

平成 30 年度 入学試験問題

# 外 国 語

英 語

2 月 25 日(日) 10:00—11:45

(全学部共通)

## 注 意 事 項

1. 試験開始の合図があるまで、この問題冊子と答案紙を開いてはいけない。
2. 問題冊子のページ数は、13 ページである。
3. 問題冊子とは別に答案紙が 6 枚ある。
4. 落丁、乱丁、印刷不鮮明の箇所などがあつたら、ただちに申し出よ。
5. 解答にかかる前に答案紙左端の折り目をていねいに切り離し、答案紙のそれぞれの所定の 2 箇所に受験番号を記入せよ。
6. 解答は答案紙の所定の欄に記入せよ。所定の欄以外に書いた答案は無効である。
7. 答案紙の右寄りに引かれた縦線より右の部分には、受験番号のほかは記入してはいけない。
8. 問題冊子の余白は草稿用として使ってもよい。
9. 試験終了後、退室の許可があるまでは、退室してはいけない。
10. 答案紙は持ち帰ってはいけない。問題冊子は持ち帰ってもよい。

I 次の英文を読み、下記の設問に答えなさい。

(各段落の前の[P1]～[P5]は段落番号を示す)

[P1] How innate is the cooperative spirit? Does it develop naturally  
<sup>(1)</sup>alongside a child's sense of self and interactions with others, or is it cultivated  
through socialisation and education? Complex though this question is, part of the puzzle might be solved by determining how old children are when they develop an appreciation of the abstract ideas that underpin cooperation. Research indicates that children as young as two collaborate in joint activities and have a firm grasp of a simple concept of fairness. Less clear is the age at which children  
<sup>(2)</sup>understand and value the notions of joint commitment and obligation involved in  
cooperative endeavours.

[P2] Now researchers at the Max Planck Institute for Evolutionary Anthropology and Duke University suggest that children as young as three have a sense of joint commitment and express resentment when others opt out of shared, agreed-upon tasks. “The results of our study, and some new upcoming work, show that children at three years of age understand and value obligations to a partner and a joint goal if they have previously formed an explicit joint commitment,” says Ulrike Kachel, the lead author of the study, published in the journal *Child Development*. ①[A. Afterwards / B. As such / C. In contrast ], the results point to young children having a stronger understanding of joint commitments than had previously been understood.

[P3] To test what young children understand about the interactions involved in completing a joint task, the researchers paired 72 three-year-olds with partners (for a total of 144 children) to complete a task in which both pulled on a rope to move a toy block toward a set of marbles. Before the exercise, both children agreed to the task, with the promise of successful completion leading to a reward. The partner children, however, had been instructed beforehand to try to prevent successful completion: some stopped in return for an individual reward,

some worked inefficiently, and others quit because the toy broke. While the subjects of the experiments were frustrated by the task being abandoned for any reason, they reacted more strongly and with more anger when they thought their partner had acted selfishly. Study co-author, Margarita Svetlova, says this illustrates children's growing understanding of norms of cooperative coexistence and the obligations they involve. "Humans are highly social creatures, which can mean cooperative in some contexts and competitive in others," she explains. "Joint commitments are interesting because they are fundamentally cooperative—we agree to do something together cooperatively—but they are only necessary because of the risk that either or both of us might stop cooperating."

[P4] However, Mike Nagel, Associate Professor of Human Development and Learning at the University of the Sunshine Coast in Queensland, says many other studies suggest the age at which children fully understand selfishness and concepts of fairness and unfairness is older than three, so "much more evidence" will be needed before the results of this new study can be accepted as fact. Acknowledging his assessment is based on preliminary results released ②[A. arguably from / B. contrary to / C. prior to] publication of the full study, he notes the results may not necessarily demonstrate the children's comprehension of norms of cooperative coexistence and related obligations. "It could be that those children who showed greater awareness did not recognise any form of selfishness or notion of cooperative coexistence as described," says Nagel, who has written several books related to neurological development in children. Instead, they may have simply felt upset because others were receiving a reward and they were not.

