

(平 25 前)

# 外 国 語

英 語

(問題部分 1 ～10 ページ)

**注意** 解答はすべて答案用紙の指定のところに記入しなさい。

外国語 (英 語) 125 点

I 次の文章を読んで、問1～3に答えなさい。(配点35点)

A team of researchers from the University of St. Andrews in Scotland spent 266 days observing and filming a group of wild chimpanzees in Budongo Conservation Field Station,\* Uganda. The team then studied 120 hours of footage\* of the chimps interacting, looking for signs that the animals were intentionally signaling to each other. According to their research, the animals use at least 66 distinct gestures to communicate with each other.

The findings are published in the journal *Animal Cognition*. Previous studies on captive chimps have suggested the animals have about 30 different gestures. “So this result shows quite a large repertoire,” lead researcher Dr. Catherine Hobaiter told BBC News. “We think people previously were only seeing fractions of this, because when you study the animals in captivity you don’t see all their behavior. You wouldn’t see them hunting for monkeys, taking females away on ‘courtships,\*’ or encountering neighboring groups of chimpanzees.”

“I’ve spent two years studying these animals, so they know me,” said Dr. Hobaiter. “I follow them through the forest and they just ( A ) me completely and get on with their daily lives.” She and her colleague, Professor Richard Byrne, carefully examined the footage and categorized each distinct gesture. They looked for clear signs that the animals were making deliberate movements that were intended to generate a response from another animal. “We looked to see if the gesturer was looking at the audience,” explained Professor Byrne. “And we looked for persistence; if their action did not produce a result, they would ( B ) it.”

The team is still studying the footage for the next stage of their project to figure out what each gesture means. For some of these gestures, the meaning seems obvious to us, perhaps because—as great apes\*—we make similar movements. A chimp will often beckon to another group member, or a youngster will hand shake at another juvenile to entice\* it to play.

In one piece of footage captured by Dr. Hobaiter, a mother reaches with her left arm towards her daughter. “The mother wants to move away and is gesturing to request that her daughter ‘climbs on’ her,” Dr. Hobaiter explained. “She could just grab her daughter, but she doesn’t. She reaches and holds the gesture while waiting for a response.” When the youngster starts to approach, the mother repeats the gesture and ( C ) a facial expression — a “bare-teeth grin,” at which point the daughter climbs on and they move away.

“But actions often have effects that their maker did not intend,” said Professor Byrne. “So to understand the intended meaning, it’s no good just discovering a gesture’s typical effect. We have to look for what effect makes the<sup>(1)</sup>signaler stop gesturing and appear satisfied with the outcome, to be sure that that was what they intended.”

The results have provided clues about the origins of chimps’ gestures,<sup>(2)</sup>suggesting that they are a common system of communication across the species, rather than each movement being a learned custom or ritual within one social group. In fact, by ( D ) these observations with those of gestures made by gorillas and orangutans, the researchers showed there was significant overlap in the signals used throughout the family of great apes. Dr. Hobaiter said, “This supports our belief that the gestures that apes use (and maybe some human gestures too) are ( E ) from ancient shared ancestry of all the great ape species alive today.”

注 Budongo Conservation Field Station ブドンゴ保全調査基地；  
footage 撮影フィルム； courtship(s) 求愛行動；  
great ape(s) 大型類人猿； entice 誘う

問 1 第 1 段落および第 2 段落の内容に基づき、St. Andrews 大学のチームが今回の研究成果を挙げることができた理由を、「St. Andrews 大学のチームは」に続けて、50 字以内の日本語で書きなさい。ただし、句読点も 1 字に数えます。

問 2 空所 ( A ) ～ ( E ) に入る最も適切な動詞を下から選び、必要があれば適切な形にして記入しなさい。ただし、それぞれの語は一度しか使えません。

add      compare      derive      ignore      repeat

問 3 下線部(1)、(2)を日本語に訳しなさい。

Ⅱ 次の文章を読んで、問 1 ～ 4 に答えなさい。(配点 35 点)

While people can operate successfully within the physical world, they often do so without a genuine understanding of the physical principles that support it. Scientific learning is often a challenge to everyday understanding of cause and effect.

