TOEFL iBT Test 3

READING

This section measures your ability to understand academic passages in English.

There are three passages in the section. Give yourself 20 minutes to read each passage and answer the questions about it. The entire section will take 60 minutes to complete.

You may look back at a passage when answering the questions. You can skip questions and go back to them later as long as there is time remaining.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

ANCIENT EGYPTIAN SCULPTURE

In order to understand ancient Egyptian art, it is vital to know as much as possible of the elite Egyptians' view of the world and the functions and contexts of the formal art produced for them. Without this knowledge we can appreciate only the formal content of Egyptian art, and we will fail to understand why it was produced or the concepts that shaped it and caused it to adopt its distinctive forms. In fact, a lack of understanding concerning the purposes of Egyptian art has often led it to be compared unfavorably with the art of other cultures: Why did the Egyptians not develop sculpture in which the body turned and twisted through space like classical Greek statuary? Why do the artists seem to get left and right confused? And why did they not discover the geometric perspective as European artists did in the Renaissance? The answer to such questions has nothing to do with a lack of skill or imagination on the part of Egyptian artists and everything to do with the purposes for which they were producing their art.

The majority of three-dimensional representations, whether standing, seated, or kneeling, exhibit what is called frontality: they face straight ahead, neither twisting nor turning. When such statues are viewed in isolation, out of their original context and without knowledge of their function, it is easy to criticize them for their rigid attitudes that remained unchanged for three thousand years. Frontality is, however, directly related to the functions of Egyptian statuary and the contexts in which the statues were set up. Statues were created not for their decorative effect but to play a primary role in the cults of the gods, the king, and the dead. They were designed to be put in places where these beings could manifest themselves in order to be the recipients of ritual actions. Thus it made sense to show the statue looking ahead at what was happening in front of it, so that the living performer of the ritual could interact with the divine or deceased recipient. Very often such statues were enclosed in rectangular shrines or wall niches whose only opening was at the front, making it natural for the statue to display frontality. Other statues were designed to be placed within an architectural setting, for instance, in front of the monumental entrance gateways to temples known as pylons, or in pillared courts, where they would be placed against or between pillars: their frontality worked perfectly within the architectural context.

Statues were normally made of stone, wood, or metal. Stone statues were worked from single rectangular blocks of material and retained the compactness of the original shape. The stone between the arms and the body and between the legs in standing figures or the legs and the seat in seated ones was not normally cut away. From a practical aspect this protected the figures against breakage and psychologically gives the images a sense of strength and power, usually enhanced by a supporting back pillar. By contrast, wooden statues were carved from several pieces of wood that were pegged together to form the finished work, and metal statues were either made by wrapping sheet metal around a wooden core or cast by the lost wax process[1]. The arms could be held away from the body and carry separate items in their hands; there is no back pillar. The effect is altogether lighter and freer than that achieved in stone, but because both perform the same function, formal wooden and metal statues still display frontality.

Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that depicts generic figures, frequently servants, from the nonelite population. The function of these is quite different. Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks.

lost wax process[1]**:** an ancient method of casting using a wax model and clay mold

Directions: Now answer the questions.

PARAGRAPH 1

In order to understand ancient Egyptian art, it is vital to know as much as possible of the elite Egyptians' view of the world and the functions and contexts of the formal art produced for them. Without this knowledge we can appreciate only the formal content of Egyptian art, and we will fail to understand why it was produced or the concepts that shaped it and caused it to adopt its distinctive forms. In fact, a lack of understanding concerning the purposes of Egyptian art has often led it to be compared unfavorably with the art of other cultures: Why did the Egyptians not develop sculpture in which the body turned and twisted through space like classical Greek statuary? Why do the artists seem to get left and right confused? And why did they not discover the geometric perspective as European artists did in the Renaissance? The answer to such questions has nothing to do with a lack of skill or imagination on the part of Egyptian artists and everything to do with the purposes for which they were producing their art.