[P5] ③[A. For example / B. Nonetheless / C. Unfortunately], there is still much to recommend regarding more cooperative education and play, according to Trina Hinkley, research fellow with the Faculty of Health at Deakin University in Melbourne. "Cooperation teaches children how to negotiate, solve

problems, and develop comradeship, acceptance and responsibility for others, and also helps with the development of their communication skills,” she says. “It’s an essential skill for playing throughout childhood and for getting along with others. Cooperating in a team helps kids learn social rules and fair-play skills.”

【出典：Wallace, T. (2017, May 16). Children understand co-operative concepts earlier than thought. *COSMOS*. 出題の都合上、原文の一部に変更を加えている。】

#### 設 問

- 1 下線部(1)の答えは、どうすれば見つかるかもしれないと著者は述べているか。50 字以内の日本語で答えなさい。
- 2 下線部(2)について、下に名前をあげた研究者はどのような意見をもっているか。当てはまるものを、A～C よりひとつ選び記号で答えなさい。同一記号を何度使用してもよい。
  - A 3 歳までにはできるようになると考えられる
  - B 現時点では 3 歳であると断定できない
  - C この英文エッセイでは言及されていない

Trina Hinkley

Ulrike Kachel

Mike Nagel

Margarita Svetlova

- 3 ①～③に入るもっとも適切な語句をひとつ選び、記号で答えなさい。

- 4 下の主題について書かれてある段落はどれか，[P1]～[P5]の段落番号で答えなさい。

The importance of promoting cooperation in children.

- 5 第3段落[P3]に書かれてある実験方法の概要を70字以内の日本語でまとめなさい。数字を記入する場合はひとつの数字につき1マスを使用すること。

(例：365日 → 

3	6	5	日
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- 6 第3段落[P3]に書かれてある実験の結果を70字以内の日本語でまとめなさい。数字を記入する場合はひとつの数字につき1マスを使用すること。

(例：365日 → 

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II 次の英文を読み、下記の設問に答えなさい。

(\*の付いた単語は注を参照すること)

We all know what an egg looks like, right? Well, we might know less than we think — bird eggs can be spheres, teardrops, squarish shapes, and anything in between. A group of scientists may have made progress in cracking the mystery  
(1) behind how these different shapes emerged.

A new study in *Science* shows that differences in flying ability might actually start as early as the egg: birds that take to the skies have more elliptical, asymmetrical eggs, while land-bound birds (like ostriches) have more spherical eggs. “My colleagues and I were really struck by the diversity in egg shape,” says Mary Stoddard, first author of the paper and an assistant professor at Princeton. “Bird eggs all serve a similar function: to nourish and protect the growing chick. But despite their shared function, they evolved different shapes.” Not all eggs are like the ones at the grocery store; the vast landscape of bird eggs actually spans a much wider range of shapes. The brown hawk owl’s egg, for example, is practically a perfect sphere, while the sandpiper has a teardrop-shaped egg.

イ First, ellipticity: start with a sphere, and as you stretch it out, it becomes more elliptical. Second, asymmetry: sometimes, one end of an egg is pointier than the other. Each of these measurements is a continuum — values can fall anywhere in the middle — and by combining them, you can describe nearly any egg. Asymmetrical and elliptical? Like a teardrop. Symmetrical and spherical? That’s a sphere. The researchers plotted 50,000 different egg shapes from 1,400 species along these two axes and were surprised to find incredible variety — more than in other egg-laying vertebrates\*. It was found that most eggs fell somewhere in the middle, like a chicken egg: a little more elliptical than a sphere, and somewhat asymmetrical. But how do these shapes arise?

Previous research has shown that shape is determined by the egg’s flexible



membrane, a protective layer below the hard shell. This study goes one step further to propose how the membrane's shape is determined in the first place. It suggests that properties of the membrane in different parts of the egg—thickness and elasticity, for example—determine how the shape of the membrane changes in response to the changes in pressure. The researchers created a computational model to show how changing membrane properties in certain parts of the egg can affect the overall shape.