There are many difficulties involved in learning scientific concepts and making them into ways of thinking about the world. One of the difficulties in learning science is in making distinctions that would not ordinarily be made in everyday life, such as the distinction between temperature and heat. Although<sup>(1)</sup> the temperature of two ice cubes is the same, even if one ice cube is twice the size of the other, the effect that they have in cooling a drink is different. Many students think that the larger ice cube is actually colder than the smaller one, perhaps as a consequence of the fact that they have different effects in cooling a drink. ( A ), the temperature of boiling water is the same regardless of the amount of water but different amounts of water will transfer different amounts of heat to the surroundings, and will cool at different rates. Perhaps as a result of this experience, pupils tend to think that if there is more boiling water, the temperature of the water will be higher. 

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A second difficulty in learning scientific concepts is that they often require reasoning about non-perceptible aspects of the physical world, and this may be another source of difficulty for students. It has been argued by Andrea diSessa that children's first ideas about the physical world are based on what they perceive in their everyday experiences with physical objects. The difficulties caused by this reliance on ( B ) perceptual experience are most easily exemplified by the studies on pupils' ideas about the particulate\* nature of matter. People deal in everyday life with a world that is continuous, in which<sup>(2)</sup> objects are solid and undivided. Yet, to understand many of the changes they observe in the world, it is necessary to develop a way of thinking that describes

solid objects as bundles of ‘particles,’ ‘molecules,’ or ‘atoms’—that is, discontinuous elements that are somehow kept together.

Jean Piaget and Bärbel Inhelder were pioneers in the investigation of children’s understanding of the particulate nature of matter. They set out a pattern of investigation by pointing out that it is when children have to understand change that they come to ‘invent’ an atomic theory about the world. Piaget and Inhelder asked children to explain what happened to sugar when it was put into water and then stirred. ( C ) the younger children seemed to believe that the sugar somehow disappeared, those at the ages of 11–13 were aware of the fact that if the taste of sugar remained in the water, then the sugar itself must still be present in some form. This permanence of a property of sugar—its taste—contradicted the apparent disappearance of sugar from the viewpoint of the older children. In order to eliminate the contradiction, the older children ‘invented’ an atomic theory about physical quantities.<sup>(3)</sup>

注 particulate 微粒子の

問 1 下線部(1), (2)を日本語に訳しなさい。

問 2 空所( A ), ( B ), ( C )に入れるのに最も適切な語(句)を, それぞれ(ア)~(エ)の中から一つ選び, 記号で答えなさい。

- (A) (ア) For example
- (イ) Instead
- (ウ) On the contrary
- (エ) Similarly

- (B) (ア) another  
(イ) difficult  
(ウ) immediate  
(エ) intentional

- (C) (ア) As if  
(イ) Because  
(ウ) Just as  
(エ) Whereas

問 3 空欄 

X
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 に入れるのに最も適切な文を下から一つ選び、記号で答えなさい。

- (a) In this way, they come to distinguish between heat and temperature, and understand scientific principles behind it.
- (b) Therefore, it is difficult for young children to observe phenomena in everyday life as they are.
- (c) However, it goes without saying that experience in everyday life is more important than understanding scientific conceptions.
- (d) Thus they do not distinguish between heat and temperature, even though this distinction is important in physics.

問 4 下線部(3) the contradiction が表す内容を、第4段落の内容に即して、35字以内の日本語で説明しなさい。ただし、句読点も1字に数えます。

Ⅲ 次の文章を読んで、問1～3に答えなさい。(配点30点)

Today she told me that it was her ambition to walk the Appalachian Trail,\* from Maine to Georgia. I asked how far it was. She said, "Some two thousand miles."

"No, no," I replied, "you must mean two hundred, not two thousand."

"I mean two thousand," she said, "more or less, two thousand miles long. I've done some reading too, about people who've completed the journey. It's amazing."

