignment
c. To point out similarities between a poetry paper and the students' assignment
d. To point out that many art historians become writers

4. What does the professor recommend as a way to understand the relationship between different parts of an artwork?

a. Looking for lines that connect different parts of the work
b. Examining the artwork from several different angles

c. Looking for similar colors the artist used throughout the work
d. Determining how the viewer's eyes move around the work

5. Why does the professor talk about his own experience analyzing the painting of a little boy?

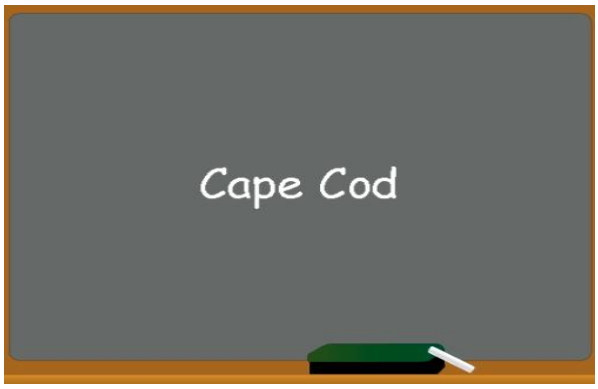
a. To point out a common misconception about formal analysis
b. To stress the importance of looking at an artwork thoroughly
c. To show why a formal analysis should not emphasize small details
d. To provide an example of an artwork that is easy to analyze

6. The professor describes three sections the art history paper should contain. Place them in the order in which they should appear in the paper.
Click on a phrase. Then drag it to the space where it belongs.

1.
2.
3.

Answer Choices
a.Analysis of the design elements the artist uses
b.Discussion of the meaning of the artwork
c.Summary of the appearance of the artwork

Lecture 2 (Environmental Conservation)



QUESTIONS

1. What is the discussion mainly about?

a. Results of privatization in the cod-fishing industry
b. Laws that regulate the cod-fishing industry
c. A recent study on cod-fishing techniques
d. Problems related to the overfishing of cod

2. Why does the professor compare Cape Cod to Newfoundland?

a. To explain how some of Cape Cod's waters first became privatized
b. To illustrate the enormous size of Cape Cod's seventeenth-century cod population
c. To explain why large-scale cod fishing began later in Cape Cod than elsewhere
d. To highlight the results of two different evolutionary pressures on cod

3. What change did scientists notice around Cape Cod after the 1940s?

a. The amount of pollutants dumped into the ocean increased dramatically.
b. Trawling ships violated fishing regulations more often.
c. The cod population's diet became less diverse.
d. Cod began to mature at a younger age.

4. What point does the professor make about reproduction among small cod fish as compared to larger cod fish?

a. Eggs produced by smaller cod are less likely to survive.
b. Smaller cod produce fewer eggs.
c. The offspring of smaller cod do not live as long
d. Smaller cod produce eggs fewer times per year

5. What is the professor's opinion of privatization for the management of an environmental resource?

a. Privatization is an imperfect tool.
b. Privatization should be tried more often.
c. Privatization usually results in political conflicts.
d. Privatization usually results in the best outcome.

6. According to the professor, what was the result of the 200-mile exclusive economic zone declared by the United States and Canada?

a. The cod population moved further out to sea.
b. The cod population began to recover.
c. More trawlers began fishing around Cape Cod.
d. Penalties for overfishing were toughened.

Conversation 2

QUESTIONS

1. Why does the woman go to see the man?

a. To ask for his help in getting a job off campus
b. To apply for job in the library archives
c. To find out if the man has received her letter of reference
d. To get help on a project she is doing with a professor

2. During the conversation, what surprises the man?
Click on 2 answers

a. That he does not remember the woman
b. That the woman knows the library has a job opening
c. That the woman came to him for help
d. That the woman is still interested in photography

3. What does the man imply about Professor Ryan?

a. Professor Ryan will decide who gets the library assistant job.
b. Professor Ryan was in charge of the library's photography exhibit.
c. Professor Ryan was impressed with work the woman did on the photography exhibit.
d. Professor Ryan recommended the woman for the library assistant job.

4. What will be the main responsibility of the new library assistant?

a. Cataloging photographs taken during the university's hundreth year
b. Planning and setting up photography exhibits at the library
c. Writing research reports about photographs in the library's collection
d. Finding photographs requested by library users

5. What does the woman imply about the library assistant job?
Click on 2 answers.

a. She feels she is not qualified for it.
b. She is reluctant to apply for it because it does not involve taking photographs.
c. She thinks it would fit in well with her class schedule.
d. She thinks it would require too much of her time.

Lecture 3(Environmental Science)

QUESTIONS

1. What is the main purpose of the lecture?

a. To argue that carbon emissions today are not the only factor responsible for global warming
b. To provide evidence that rates of global carbon emissions fluctuate over time
c. To show the importance of distinguishing between different types of carbon emissions
d. To describe different ways carbon is removed from the atmosphere

2.What aspects of outer space does the professor emphasize?
Click on 2 answers.

a. Its vastness
b. Its cold temperatures
c. The absence of life there
d. Its role as the ultimate source of energy on Earth

3. According to the professor, how do the oceans remove carbon from the atmosphere?
Click on 2 answers.

a. By dissolving it
b. Through a process of condensation and precipitation
c. By storing the remains of marine animals
d. Through the regulation of air temperatures

4. Why does the professor mention mining?

a. To explain why the price of fossil fuels is continually rising

b. To explain how certain fuel sources can be recovered from the ocean floor
c. To explain why coal and oil are more difficult to obtain than natural gas
d. To explain why fossil fuels contribute to an excess of carbon in the atmosphere

