

Follow instructions in sections A-C and answer the following items.
Ensure that your choices correspond to the correct number on the
marksheet.

(A) Complete the following sentences with the best word or phrase.

(1) the time the concert ended, the rain had already stopped.

(1) ア In イ By ウ With エ Until

Years of research by the team (2) in a major breakthrough.

(2) ア aspired イ inflicted ウ attributed エ culminated

A: "Today's presentation didn't go well at all. Do you know why?"

B: "I think the team leader needs to (3) for the lack of preparation and
coordination."

(3) ア call イ make ウ stand エ answer

He admitted (4) a mistake in his calculations.

(4) ア make イ making ウ to make エ him making

(B) Choose the answer that is closest in meaning to the underlined word or
phrase.

(5) Even with his excellent health and a lifestyle that many would envy,
he is not happy and often feels a deep sense of dissatisfaction with his
life.

ア For all
イ Owing to
ウ Except for
エ Contrary to

(6) Vaccines are crucial to check the outbreak of infectious diseases.

ア track
イ assess
ウ suppress
エ investigate

(C) Complete the following paragraphs with the best word.

((7)～(9)は著作権の許諾状況により掲載しておりません)

When I first learned about a material called silicon carbide, it blew my (10). It is one of the hardest synthetic materials, nearly as hard as diamond, and difficult to corrode. Its inner structure can take the form of more than 200 different crystal types. And here's the really cool part: at atmospheric pressure, it never (11)—when it reaches 2,700 degrees Celsius, it skips a liquid form and turns straight from a solid into a gaseous vapor. When I encountered silicon carbide, its unreal (12) got me hooked (13) materials science.

- | | | | |
|------------------|--------------|--------------|---------------|
| (10) ア top | イ mind | ウ cover | エ chance |
| (11) ア melts | イ cracks | ウ dissolves | エ condenses |
| (12) ア functions | イ characters | ウ properties | エ appearances |
| (13) ア at | イ in | ウ on | エ with |

((14)～(15)は著作権の許諾状況により掲載しておりません)

Read the passage below and follow instructions in sections D and E. Ensure that your choices correspond to the correct number on the marksheet.

P1: Books about science tend to fall into two categories: those that explain it to laypeople in the hope of ⁽¹⁶⁾cultivating a wide readership, and those that try to persuade fellow scientists to support a new theory, usually with equations. Books that achieve both—changing science and reaching the public—are rare. Charles Darwin’s *On the Origin of Species* was one. *The Selfish Gene* by Richard Dawkins is another. From the moment of its publication over 40 years ago, it has been a sparkling best-seller and a scientific game-changer.

P2: The gene-centred view of evolution that Dawkins ⁽¹⁷⁾championed and crystallized is now central both to evolutionary theorizing and to lay commentaries on natural history such as wildlife documentaries. A bird or a bee risks its life and health to bring its offspring into the world not to help itself, and certainly not to help its species—the prevailing, lazy thinking of the 1960s, even among luminaries of evolution such as Julian Huxley and Konrad Lorenz—but (unconsciously) so that its genes go on. Genes that cause birds and bees to breed survive at the expense of other genes. No other explanation makes sense, although some insist that there are other ways to tell the story.

P3: What stood out was Dawkins’s radical insistence that the digital information in a gene is effectively immortal and must be the primary unit of selection. No other unit shows such persistence—not chromosomes, not individuals, not groups, and not species. These are ephemeral vehicles for genes, just as rowing boats are vehicles for the talents of rowers (his analogy). As an example of how the book changed science as well as explained it, a ⁽¹⁸⁾throwaway remark by Dawkins led to an entirely new theory in genomics. In the third chapter, he raised the then-new conundrum of excess DNA. It was dawning on molecular biologists that humans possessed 30–50 times more DNA than they needed for protein-coding genes; some species, such as lungfish, had even more. About the usefulness of this “apparently surplus DNA,” Dawkins wrote that “from the point of view of the selfish genes

themselves, there is no paradox. The true ‘purpose’ of DNA is to survive, no more and no less. The simplest way to explain the surplus DNA is to suppose that it is a parasite.”