1. The word "vital" in the passage is closest in meaning to
   - Ⓐ attractive
   - Ⓑ essential
   - Ⓒ usual
   - Ⓓ practical

2. Paragraph 1 suggests that one reason ancient Egyptian art has been viewed less favorably than other art is that ancient Egyptian art lacks
   - Ⓐ a realistic sense of human body proportion
   - Ⓑ a focus on distinctive forms of varying sizes
   - Ⓒ the originality of European art
   - Ⓓ examples of formal art that show the human body in motion

3. In paragraph 1, the author mentions all of the following as necessary in appreciating Egyptian art EXCEPT an understanding of
   - Ⓐ the reasons why the art was made
   - Ⓑ the nature of aristocratic Egyptian beliefs
   - Ⓒ the influences of Egyptian art on later art such as classical Greek art
   - Ⓓ how the art was used

PARAGRAPH 2

The majority of three-dimensional representations, whether standing, seated, or kneeling, exhibit what is called frontality: they face straight ahead, neither twisting nor turning. When such statues are viewed in isolation, out of their original context and without knowledge of their function, it is easy to criticize them for their rigid attitudes that remained unchanged for three thousand years. Frontality is, however, directly related to the functions of Egyptian statuary and the contexts in which the statues were set up. Statues were created not for their decorative effect but to play a primary role in the cults of the gods, the king, and the dead. They were designed to be put in places where these beings could manifest themselves in order to be the recipients of ritual actions. Thus it made sense to show the statue looking ahead at what was happening in front of it, so that the living performer of the ritual could interact with the divine or deceased recipient. Very often such statues were enclosed in rectangular shrines or wall niches whose only opening was at the front, making it natural for the statue to display frontality. Other statues were designed to be placed within an architectural setting, for instance, in front of the monumental entrance gateways to temples known as pylons, or in pillared courts, where they would be placed against or between pillars: their frontality worked perfectly within the architectural context.

4. According to paragraph 2, why are Egyptian statues portrayed frontally?

   Ⓐ To create a psychological effect of distance and isolation
   Ⓑ To allow them to fulfill their important role in ceremonies of Egyptian life
   Ⓒ To provide a contrast to statues with a decorative function
   Ⓓ To suggest the rigid, unchanging Egyptian philosophical attitudes

5. The word "context" in the passage is closest in meaning to

   Ⓐ connection
   Ⓑ influence
   Ⓒ environment
   Ⓓ requirement

6. The author mentions "an architectural setting" in the passage in order to

   Ⓐ suggest that architecture was as important as sculpture to Egyptian artists
   Ⓑ offer a further explanation for the frontal pose of Egyptian statues
   Ⓒ explain how the display of statues replaced other forms of architectural decoration
   Ⓓ illustrate the religious function of Egyptian statues

7. The word "they" in the passage refers to

   Ⓐ statues
   Ⓑ gateways
   Ⓒ temples
   Ⓓ pillared courts

PARAGRAPH 3

Statues were normally made of stone, wood, or metal. Stone statues were worked from single rectangular blocks of material and retained the compactness of the original shape. The stone between the arms and the body and between the legs in standing figures or the legs and the seat in seated ones was not normally cut away. From a practical aspect this protected the figures against breakage and psychologically gives the images a sense of strength and power, usually enhanced by a supporting back pillar. By contrast, wooden statues were carved from several pieces of wood that were pegged together to form the finished work, and metal statues were either made by wrapping sheet metal around a wooden core or cast by the lost wax process. The arms could be held away from the body and carry separate items in their hands; there is no back pillar. The effect is altogether lighter and freer than that achieved in stone, but because both perform the same function, formal wooden and metal statues still display frontality.

8. According to paragraph 3, why were certain areas of a stone statue left uncarved?

   Ⓐ To prevent damage by providing physical stability
   Ⓑ To emphasize that the material was as important as the figure itself
   Ⓒ To emphasize that the figure was not meant to be a real human being
   Ⓓ To provide another artist with the chance to finish the carving

9. The word "core" in the passage is closest in meaning to

   Ⓐ material
   Ⓑ layer
   Ⓒ center
   Ⓓ frame

10. According to paragraph 3, which of the following statements about wooden statues is true?

    Ⓐ Wooden statues were usually larger than stone statues.
    Ⓑ Wooden statues were made from a single piece of wood.
    Ⓒ Wooden statues contained pieces of metal or stone attached to the front.
    Ⓓ Wooden statues had a different effect on the viewer than stone statues.

