tpo_17_passage_2

The daytime quality of light in forests varies with the density of the vegetation, the angle of the Sun, and the amount of cloud in the sky. Both animals and plants have different appearances in these various lighting conditions. A color or pattern that is relatively indistinct in one kind of light may be quite conspicuous in another. In the varied and constantly changing light environment of the forest, an animal must be able to send visual signals to members of its own species and at the same time avoid being detected by predators. An animal can hide from predators by choosing the light environment in which its pattern is least visible. This may require moving to different parts of the forest at different times of the day or under different weather conditions, or it may be achieved by changing color according to the changing light conditions. Many species of amphibians (frogs and toads) and reptiles (lizards and snakes) are able to change their color patterns to camouflage themselves. Some also signal by changing color. The chameleon lizard has the most striking ability to do this. Some chameleon species can change from a rather dull appearance to a full riot of carnival colors in seconds. By this means, they signal their level of aggression or readiness to mate. Other species take into account the changing conditions of light by performing their visual displays only when the light is favorable. A male bird of paradise may put himself in the limelight by displaying his spectacular plumage in the best stage setting to attract a female. Certain butterflies move into spots of sunlight that have penetrated to the forest floor and display by opening and closing their beautifully patterned wings in the bright spotlights. They also compete with each other for the best spot of sunlight. Very little light filters through the canopy of leaves and branches in a rain forest to reach ground level-or close to the ground-and at those levels the yellow-to-green wavelengths predominate. A signal might be most easily seen if it is maximally bright. In the green-to-yellow lighting conditions of the lowest levels of the forest, yellow and green would be the brightest colors, but when an animal is signaling, these colors would not be very visible if the animal was sitting in an area with a yellowish or greenish background. The best signal depends not only on its brightness but also on how well it contrasts with the background against which it must be seen. In this part of the rain forest, therefore, red and orange are the best colors for signaling, and they are the colors used in signals by the ground-walking Australian brush turkey. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown-to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown-to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. During courtship and aggressive displays, the turkey enlarges its colored neck collar by inflating sacs in the neck region and then flings about a pendulous part of the colored signaling apparatus as it utters calls designed to attract or repel. This impressive display is clearly visible in the light spectrum illuminating the forest floor. Less colorful birds and animals that inhabit the rain forest tend to rely on forms of signaling other than the visual, particularly over long distances. The piercing cries of the rhinoceros hornbill characterize the Southeast Asian rain forest, as do the unmistakable calls of the gibbons. In densely wooded environments, sound is the best means of communication over distance because in comparison with light, it travels with little impediment from trees and other vegetation. In forests, visual signals can be seen only at short

distances, where they are not obstructed by trees. The male riflebird exploits both of these modes of signaling simultaneously in his courtship display. The sounds made as each wing is opened carry extremely well over distance and advertise his presence widely. The ritualized visual display communicates in close quarters when a female has approached.

question 1

The word “conspicuous” in the passage is closest in meaning to

A common

B noticeable

C different

D colorful

question 2

According to paragraph 2, what is problematic about an animal’ s sending visual signals to members of its own species?

A Signs that make an animal visible to its species also make it visible to predators.

B An animal that changes color to avoid predators can confuse members of its species.

C Changing light may require an animal to move beyond the visual range of other members.

D The animal may mistakenly signal aggression when it meant to signal readiness to mate.

question 3

According to paragraph 2, all of the following are reasons amphibians and reptiles change color EXCEPT

A changing seasons

B to signal others of their species

C to match the light

D to hide from predators

question 4

According to paragraph 3, butterflies move into spots of sunlight in order to

A warm their wings in order to open them

B compete with each other

C take advantage of favorable light conditions on the forest floor

D imitate birds of paradise

question 5

According to paragraph 4, what is true about light that reaches ground level?

A It reveals only the yellow and green colors animals use to signal each other.

B It reflects the yellow and green colors to make the floor as bright as sunshine.

C It camouflages animals whose natural colors are yellow and green.

D It consists mostly of yellow-to-green wavelengths.

question 6

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 When an animal is signaling in an area with green-to-yellow lighting conditions, its signal will not be visible if the background is brightly lit.

B In the lowest levels of the forest, an animal’ s signals are not easily seen unless there is a yellowish or greenish background.

C In the green-to-yellow lighting conditions at the lowest levels of the forest, only signals that are themselves green or yellow will be bright enough to be seen in most areas.