□ These included body weight, nest size, and hand-wing index (an approximation of flying ability based on the size of different parts of the wing). Some of their findings were expected; for example, longer eggs tend to hatch into larger birds. But their most surprising finding was that flying ability was the best predictor of egg shape. Stoddard and her colleagues discovered that better<sup>(2)</sup> flyers laid more elliptical and asymmetrical eggs. In order to be aerodynamic, flying birds must have streamlined bodies, which limits the possible width of the egg. The birds still need to produce eggs with enough yolk and egg white inside, though. More elliptical and asymmetrical eggs would maximize the volume contained within an egg of a given radius, making them advantageous for birds of flight.

ハ This diversity is credited for the broad perspective of the study. “Having various perspectives allowed us to understand the diversity of egg shapes in a different way, looking at both mechanics and function,” Stoddard says. “We were able to ask both the ‘how’ and ‘why’ questions.” Stoddard does not think this study negates previous work on the question of egg shape. The conventional wisdom has been that 卵の形状は、巣の場所と巣の中にある卵の数<sup>(3)</sup> によって決まる, and that might still be true on a smaller scale, she says. “What we find at the global level may not always be identical to what we see in smaller groups.”

二 They also want to look back in time to see how dinosaur egg shapes differed from those of birds, Stoddard says, because preliminary results

suggest that asymmetrical eggs evolved around the time that birds began to diverge from other creatures.

【出典：Nathan, A. (2017, June 23). Essay. *Australian Popular Science*. 出題の都合上、原文の一部に変更を加えている。】

注

vertebrate 脊椎動物

設 問

1 下線部(1)を日本語に訳しなさい。

2 空欄  から  に入るもっとも適切な文を下から選び、記号で答えなさい。

A. In their future work, the researchers hope to take a closer look at egg membranes and the body plans of different birds to see if they support the model in this study.

B. The team carrying out the study spanned many different fields — biology, computer science, physics, math.

C. The researchers' first step was to characterize this diversity with two measurements.

D. To determine the biological significance of these unique shapes, Stoddard and her colleagues compared egg shape with other traits.

3 本文に照らして、正しい文をひとつ選び、記号で答えなさい。

A. Researchers used shell hardness and length to plot egg shapes.

B. The egg shape of the sandpiper is asymmetrical and elliptical.

C. The shape of a bird's egg depends on the width of its shell.

D. Non-flying birds have identical eggs to flying birds.



- 4 Mary Stoddard の新しい発見によれば、卵の形状を決める要素として何がもっとも重要だと考えられるか。文中の英単語二語で答えなさい。
- 5 下線部(2)となる理由を 60～80 字の日本語で説明しなさい。
- 6 下線部(3)を英語に訳しなさい。

III Below is an article from the *Nagoya Enquirer*, followed by a related conversation between Ken and Naomi. Read both parts and answer the questions.

***Nagoya Enquirer***

Many of us wants to spend our working lives do something we enjoy. To  
[例] (X) (A)  
turn your favorite pastime into a career, you should take several important steps.  
Firstly, you need to work out why you love your hobby. Just one tip: make sure  
(B)  
to be honest with yourself. Secondly, you should ask yourself how you can  
provide a service based on your interests that people are willing to pay for. If  
you are confident that you can make money doing what you enjoy, then you  
should progress to the third step and created a business model. It is very  
(C)  
important that the scheme you devise is the right one for you. This will take lots  
(D)  
of time and careful thought. It would also be a good idea to consider consulting  
(E)  
with potential customers and partners. Once you have done this, you should go  
for it! But remember not to be discouraging by the hard work and constant  
(F)  
change — be excited by it. Bases your profession on your leisure pursuits can  
(G)  
make you happier — and be very profitable, too!