PARAGRAPH 4

Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that depicts generic figures, frequently servants, from the nonelite population. The function of these is quite different. Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks.

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

    Ⓐ imagines
    Ⓑ classifies
    Ⓒ elevates
    Ⓓ portrays

12. According to paragraph 4, what is the difference between statues that represent the Egyptian elite and statues that represent the nonelite classes?

Ⓐ Statues of the elite are included in tombs, but statues of the nonelite are not.
Ⓑ Statues of the elite are in motionless poses, while statues of the nonelite are in active poses.
Ⓒ Statues of the elite are shown standing, while statues of the nonelite are shown sitting or kneeling.
Ⓓ Statues of the elite serve an important function, while statues of the nonelite are decorative.

PARAGRAPH 4

Apart from statues representing deities, kings, and named members of the elite that can be called formal, there is another group of three-dimensional representations that depicts generic figures, frequently servants, from the nonelite population. **(A)** The function of these is quite different. **(B)** Many are made to be put in the tombs of the elite in order to serve the tomb owners in the afterlife. **(C)** Unlike formal statues that are limited to static poses of standing, sitting, and kneeling, these figures depict a wide range of actions, such as grinding grain, baking bread, producing pots, and making music, and they are shown in appropriate poses, bending and squatting as they carry out their tasks. **(D)**

13. **Directions:** Look at the part of the passage that is displayed above. The letters **(A)**, **(B)**, **(C)**, and **(D)** indicate where the following sentence could be added.

In fact, it is the action and not the figure itself that is important.

Where would the sentence best fit?

Ⓐ Choice A
Ⓑ Choice B
Ⓒ Choice C
Ⓓ Choice D

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

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

The distinctive look of ancient Egyptian sculpture was determined largely by its function.

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Answer Choices

A The twisted forms of Egyptian statues indicate their importance in ritual actions.
B The reason Egyptian statues are motionless is linked to their central role in cultural rituals.
C Stone, wood, and metal statues all display the feature of frontality.
D Statues were more often designed to be viewed in isolation rather than placed within buildings.
E The contrasting poses used in statues of elite and nonelite Egyptians reveal their difference in social status.
F Although the appearances of formal and generic statues differ, they share the same function.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

ORIENTATION AND NAVIGATION

To South Americans, robins are birds that fly north every spring. To North Americans, the robins simply vacation in the south each winter. Furthermore, they fly to very specific places in South America and will often come back to the same trees in North American yards the following spring. The question is not why they would leave the cold of winter so much as how they find their way around. The question perplexed people for years, until, in the 1950's, a German scientist named Gustave Kramer provided some answers and, in the process, raised new questions.

Kramer initiated important new kinds of research regarding how animals orient and navigate. Orientation is simply facing in the right direction; navigation involves finding one's way from point A to point B.

Early in his research, Kramer found that caged migratory birds became very restless at about the time they would normally have begun migration in the wild. Furthermore, he noticed that as they fluttered around in the cage, they often launched themselves in the direction of their normal migratory route. He then set up experiments with caged starlings and found that their orientation was, in fact, in the proper migratory direction except when the sky was overcast, at which times there was no clear direction to their restless movements. Kramer surmised, therefore, that they were orienting according to the position of the Sun. To test this idea, he blocked their view of the Sun and used mirrors to change its apparent position. He found that under these circumstances, the birds oriented with respect to the new "Sun." They seemed to be using the Sun as a compass to determine direction. At the time, this idea seemed preposterous. How could a bird navigate by the Sun when some of us lose our way with road maps? Obviously, more testing was in order.

So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. The boxes were stationary, and the one containing food was always at the same point of the compass. However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

In experimenting with artificial suns, Kramer made another interesting discovery. If the artificial Sun remained stationary, the birds would shift their direction with respect to it at a rate of about 15 degrees per hour, the Sun's rate of movement across the sky. Apparently, the birds were assuming that the "Sun" they saw was moving at that rate. When the real Sun was visible, however, the birds maintained a constant direction as it moved across the sky. In other words, they were able to compensate for the Sun's movement. This meant that some sort of biological clock was operating–and a very precise clock at that.