D Although green and yellow would be the brightest colors near the forest floor, these colors would make poor signals whenever the forest background was also in the green-to-yellow range.

question 7

Which of the following can be inferred from paragraph 4 about yellow and green colors compared with red and orange colors at the bottom of the forest?

A Yellow and green are better colors for signaling than red and orange colors.

B Orange and red are brighter colors than yellow and green.

C Yellow and green are likely to be more common in the background than red and orange.

D Orange and red colors do not contrast as well with the forest floor as yellow and green do.

question 8

What can be inferred from paragraph 5 about the less colorful birds and animals that inhabit the forest?

A These species are less able to see color, and therefore they communicate with one another using nonvisual signals.

B These species generally live in less densely wooded environments than more colorful birds and animals do.

C The cries of these species do not carry as well over distances as the cries of more colorful birds and animals.

D These species depend more on nonvisual signals for communication because they are less visible in their environment.

question 9

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

The daytime quality of light in forests varies with the density of the vegetation, the angle of the Sun, and the amount of cloud in the sky. Both animals and plants have different appearances in these various lighting conditions. A color or pattern that is relatively indistinct in one kind of light may be quite conspicuous in another. In the varied and constantly changing light environment of the forest, an animal must be able to send visual signals to members of its own species and at the same time avoid being detected by predators. An animal can hide from predators by choosing the light environment in which its pattern is least visible. This may require moving to different parts of the forest at different times of the day or under different weather conditions, or it may be achieved by changing color according to the changing light conditions. Many species of amphibians (frogs and toads) and reptiles (lizards and snakes) are able to change their color patterns to camouflage themselves. Some also signal by changing color. The chameleon lizard has the most striking ability to do this. Some chameleon species can change from a rather dull appearance to a full riot of carnival colors in seconds. By this means, they signal their level of aggression or readiness to mate. Other species take into account the changing conditions of light by performing their visual displays only when the light is favorable. A male bird of paradise may put himself in the limelight by displaying his spectacular plumage in the best stage setting to attract a female. Certain butterflies move into spots of sunlight that have penetrated to the forest floor and display by opening and closing their beautifully patterned wings in the bright spotlights. They also compete with each other for the best spot of sunlight. Very little light filters through the canopy of leaves and branches in a rain forest to reach ground level-or close to the ground-and at those levels the yellow-to-green wavelengths predominate. A signal might be most easily seen if it is maximally bright. In the green-to-yellow lighting conditions of the lowest levels of the forest, yellow and green would be the brightest colors, but when an animal is signaling, these colors would not be very visible if the animal was sitting in an area with a yellowish or greenish background. The best signal depends not only on its brightness but also on how well it contrasts with the background against which it must be seen. In this part of the rain forest, therefore, red and orange are the best colors for signaling, and they are the colors used in signals by the ground-walking Australian brush turkey. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown-to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. This species, which lives in the rain forests and scrublands of the east coast of Australia, has a brown-to-black plumage with bare, bright-red skin on the head and neck and a neck collar of orange-yellow loosely hanging skin. During courtship and aggressive displays, the turkey enlarges its colored neck collar by inflating sacs in the neck region and then flings about a pendulous part of the colored signaling apparatus as it utters calls designed to attract or repel. This impressive display is clearly visible in the light spectrum illuminating the forest floor. Less colorful birds and animals that inhabit the rain forest tend to rely on forms of signaling other than the visual, particularly over long distances. [] The piercing cries of the rhinoceros hornbill characterize the Southeast Asian rain forest, as do the unmistakable calls of the gibbons. [] In densely wooded environments, sound is the best means of communication over distance because in comparison with light, it travels with little impediment from trees and other vegetation. [] In forests, visual signals can be seen only at short distances, where they are not obstructed by trees. [] The male riflebird exploits both of these modes of signaling simultaneously in his courtship display. The sounds made as each wing is opened carry extremely well over distance and

advertise his presence widely. The ritualized visual display communicates in close quarters when a female has approached.

question 10

Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas 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.

A. Animals that have different predators at different times of day change color to avoid being detected.

B. To escape notice, an animal may move or change color so that its color pattern is not visible.

C. To be noticed, an animal may draw attention to the contrast between its colors and the colors of its environment.

D. Animals must have signals for aggression as well as to indicate readiness to mate.

E. Yellow and green are the most common colors found in the rain forest.

F. An animal may use sound rather than color to attract attention, because sound signals are not hindered by light conditions.