(D) Find the underlined words in the passage and choose the best substitute.

(16) Which choice is closest in meaning to cultivating in paragraph 1

(P1)?

ア meeting

イ yielding

ウ building

エ increasing

オ harvesting

(17) Which choice is closest in meaning to championed in paragraph 2

(P2)?

ア won

イ achieved

ウ victoried

エ supported

オ relinquished

(18) Which choice is closest in meaning to throwaway in paragraph 3

(P3)?

ア sincere

イ informal

ウ disposable

エ incoherent

オ incomplete

(E) Choose the best answer to the following:

(19) According to the passage, what is special about Dawkins’s book, *The Selfish Gene*?

ア It was published 40 years ago.

イ It crystallized Darwin’s theory of evolution.

ウ It is appealing to both scientists and non-scientists alike.

エ It serves as a follow-up to Darwin’s book, *On the Origin of Species*.

オ It has been the basis for countless natural history and wildlife documentaries.

- (20) Which of the following statements is best supported by the information provided in the passage?
- ア Huxley and Lorenz are viewed by Dawkins as intelligent, but lazy.
 - イ Dawkins holds the belief that gene self-preservation dictates behavior for the survival of an organism.
 - ウ Despite their differing views, Dawkins, Huxley, and Lorenz agree that birds and bees possess identical survival genes.
 - エ Darwin, Dawkins, Huxley, and Lorenz believe that living organisms produce offspring to ensure the survival of the species.
 - オ Dawkins believes that living organisms risk life and health to bring their offspring into the world, not to help themselves or their species.
- (21) What does Dawkins imply when he likens excess DNA to a “parasite”?
- ア Excess DNA serves no function in survival.
 - イ Excess DNA transforms genes into selfish parasites.
 - ウ Excess DNA represents a conundrum for the species.
 - エ Excess DNA is more abundant in parasites like lungfish.
 - オ Excess DNA is paradoxical because it causes parasitic organisms.
- (22) According to the passage, what is Dawkins’s contention regarding the concept of selfish genes?
- ア Every gene is important for survival.
 - イ Genes are the primary key to immortality.
 - ウ The gene is the fundamental unit of selection.
 - エ Chromosomes determine which genes ensure natural selection.
 - オ Chromosomes hold the digital information required for the persistence of genes.

(23) Dawkins uses the analogy “rowing boats are vehicles for the talents of rowers.” Which of the following statements best describes his intended meaning?

- ア Much like the boat that transports the talented rower, individuals transport genes needed for immortality.
- イ As a talented rower needs a boat, genes must rely on chromosomes as boats to ensure the survival of the species.
- ウ Genes are the rowboats, and chromosomes, individuals, and groups are the talented rowers that are essential for survival.
- エ Genes, much like the talented rower, are the essential unit, and individuals, groups, and the species serve only as vessels.
- オ Like a talented rower needs a row boat, a gene needs chromosomes, individuals, and groups to ensure the preservation of the species.

Read the passage below and follow instructions in sections F and G. Ensure that your choices correspond to the correct number on the marksheet.

P1: Corvids, the family of birds that includes crows, rooks, ravens and magpies, are remarkably intelligent creatures. They have been known to use tools, plan for the future, and recognize faces so well that they hold grudges against humans who have slighted them. Now, as the *Agence France-Presse* reports, a theme park in France is putting corvid bird brains to practical—if somewhat humble—use by deploying a team of rooks to collect discarded trash. Staff at Puy du Fou park, which is known for its history-themed shows and attractions, have taught six rooks that were ⁽²⁴⁾raised in captivity to pick up pieces of garbage and place them inside a box that releases a treat each time rubbish is deposited. Boubou, Bamboo, Bill, Black, Bricole and Baco, as the rooks are called, are expected to start their new gig this week.