What about birds that migrate at night? Perhaps they navigate by the night sky. To test the idea, caged night-migrating birds were placed on the floor of a planetarium during

their migratory period. A planetarium is essentially a theater with a domelike ceiling onto which a night sky can be projected for any night of the year. When the planetarium sky matched the sky outside, the birds fluttered in the direction of their normal migration. But when the dome was rotated, the birds changed their direction to match the artificial sky. The results clearly indicated that the birds were orienting according to the stars.

There is accumulating evidence indicating that birds navigate by using a wide variety of environmental cues. Other areas under investigation include magnetism, landmarks, coastlines, sonar, and even smells. The studies are complicated by the fact that the data are sometimes contradictory and the mechanisms apparently change from time to time. Furthermore, one sensory ability may back up another.

Directions: Now answer the questions.

PARAGRAPH 1

To South Americans, robins are birds that fly north every spring. To North Americans, the robins simply vacation in the south each winter. Furthermore, they fly to very specific places in South America and will often come back to the same trees in North American yards the following spring. The question is not why they would leave the cold of winter so much as how they find their way around. The question perplexed people for years, until, in the 1950's, a German scientist named Gustave Kramer provided some answers and, in the process, raised new questions.

15. The word "perplexed" in the passage is closest in meaning to

Ⓐ defeated
Ⓑ interested
Ⓒ puzzled
Ⓓ occupied

16. Which of the following can be inferred about bird migration from paragraph 1?

Ⓐ Birds will take the most direct migratory route to their new habitat.
Ⓑ The purpose of migration is to join with larger groups of birds.
Ⓒ Bird migration generally involves moving back and forth between north and south.
Ⓓ The destination of birds' migration can change from year to year.

PARAGRAPH 3

Early in his research, Kramer found that caged migratory birds became very restless at about the time they would normally have begun migration in the wild. Furthermore, he noticed that as they fluttered around in the cage, they often launched themselves in the direction of their normal migratory route. He then set up experiments with caged starlings and found that their orientation was, in fact, in the proper migratory direction except when the sky was overcast, at which times there was no clear direction to their restless movements. Kramer surmised, therefore, that they were orienting according to the position of the Sun. To test this idea, he blocked their view of the Sun and used mirrors to change its apparent position. He found that under these circumstances, the birds oriented with respect to the new "Sun." They seemed to be using the Sun as a compass to determine direction. At the time, this idea seemed preposterous. How could a bird navigate by the Sun when some of us lose our way with road maps? Obviously, more testing was in order.

17. 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.

Ⓐ Experiments revealed that caged starlings displayed a lack of directional sense and restless movements.
Ⓑ Experiments revealed that caged starlings were unable to orient themselves in the direction of their normal migratory route.
Ⓒ Experiments revealed that the restless movement of caged starlings had no clear direction.
Ⓓ Experiments revealed that caged starlings' orientation was accurate unless the weather was overcast.

18. The word "preposterous" in the passage is closest in meaning to

Ⓐ unbelievable
Ⓑ inadequate
Ⓒ limited
Ⓓ creative

19. According to paragraph 3, why did Kramer use mirrors to change the apparent position of the Sun?

Ⓐ To test the effect of light on the birds' restlessness
Ⓑ To test whether birds were using the Sun to navigate
Ⓒ To simulate the shifting of light the birds would encounter along their regular migratory route
Ⓓ To cause the birds to migrate at a different time than they would in the wild

20. According to paragraph 3, when do caged starlings become restless?

Ⓐ When the weather is overcast
Ⓑ When they are unable to identify their normal migratory route
Ⓒ When their normal time for migration arrives
Ⓓ When mirrors are used to change the apparent position of the Sun

PARAGRAPH 4

So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. The boxes were stationary, and the one containing food was always at the same point of the compass. However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

21. Which of the following can be inferred from paragraph 4 about Kramer's reason for filling one food box and leaving the rest empty?