- KEN :** Naomi, did you see this article in the *Nagoya Enquirer*?
- NAOMI :** Hmm... it seems like a great idea. But, in reality, there are lots of problems. No one is going to pay you just to do whatever you like. For instance, my favorite thing is to watch movies.
- KEN :** I don't think you can get rich just by watching movies. But you might be able to find a professional role in the film industry — for example, as a camera operator.
- NAOMI :** I don't think I would enjoy that. I prefer doing things on my own to working with people.
- KEN :** How about becoming a film reviewer?
- NAOMI :** It's one thing going to the cinema every so often. It's quite another being forced to view lots of movies, and having to formulate an<sup>(1)</sup> opinion about every one of them. All in all, I like to keep work and pleasure separate. My job at the bank can be boring, but it gives me lots of time to pursue other interests, such as skydiving and helping out at the Nagoya Marathon. But do you have any passions that could be turned into a career?<sup>(2)</sup>
- KEN :** I've always enjoyed skiing. I love flying down the mountain and feeling the wind in my hair. But I don't think I have what it takes to be a competition skier.
- NAOMI :** How about being a ski instructor? You always enjoy meeting new people and telling stories about your adventures navigating different slopes.
- KEN :** Actually, my real passion is ski gear. I don't just love the skis, but all the different accessories: the boots, gloves, jackets, helmets, pants and poles. My dream is to open a ski shop.
- NAOMI :** Wow! There are lots of great places to ski not so far from Nagoya so you'd have many customers. But how will you make your ambition a reality?

**KEN :** That's why I asked someone <sup>(3)</sup>pragmatic like you about the article. It told me to think carefully about what I enjoy doing and try to work out realistically how I could make it the basis for a business. Before making any <sup>(4)</sup>drastic life changes, I have to do some careful research about how I can offer a better, cheaper service than potential competition.

**NAOMI :** That sounds like a good plan to start off with. Good luck!

Note : The *Nagoya Enquirer* does not exist.

## QUESTIONS

1. The article from the *Nagoya Enquirer* contains **FOUR** errors in verb form (動詞の形) among the seven options (A) to (G). Find each of the errors AND correct the form as in the example [例] below and on the answer sheet. Write only one word for each correction.

<u>Option</u>	<u>Correction</u>
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[例] X → want

2. Pick the best replacement for each of the following words:

① The best replacement for formulate is:

(1)

- A. develop
- B. illustrate
- C. stimulate
- D. perform

② The best replacement for turned is:

(2)

- A. amended
- B. converted
- C. passed
- D. rotated

③ The best replacement for pragmatic is:  
(3)

- A. influential
- B. educated
- C. experienced
- D. practical

④ The best replacement for drastic is:  
(4)

- A. exaggerated
- B. harsh
- C. radical
- D. rough

3. Based on the conversation, which TWO of the following are true?

- A. Ken believes his ski shop will earn lots of money due to his love of skiing.
- B. Ken is asking Naomi about the ski shop because he assumes that she can be his potential partner in his business.
- C. Ken is interested in the article because it is related to his own wish to have a job related to skiing.
- D. Naomi would rather not work with people.
- E. Naomi works for the Nagoya Marathon as a part of her job at the bank.
- F. Ken is passionate about participating in a ski competition.

4. Do you think that it is a good idea for a person to have a job related to their hobby? Circle “**agree**” or “**disagree**” on the answer sheet. Then explain your answer by completing the paragraph with between 30 and 40 English words. (The first sentence on the answer sheet is not included in the word count.)



**IV** The table below shows the percentages for Internet users who used social networking services (SNSs) by age group between 2005 and 2015.

Summarize one major similarity and one major difference between age groups as well as the changes within a single age group. (You can choose any one group.) Write a complete paragraph of between 50 and 70 English words. (The first sentence on the answer sheet is not included in the word count.)

The percentages for Internet users who used social networking services by age group between 2005 and 2015				
Year	18-29 Year-olds	30-49 Year-olds	50-64 Year-olds	65+ Year-olds
2005	9 %	7 %	6 %	6 %
2010	86 %	61 %	47 %	26 %
2015	92 %	81 %	67 %	56 %

Adapted from: The Pew Research Center. (2017). Social networking use.