平　成　25　年　度

問題冊子

教　　科	科　　目	ページ数
外国語	英語リーディング・ライティング	8

試験開始の合図があるまで，問題冊子を開かないこと。

解答の書き方

1. 解答は，すべて別紙解答用紙の所定欄に，はっきりと記入すること。
2. 解答を訂正する場合は，きれいに消してから記入すること。
3. 解答用紙には，解答と志望学部及び受験番号のほかは，いっさい記入しないこと。

注　意　事　項

1. 試験開始の合図の後，解答用紙に志望学部及び受験番号を必ず書くこと。
2. 用事・質問等があるときは，だまって手をあげて，監督者の指示を受けること。
3. 試験終了時には，解答用紙の1ページ目を表にし，机上の右側に置くこと。
4. 試験終了後，問題冊子は持ち帰ること。

〔Ⅰ〕 次の英文を読んで，後の問いに**日本語で**答えなさい。

How quickly can you count from one to ten? Do you use ten different words to do it? Can you do it in English, or do you have to use your first language? Do you count on your fingers? Many people assume that numbers and math are the same all over the world. But scientists have discovered that this is not true.

People in different parts of the world use different methods to count on their fingers. In the United States, people begin counting with their first, or index, finger, which they extend or stick out. They then extend the rest of their fingers and finally the thumb to count to five. Then they repeat this with the other hand to get to ten. In some cultures, people begin with their fingers already extended. They count by folding their fingers inward. In China, people count by using a variety of finger positions. In this way, a Chinese person can easily count to ten on only one hand, while an American uses two hands to count to ten.

In addition to methods of finger counting, scientists have found that cultures and languages also differ when it comes to numbers. Some languages have only a few words for numbers, and others don't have any words for numbers. A group of scientists worked with aboriginal children in Australia. The scientists studied people who have a very small vocabulary for numbers. Unlike many groups, these people don't have gestures or hand movements to indicate numbers. In most cultures, people count on fingers to indicate a number, but not in these aboriginal tribes. The Australian scientists found out that even though the children do not have words or gestures for counting, they are still able to understand different ideas about numbers.

In tests, aboriginal children listened to taps from a stick and then put out markers to match the number of taps they heard. For example, if they heard four taps, the scientists wanted to see if they put out four markers. They had to connect numbers with sounds and with actions, without seeing written

numbers. In the tests, the children put out the correct number of markers. They were able to count even though they didn't have words for numbers. Experts believe this shows that humans have a universal ability to count.

In a similar study, researchers from the Massachusetts Institute of Technology traveled to a remote location in northwestern Brazil to test members of the Pirahã tribe. The researchers conducted experiments and discovered that the tribespeople don't have words for numbers. They do have words that mean "some" and "more," but they don't have words for precise numbers such as "one" or "three." Instead, they express quantities in relative terms — that is, in comparison to other numbers or objects. So a tribesperson is not able to say "five trees" or "ten trees" but can say "some trees," "more trees," or "many trees."

Professor Edward Gibson said that most people assume that everyone knows how to count, "but here is a group that does not count. They could learn, but it's not useful in their culture, so they've never picked it up."

In their everyday lives, the Pirahã appear to have no need for numbers. The scientists never heard them use words like "all" or "every." There is one word, "hói," which does come close to the number one. But it can also mean "small" or describe a small amount, like two small fish as opposed to one big fish. The Pirahã don't even appear to do simple math or even count on their fingers to determine how many pieces of meat they need to cook. Because they don't need numbers, their language doesn't include them.

Although all humans have the ability to understand quantities, not all languages have numbers and not all people use counting. Number words in a particular language are a result of people needing numbers in their daily lives. Scientists are gaining a new understanding of which abilities (such as counting) are universal and which are learned. Because of the work of these scientists, now we know that people have different ideas about numbers and math, too.

〔出典：McVeigh, J., & Bixby, J. (2011). *Q: Skills for Success. Reading and Writing 2.* New York: Oxford University Press, pp. 166–167.〕

Notes:

aboriginal: of or belonging to the race of people who were the original inhabitants of an area

tribe: a group of people that have the same language and customs and that are ruled by a chief or chiefs

Questions:

1) What do many people think about how numbers are used around the world?

2) How many thumbs do Americans use when counting to ten on their hands?

3) Why can people in China count to ten on only one hand?

4) What have scientists found about how languages differ when it comes to numbers?

5) What did the aboriginal children do during the experiment? (Paragraph 4)

6) What do experts believe the experiment with aboriginal children shows?

7) Why can't someone from the Pirahã tribe say, for example, "seven trees"?

8) What does Professor Gibson conclude about the Pirahã tribe?

9) Give two possible meanings of the word "hói."

10) What would be a good title for this reading passage?

〔Ⅱ〕 次の英文を読んで，後の問いに**日本語で**答えなさい。

In 1977, Irene Pepperberg, a recent graduate of Harvard University, did something very unusual. She was interested in learning if animals could think, and the best way to do this, she reasoned, was to talk to them. To test her theory, she bought an African gray parrot she named Alex and taught him to reproduce the sounds of the English language. "I thought if he learned to communicate, I could ask him questions about how he sees the world," she explains.