(A) He believed the birds would eat food from only one box.
(B) He wanted to see whether the Sun alone controlled the birds' ability to navigate toward the box with food.
(C) He thought that if all the boxes contained food, this would distract the birds from following their migratory route.
(D) He needed to test whether the birds preferred having the food at any particular point of the compass.

PARAGRAPH 5

In experimenting with artificial suns, Kramer made another interesting discovery. If the artificial Sun remained stationary, the birds would shift their direction with respect to it at a rate of about 15 degrees per hour, the Sun's rate of movement across the sky. Apparently, the birds were assuming that the "Sun" they saw was moving at that rate. When the real Sun was visible, however, the birds maintained a constant direction as it moved across the sky. In other words, they were able to compensate for the Sun's movement. This meant that some sort of biological clock was operating—and a very precise clock at that.

22. According to paragraph 5, how did the birds fly when the real Sun was visible?

(A) They kept the direction of their flight constant.
(B) They changed the direction of their flight at a rate of 15 degrees per hour.
(C) They kept flying toward the Sun.
(D) They flew in the same direction as the birds that were seeing the artificial Sun.

23. The experiment described in paragraph 5 caused Kramer to conclude that birds possess a biological clock because

(A) when birds navigate they are able to compensate for the changing position of the Sun in the sky
(B) birds' innate bearings keep them oriented in a direction that is within 15 degrees of the Sun's direction
(C) birds' migration is triggered by natural environmental cues, such as the position of the Sun
(D) birds shift their direction at a rate of 15 degrees per hour whether the Sun is visible or not

PARAGRAPH 6

What about birds that migrate at night? Perhaps they navigate by the night sky. To test the idea, caged night-migrating birds were placed on the floor of a planetarium during their migratory period. A planetarium is essentially a theater with a domelike ceiling onto which a night sky can be projected for any night of the year. When the planetarium sky matched the sky outside, the birds fluttered in the direction of their normal migration. But when the dome was rotated, the birds changed their direction to match the artificial sky. The results clearly indicated that the birds were orienting according to the stars.

24. According to paragraph 6, how did the birds navigate in the planetarium's nighttime environment?

Ⓐ By waiting for the dome to stop rotating
Ⓑ By their position on the planetarium floor
Ⓒ By orienting themselves to the stars in the artificial night sky
Ⓓ By navigating randomly until they found the correct orientation

PARAGRAPHS 1 2 3 4 5 6 & 7

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Kramer initiated important new kinds of research regarding how animals orient and navigate. Orientation is simply facing in the right direction; navigation involves finding one's way from point A to point B.

Early in his research, Kramer found that caged migratory birds became very restless at about the time they would normally have begun migration in the wild. Furthermore, he noticed that as they fluttered around in the cage, they often launched themselves in the direction of their normal migratory route. He then set up experiments with caged starlings and found that their orientation was, in fact, in the proper migratory direction except when the sky was overcast, at which times there was no clear direction to their restless movements. Kramer surmised, therefore, that they were orienting according to the position of the Sun. To test this idea, he blocked their view of the Sun and used mirrors to change its apparent position. He found that under these circumstances, the birds oriented with respect to the new "Sun." They seemed to be using the Sun as a compass to determine direction. At the time, this idea seemed preposterous. How could a bird navigate by the Sun when some of us lose our way with road maps? Obviously, more testing was in order.

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There is accumulating evidence indicating that birds navigate by using a wide variety of environmental cues. Other areas under investigation include magnetism, landmarks, coastlines, sonar, and even smells. The studies are complicated by the fact that the data are sometimes contradictory and the mechanisms apparently change from time to time. Furthermore, one sensory ability may back up another.

25. Which of the following best describes the author's presentation of information in the passage?

Ⓐ A number of experiments are described to support the idea that birds use the Sun and the night sky to navigate.
Ⓑ The author uses logic to show that the biological clock in birds is inaccurate.
Ⓒ A structured argument about the importance of internal versus external cues for navigation is presented.
Ⓓ The opposing points of view about bird migration are clarified through the study of contrasting experiments.