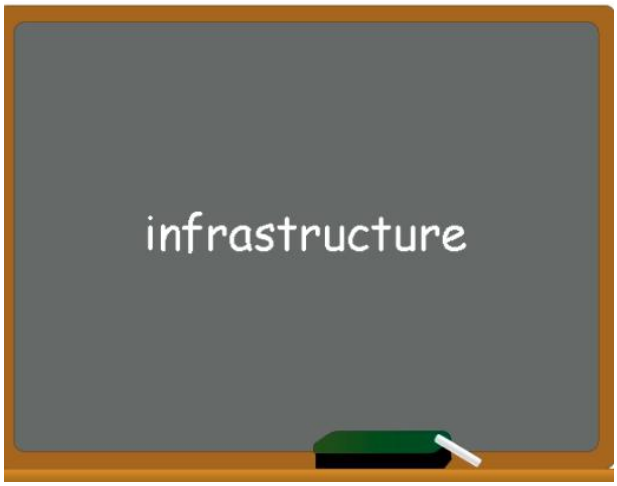
5. What does the professor mean when he refers to biomass carbon as "current carbon"?

a. It is the fuel source most widely approved by environmentalists today.
b. It is part of a balanced system of carbon emission and absorption.
c. It is circulated throughout the oceans by the movement of ocean water.
d. It readily combines with other carbon molecules to produce long chains.

6. Why does the professor say this 🎧

a. To let students know that the term “greenhouse effect” will be tested
b. To indicate that the definition of “greenhouse effect” will be discussed
c. To suggest that his previous definition of “greenhouse effect” was imprecise
d. To acknowledge that there is controversy surrounding the use of the term “greenhouse effect”

Lecture 4 (United States Government)



QUESTIONS

1. What issue does the professor mainly discuss?

a. Government purchases of private property to expand transportation routes
b. The rising cost of public transportation in the United States
c. The transfer of certain public assets to for-profit companies

d. Whether voters can be persuaded to approve toll increases

2. Why does the professor mention highway construction that took place during the 1950s and 1960s?

a. To point out changes in voter attitudes toward toll and tax increases
b. To suggest that mistakes were made when the highway system was built
c. To explain why traffic congestion is not as bad as it used to be
d. To make a point about the current need for infrastructure repairs

3. According to the professor, why do governments consider selling or leasing pieces of infrastructure?
Click on 2 answers.

a. Governments often have difficulty balancing their general budgets.
b. The money that governments receive from user fees has gone down in recent years
c. Political considerations limit governments' ability to raise money for maintenance.
d. Private companies are better able to estimate the cost of infrastructure repairs.

4. What does the professor imply about some people s concerns over privatizing parts of an infrastructure?

a. Their concerns are likely to diminish in the future.
b. Their concerns are completely justified.
c. Their concerns suggest that voters need better information.
d. Their concerns have mostly been disregarded by governments.

5. What does the professor imply about secondary roads?

a. Their availability tends to limit toll increases on major highways.
b. They can be more expensive to repair than major highways are.
c. Increasing numbers of them are becoming toll roads.
d. Commuters are attracted to them for their scenic qualities.

6. According to the professor, what is likely to happen when a bridge provides steady revenue for a private company?

a. The bridge will be well maintained in the long term.
b. The company will not raise tolls.
c. Other companies will be interested in buying the bridge.
d. Voters will pressure the government to buy back the bridge

TPO40 听力答案：

Conversation 1
1-3 CBA 4 BD 5 D

Lecture 1
1-5 DBCDB 6 CAB

Lecture 2
1-6 DBDBAC

Conversation 2
1 A 2 BC 3-4 CD 5BC

Lecture 3
1 C 2 BC 3 AC 4-6 DBB

Lecture 4
1-2 CD 3 AC 4-6 BAC

Speaking

TPO-40

TASK 1 Independent Speaking, Personal Preference

Talk about a country or culture that you would like to learn more about. What is the country or culture and why would you like to learn more about it.

TASK 2 Independent Speaking, Paired Choice

Some people think that materials printed on paper, such as books and newspapers, will one day be replaced by electronic versions of those materials. Others believe that printed materials will always be popular. Which point of view do you agree with? Explain why.

TASK 3 Integrated Reading/Listening/Speaking

University to Create a Lounge for Commuter Students

Many students at our university do not live in dormitories These students live in town or in the suburbs and travel to campus every day The university has decided to provide these commuter students with a special lounge in the student center—with couches, chairs, and a television. University officials hope that this lounge—a place to socialize and relax—will give commuter students some of the same advantages that dormitory residents now have. An important additional feature of the lounge will be a bulletin board on the wall for posting and sharing information that may be especially useful to commuter students and their particular needs.

The woman expresses her opinion about the university's plan. Briefly summarize the plan. Then state her opinion about the plan and explain the reasons she gives for holding that opinion.

TASK 4 Integrated Reading/Listening/Speaking

Agonistic Behavior

Within certain animal species, conflicts sometimes arise over resources such as territory or food To resolve these conflicts, two animals of the same species may engage in agonistic behavior With this type of aggressive behavior, the animals participate in a physical competition that demonstrates which animal is more powerful While each animal attempts to prove its strength in the competition, it typically does so without harming the other animal Once the winner is established, that animal gains access to the desired resources, while the weaker animal surrenders and leaves the area.

Explain how the example in the lecture illustrates agonistic behavior .

TASK 5 Integrated Listening/Speaking

Briefly summarize the problem the speakers are discussing. Then state which solution you would recommend. Explain the reasons for your recommendation.

TASK 6 Integrated Listening/Speaking

Using the examples from the lecture, explain two strategies salespeople use to address customer concerns.