When Pepperberg began her research with Alex, very few scientists acknowledged that animals were capable of thought. The belief was that animals reacted to things in their environment but lacked the ability to think or feel. How, then, could a scientist demonstrate that animals might, in fact, possess intelligence? "That's why I started my studies with Alex," Pepperberg says.

Certain skills are considered key signs of higher mental abilities: a good memory, an understanding of symbols, self-awareness, understanding of others' motives, and creativity. Little by little, researchers have documented these abilities in other species. Sheep and elephants can recognize faces. Chimpanzees — who are genetically similar to humans — use a variety of primitive tools for eating, drinking, and hunting; they also laugh when pleased and spit to show disgust with something. Octopuses in captivity are known to amuse themselves by shooting water at laboratory staff. They may even exhibit basic emotions by changing color.

Alex the parrot was a surprisingly good talker. He learned how to use his voice to imitate almost 100 English words, including those for foods, colors, shapes, and numbers. Although imitation was once considered a simple skill, in recent years cognitive scientists have revealed that it's extremely difficult. It requires the imitator to form a mental image of the other person's body and

actions and then adjust his own body parts into the same position. It is a behavior that shows an awareness of one's self.

Because Alex had mastered many English words, Pepperberg could ask him questions about (ア)a bird's basic understanding of the world. Alex could count, as well as describe, shapes, colors, and sizes for Pepperberg; he even had a basic understanding of the abstract concept of zero.

Many of Alex's cognitive skills, such as his ability to understand the concepts of same and different, are generally attributed only to higher mammals, particularly primates (such as humans and apes). But parrots, like great apes (and humans), live a long time in complex societies. And like primates, these birds must monitor the changing relationships within the group. This may explain Alex's ability to learn a human language. "When we take [parrots] into captivity, what they start to do is treat us as their flock," explains Pepperberg. Parrots learn to pronounce and use our words so they can become a part of our group.

Researchers in Germany and Austria have also been studying language ability in dogs. One named Betsy has shown that she is able to learn and remember words as quickly as a two-year-old child. She has an extraordinary vocabulary of over 340 words (and counting), knows at least 15 people by name, and can link photographs with the real objects they represent. Like Alex, she's pretty smart.

This is (イ)the larger lesson of animal cognition research: it humbles us. We are not alone in our ability to invent, communicate, demonstrate emotions, or think about ourselves. Still, humans remain the creative species. No other animal has built cities, written music, or made a computer. In fact, a number of critics dismiss animals' ability to use tools or understand human language. They believe animals are just simulating human behavior.

Yet many researchers say that creativity and language in animals, like other forms of intelligence, have evolved. "People were surprised to discover

〔Ⅲ〕 次の英文の指示に従って，自分の考えを 12 行程度の**英文で**まとめなさい。

Write about an experience you had in which you tried something new. Explain what you did and what you learned from this experience.

that chimpanzees make tools," says Alex Kacelnik, an animal researcher at Oxford University. "But people also thought, 'Well, they share our ancestry — of course they're smart.' Now we're finding these kinds of behaviors in some species of birds. But we don't have a recently shared ancestry with birds. It means," Kacelnik continues, "that evolution can invent similar forms of advanced intelligence more than once(ウ) — that it's not something reserved only for primates or mammals."

〔出典：Douglas, N. (2010). *Reading Explorer 3*. Boston: Heinle, Cengage Learning, pp. 142–143.〕

Notes:

spit: to force a small amount of water out of one's mouth

amuse: to do something for enjoyment

cognitive: relating to the mental processes involved in knowing, learning, and understanding things

abstract: existing only as an idea or quality in contrast to something that one can see or touch

attribute: to say that someone or something has a particular quality

primate: a member of the group of mammals that includes humans and monkeys

monitor: to observe carefully

flock: a group of birds

evolve: to change gradually and develop into different forms

〔**設問**〕

1) 自分の説を検証するためにアイリーン・ペパーバーグ(Irene Pepperberg)は何をしましたか。

2) ペパーバーグが自分の研究を始めた時，多くの科学者は動物の思考能力についてどのように考えていましたか。

3) 動物が高度な知的能力を持っていることを示すとみなされている技能を3つ挙げなさい。

4) 飼育されているタコが高度な知的能力を持っていることを示す行動を2つ挙げなさい。

5) 模倣することは非常に難しい技能だと科学者は考えています。その理由を具体的に説明しなさい。

6) 下線部(ア)について，その具体例を挙げなさい。

7) オウムが人間の言葉を覚える理由として，筆者はどのような可能性を挙げていますか。

8) ベツィー(Betsy)という犬の語彙(ごい)はどれくらいですか。

9) 下線部(イ)の the larger lesson の内容を本文の内容に即して説明しなさい。

10) 下線部(ウ)を和訳しなさい。