PARAGRAPH 7

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26. The word "accumulating" in the passage is closest in meaning to

Ⓐ new
Ⓑ increasing
Ⓒ convincing
Ⓓ extensive

PARAGRAPH 4

So, in another set of experiments, Kramer put identical food boxes around the cage, with food in only one of the boxes. **(A)** The boxes were stationary, and the one containing food was always at the same point of the compass. **(B)** However, its position with respect to the surroundings could be changed by revolving either the inner cage containing the birds or the outer walls, which served as the background. **(C)** As long as the birds could see the Sun, no matter how their surroundings were altered, they went directly to the correct food box. **(D)** Whether the box appeared in front of the right wall or the left wall, they showed no signs of confusion. On overcast days, however, the birds were disoriented and had trouble locating their food box.

27. **Directions:** Look at the part of the passage that is displayed above. The letters **(A)**, **(B)**, **(C)**, and **(D)** indicate where the following sentence could be added.

    He arranged the feed boxes at various positions on a compass.

    Where would the sentence best fit?

    Ⓐ Choice A
    Ⓑ Choice B
    Ⓒ Choice C
    Ⓓ Choice D

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

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

    Gustave Kramer conducted important research related to the ability of birds to orient and navigate.

    •

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Answer Choices

A Because caged birds become disoriented when the sky is overcast, Kramer hypothesized that birds orient themselves according to the Sun's position.

B In one set of experiments, Kramer placed the box containing food at the same point of the compass each time he put food boxes in the birds' environment.

C Kramer demonstrated that an internal biological clock allows birds to compensate for the Sun's movement.

D After several studies, Kramer surmised that an internal biological clock allows some species of birds to navigate at night.

E The role of environmental cues in birds' navigation is clear, for on overcast days, birds use objects besides the Sun to orient themselves.

F Kramer showed that night-migrating birds use the sky to navigate by the stars.

Directions: Read the passage. Then answer the questions. Give yourself 20 minutes to complete this practice set.

BEGGING BY NESTLINGS

Many signals that animals make seem to impose on the signalers costs that are overly damaging. A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that "noisy" nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials.

Further evidence for the costs of begging comes from a study of differences in the begging calls of warbler species that nest on the ground versus those that nest in the relative safety of trees. The young of ground-nesting warblers produce begging cheeps of higher frequencies than do their tree-nesting relatives. These higher-frequency sounds do not travel as far, and so may better conceal the individuals producing them, who are especially vulnerable to predators in their ground nests. David Haskell created artificial nests with clay eggs and placed them on the ground beside a tape recorder that played the begging calls of either tree-nesting or of ground-nesting warblers. The eggs "advertised" by the tree-nesters' begging calls were found bitten significantly more often than the eggs associated with the ground-nesters' calls.

The hypothesis that begging calls have evolved properties that reduce their potential for attracting predators yields a prediction: baby birds of species that experience high rates of nest predation should produce softer begging signals of higher frequency than nestlings of other species less often victimized by nest predators. This prediction was supported by data collected in one survey of 24 species from an Arizona forest, more evidence that predator pressure favors the evolution of begging calls that are hard to detect and pinpoint.

Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

If parent birds use begging intensity to direct food to healthy offspring capable of vigorous begging, then parents should make food delivery decisions on the basis of their offspring's calls. Indeed, if you take baby tree swallows out of a nest for an hour, feeding half the set and starving the other half, when the birds are replaced in the nest,

the starved youngsters beg more loudly than the fed birds, and the parent birds feed the active beggars more than those who beg less vigorously.

As these experiments show, begging apparently provides a signal of need that parents use to make judgments about which offspring can benefit most from a feeding. But the question arises, why don't nestlings beg loudly when they aren't all that hungry? By doing so, they could possibly secure more food, which should result in more rapid growth or larger size, either of which is advantageous. The answer lies apparently not in the increased energy costs of exaggerated begging—such energy costs are small relative to the potential gain in calories—but rather in the damage that any successful cheater would do to its siblings, which share genes with one another. An individual's success in propagating his or her genes can be affected by more than just his or her own personal reproductive success. Because close relatives have many of the same genes, animals that harm their close relatives may in effect be destroying some of their own genes. Therefore, a begging nestling that secures food at the expense of its siblings might actually leave behind fewer copies of its genes overall than it might otherwise.

Directions: Now answer the questions.