P2: The birds were trained by Christophe Gaborit, project manager at the park’s “Academy of Falconry.” According to Camila Domonoske of NPR, the garbage collection idea ⁽²⁵⁾stemmed from the park’s falconry show, which sees trained crows pick up roses and bring them to a “princess” in a castle. Gaborit got to wondering if he would be able to teach rooks to perform a similar, albeit less glamorous task: picking up cigarette butts and other pieces of trash and

depositing them into a box. As a Puy du Fou blog post explains, Gaborit started to train two rooks using a cabinet with a double door—much like a magician’s prop. When the birds would place a piece of trash in a slot, Gaborit would pull a board to reveal a yummy snack below. Eventually, the birds came to associate ⁽²⁶⁾tidying up with food and happily picked up cigarette butts and small pieces of paper. Sometimes, though, the rooks got a bit crafty. According to Mindy Weisberger of *Live Science*, they would try to trick Gaborit by dropping pieces of wood, instead of garbage, into the box.

P3: The trash-happy rooks will “work” four days a week under the close watch of a falconer, who will make sure that people don’t toss garbage onto the ground just to watch the birds pick it up. The purpose of the project isn’t really to get the park cleaner—it’s already quite tidy, Puy du Fou President Nicolas de Villiers tells the AFP. Instead, Boubou, Bamboo, and Co. are there to show visitors that “nature itself can teach us to take care of the environment,” Villiers adds.

(F) Find the underlined words in the passage and choose the best substitute.

(24) Which choice is closest in meaning to raised in paragraph 1 (P1)?

- | | | |
|------------|------------|-------------|
| ア built | イ lifted | ウ perfected |
| エ elevated | オ nurtured | |

(25) Which choice is closest in meaning to stemmed in paragraph 2 (P2)?

- | | | |
|------------|------------|------------|
| ア rooted | イ steeped | ウ modified |
| エ appeared | オ emanated | |

(26) Which choice is closest in meaning to tidying up in paragraph 2 (P2)?

- | | | |
|-----------|------------|-----------|
| ア eating | イ storing | ウ playing |
| エ sharing | オ cleaning | |

(G) Choose the best answer to the following:

(27) Which of the following is NOT mentioned as a characteristic of corvids?

- ア They are cunning.
- イ They have long lifespans.
- ウ They are clearly intelligent.
- エ They have the ability to learn.
- オ They can differentiate human faces.

(28) According to the passage, how was the cabinet with a double door used to train corvids?

- ア The trainer would hide a snack and a piece of trash in each of the double doors.
- イ The trainer would feed the birds a snack whenever they found trash hidden inside.
- ウ The trainer would perform magic tricks with two birds and feed them snacks stored in the slot.
- エ The trainer would expose a snack from a hidden compartment whenever the birds deposited trash inside.
- オ The trainer would instruct one bird to feed a snack stored inside the hidden partition to the second bird after it brought back trash.

(29) According to this passage, why do the corvids work together with a falconer?

- ア to ensure that the rooks do not fly away
- イ to prevent the rooks from attacking park visitors
- ウ to prevent park visitors from intentionally littering
- エ to ensure that the rooks do not fight with each other
- オ to make sure that the rooks work only four days a week

(30) Which devious activity did the park rooks display?

- ア They would refuse to pick up trash.
- イ They would play with cigarette butts.
- ウ They would steal food from park visitors.
- エ They would bring items that were not trash.
- オ They would steal trash from different trash bins.

(31) According to this passage, why were corvids trained to pick up trash?

- ア to provide education to visitors of the park
- イ to tackle the problem of littering in the park
- ウ to enhance the attendance of visitors to the park
- エ to save money by not having to pay additional salaries
- オ to determine if corvids learned tricks faster than falcons

Read the article below and follow instructions in section H. Ensure that your choices correspond to the correct number on the marksheet.

((32)～(39)は著作権の許諾状況により掲載しておりません)

(以下 余 白)