"Well, you've read the wrong stuff," I said. "You should've read about the ones that didn't make it."<sup>(1)</sup> Those stories are more important. Why they gave up is probably why you shouldn't be going."

"I don't care about that, I'm going," she said with a determined look. "( A )."

"Listen," I said, reaching for words to crush her dream. "Figure it out, figure out the time. How long will it take to walk two thousand miles?" I leapt up to get a pen and paper. Her eyes followed me, like a cat that was ready to pounce.

"Here now," I said, pen working, setting numbers deep into the paper. "Let's say you walk, on average, some twenty miles a day."<sup>(2)</sup> That's twenty into two thousand, right? It goes one hundred times. And so, one hundred equals exactly one hundred years. It'll take you one hundred years!"

"( B )," she said. "One hundred days, not years."

"Oh, yeah, okay, days," I mumbled. I was never good at math. I felt as if someone had suddenly twisted an elastic band around my forehead. I crumpled the paper, turned to her and said, "So if it's one hundred days, what is that? How many months?"

"A little over three." She calculated so fast that I agreed without thinking. "( C )," I said, "because there's bound to be some delay: weather,



shopping for supplies, maybe first-aid treatments. You never know, you have to make allowances.”

“All right, I make allowances, four months.”

What have I done? It sounds as if all of this nonsense is still in full swing.  
<sup>(3)</sup>  
*Say more about the time.* “Okay,” I said, “so where do we get the time to go? What about my job? What about my responsibilities, your responsibilities too? What about —?”

“What about I send you a postcard when I finish the trip?” she said, leaving the room.

I sat there mouthing my pen. I heard her going down the basement steps. Pouting\* now, I thought. She knew she was wrong about this one.

“Seen my backpack?” she called from below. God, she’s really going to do it. “( D ),” I said. “On the shelf beside the freezer.”

I was angry with myself. She had had her way, won without even trying. “( E ),” I blurted out. “You can’t expect to walk the Appalachian Trail all alone.” I stared at my feet. “Sorry,” I said to them both, “I’m really sorry about all of this.”

注 the Appalachian Trail アパラチア山道(アメリカ東部にある世界最長のハイキング道);

pout(ing) すねて口をとがらせる

問 1 空所( A )～( E )に入る最も適切な表現を下から選び、記号で答えなさい。ただし、それぞれの表現は一度しか使えません。

- (ア) Next to mine
- (イ) Don’t be stupid
- (ウ) Take mine down too
- (エ) My mind is made up
- (オ) Fine, but call it four months

問 2 下線部(1), (2)を日本語に訳しなさい。

問 3 下線部(3)が表す内容として最も適切なものを下から一つ選び、記号で答えなさい。

- (a) her ambition to walk the Appalachian Trail, from Maine to Georgia
- (b) my miscalculation in terms of how long the journey was likely to take
- (c) her reluctance to make allowances for some delay
- (d) what I have done

IV 次の文章を読んで、問1と問2に答えなさい。(配点25点)

子どもは人生の意味について問うことはない。しかし青春期に達すると、愛とは何か、死とは何か、自己の未来はどうあるべきか、神の有無等々さまざまな問いが浮かんでくる。大切なことは、これらすべての問いの<sup>ことごと</sup>悉くが難問ですぐ答えが出てこないということだ。そして解き難い問いを発するところにこそ精神とよばれるものの核心が形成されるということである。不可解なものが我々を育てる。青春とは、はじめて秘密(秘めごと)を持つ日だと言ってもよい。必ずしも恋愛のみに限らない。さきに述べたような、人生に関するさまざまな問いが、すでに秘めごとなのである。なぜなら、それまで親や師や知人から導かれるままに歩んできたのが、この問いを境として、今度は自ら道を求めて行かなくてはならない。自己の未来、自己の生き方については、いかなる名著にも書いていない。親も師も無力である。自分で一步一步を生きてみなければならない。

(亀井勝一郎『青春論』[一部改変])

問1 下線部を英語に訳しなさい。

問2 上の文章を読んで、あなたが青春期に大切だと考えることがらについて、理由や例を挙げて40語程度の英語で書きなさい。