PARAGRAPH 1

Many signals that animals make seem to impose on the signalers costs that are overly damaging. A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that "noisy" nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials.

29. The phrase "impose on" in the passage is closest in meaning to

Ⓐ increase for
Ⓑ remove from
Ⓒ place on
Ⓓ distribute to

30. According to paragraph 1, the experiment with tapes of begging tree swallows establishes which of the following?

Ⓐ Begging by nestling birds can attract the attention of predators to the nest.
Ⓑ Nest predators attack nests that contain nestlings more frequently than they attack nests that contain only eggs.
Ⓒ Tapes of begging nestlings attract predators to the nest less frequently than real begging calls do.
Ⓓ Nest predators have no other means of locating bird nests except the begging calls of nestling birds.

PARAGRAPH 2

Further evidence for the costs of begging comes from a study of differences in the begging calls of warbler species that nest on the ground versus those that nest in the relative safety of trees. The young of ground-nesting warblers produce begging cheeps of higher frequencies than do their tree-nesting relatives. These higher-frequency sounds do not travel as far, and so may better conceal the individuals producing them, who are especially vulnerable to predators in their ground nests. David Haskell created artificial nests with clay eggs and placed them on the ground beside a tape recorder that played the begging calls of either tree-nesting or of ground-nesting warblers. The eggs "advertised" by the tree-nesters' begging calls were found bitten significantly more often than the eggs associated with the ground-nesters' calls.

31. The word "artificial" in the passage is closest in meaning to

Ⓐ attractive
Ⓑ not real
Ⓒ short-term
Ⓓ well designed

32. Paragraph 2 indicates that the begging calls of tree-nesting warblers

Ⓐ put them at more risk than ground-nesting warblers experience
Ⓑ can be heard from a greater distance than those of ground-nesting warblers
Ⓒ are more likely to conceal the signaler than those of ground-nesting warblers
Ⓓ have higher frequencies than those of ground-nesting warblers

33. The experiment described in paragraph 2 supports which of the following conclusions?

Ⓐ Predators are unable to distinguish between the begging cheeps of ground-nesting and those of tree-nesting warblers except by the differing frequencies of the calls.
Ⓑ When they can find them, predators prefer the eggs of tree-nesting warblers to those of ground-nesting warblers.
Ⓒ The higher frequencies of the begging cheeps of ground-nesting warblers are an adaptation to the threat that ground-nesting birds face from predators.
Ⓓ The danger of begging depends more on the frequency of the begging cheep than on how loud it is.

PARAGRAPH 3

The hypothesis that begging calls have evolved properties that reduce their potential for attracting predators yields a prediction: baby birds of species that experience high rates of nest predation should produce softer begging signals of higher frequency than nestlings of other species less often victimized by nest predators. This prediction was supported by data collected in one survey of 24 species from an Arizona forest, more evidence that predator pressure favors the evolution of begging calls that are hard to detect and pinpoint.

34. The word "prediction" in the passage is closest in meaning to

Ⓐ surprise
Ⓑ discovery
Ⓒ explanation
Ⓓ expectation

35. The word "pinpoint" in the passage is closest in meaning to

Ⓐ observe
Ⓑ locate exactly
Ⓒ copy accurately
Ⓓ recognize

PARAGRAPH 4

Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

36. The word "derive" in the passage is closest in meaning to

Ⓐ require
Ⓑ gain
Ⓒ use
Ⓓ produce

PARAGRAPHS 5 & 6

Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

If parent birds use begging intensity to direct food to healthy offspring capable of vigorous begging, then parents should make food delivery decisions on the basis of their offspring's calls. Indeed, if you take baby tree swallows out of a nest for an hour, feeding half the set and starving the other half, when the birds are replaced in the nest, the starved youngsters beg more loudly than the fed birds, and the parent birds feed the active beggars more than those who beg less vigorously.

37. In paragraphs 4 and 5, what evidence supports the claim that the intensity of nestling begging calls is a good indicator of which offspring in a nest would most benefit from a feeding?

Ⓐ When placed in a nest with hungry robins, well-fed robins did not beg for food.
Ⓑ Among robin nestlings, the intensity of begging decreased the more the nestlings were fed.
Ⓒ Hungry tree swallow nestlings begged louder than well-fed nestlings in the same nest.
Ⓓ Hungry tree swallow nestlings continued to beg loudly until they were fed whereas well-fed nestlings soon stopped begging.

38. It can be inferred from paragraphs 4 and 5 that parent songbirds normally do not feed

Ⓐ nestlings that are too weak to beg for food as vigorously as their nestmates
Ⓑ more than one hungry nestling during a single visit to the nest
Ⓒ offspring that were fed by the parents on the previous visit to the nest
Ⓓ nestlings that have been removed and then later put back into their nest

PARAGRAPH 6

As these experiments show, begging apparently provides a signal of need that parents use to make judgments about which offspring can benefit most from a feeding. But the question arises, why don't nestlings beg loudly when they aren't all that hungry? By doing so, they could possibly secure more food, which should result in more rapid growth or larger size, either of which is advantageous. The answer lies apparently not in the increased energy costs of exaggerated begging—such energy costs are small relative to the potential gain in calories—but rather in the damage that any successful cheater would do to its siblings, which share genes with one another. An individual's success in propagating his or her genes can be affected by more than just his or her own personal reproductive success. Because close relatives have many of the same genes, animals that harm their close relatives may in effect be destroying some of their own genes. Therefore, a begging nestling that secures food at the expense of its siblings might actually leave behind fewer copies of its genes overall than it might otherwise.

39. In paragraph 6, the author compares the energy costs of vigorous begging with the potential gain in calories from such begging in order to

Ⓐ explain why begging for food vigorously can lead to faster growth and increased size
Ⓑ explain how begging vigorously can increase an individual's chances of propagating its own genes
Ⓒ point out a weakness in a possible explanation for why nestlings do not always beg vigorously
Ⓓ argue that the benefits of vigorous begging outweigh any possible disadvantages

40. According to paragraph 6, which of the following explains the fact that a well-fed nestling does not beg loudly for more food?

Ⓐ There is no benefit for a nestling to get more food than it needs to survive.
Ⓑ By begging loudly for food it does not need, a nestling would unnecessarily expose itself to danger from predators.
Ⓒ If a nestling begs loudly when it is not truly hungry, then when it is truly hungry its own begging may be drowned out by that of its well-fed siblings.
Ⓓ More of a nestling's genes will be passed to the next generation if its hungry siblings get enough food to survive.

PARAGRAPH 1

Many signals that animals make seem to impose on the signalers costs that are overly damaging. **(A)** A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. **(B)** These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. **(C)** In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that "noisy" nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials. **(D)**

41. **Directions:** Look at the part of the passage that is displayed above. The letters **(A)**, **(B)**, **(C)**, and **(D)** indicate where the following sentence could be added.

The cheeping provides important information to the parent, but it could also attract the attention of others.

Where would the sentence best fit?

Ⓐ Choice A
Ⓑ Choice B
Ⓒ Choice C
Ⓓ Choice D

42. **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.

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

Experiments have shed much light on the begging behaviors of baby songbirds.

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-
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Answer Choices

A Songbird species that are especially vulnerable to predators have evolved ways of reducing the dangers associated with begging calls.

B Songbird parents focus their feeding effort on the nestlings that beg loudest for food.

C It is genetically disadvantageous for nestlings to behave as if they are really hungry when they are not really hungry.

D The begging calls of songbird nestlings provide a good example of overly damaging cost to signalers of signaling.

E The success with which songbird nestlings communicate their hunger to their parents is dependent on the frequencies of the nestlings' begging calls.

F Songbird nestlings have evolved several different ways to communicate the intensity of their hunger to their parents.

ANSWERS

Reading Section

1. B
2. D
3. C
4. B
5. C
6. B
7. A
8. A
9. C
10. D
11. D
12. B
13. D
14. B, C, E
15. C
16. C
17. D
18. A
19. B
20. C
21. B
22. A
23. A
24. C
25. A
26. B
27. A
28. A, C, F
29. C
30. A
31. B
32. B
33. C
34. D
35. B
36. B
37. C
38. A
39. C
40. D
41. B
42. A, B, C