

# 英 語

〔注 意 事 項〕

1. 監督者の指示があるまでは、この問題冊子を開かないこと。
2. 解答用紙は、コンピュータで処理するので、折り曲げたり汚したりしないこと。
3. 解答用紙に、氏名・受験番号を記入し、受験番号をマークする。マークがない場合や誤って記入した場合の答案は無効となる。

受験番号のマーク例(13015の場合)

受 験 番 号				
1	3	0	1	5
万位	千位	百位	十位	一位
	①	●	①	①
●	①	①	●	①
②	②	②	②	②
③	●	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	●
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨

4. 解答用紙にマークするときは、HBまたはBの黒鉛筆を用いること。誤ってマークした場合には、消しゴムで丁寧に消し、消し<sup>ていねい</sup>くずを完全に取り除いたうえで、新たにマークし直すこと。
5. 下記の例に従い、正しくマークすること。

(例えば3と答えたいとき)

正しいマーク例

①	②	●	④	⑤	⑥	⑦
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誤ったマーク例

①	②	○	④	⑤	⑥	⑦	マークが薄い
①	②	●	④	⑤	⑥	⑦	マークが不完全
①	②	○	④	⑤	⑥	⑦	マークが○印
①	②	✕	④	⑤	⑥	⑦	マークがV印

6. 解答は、すべて解答用紙の所定の位置に記入すること。
7. 最後の問題Ⅴに自由英作文があるので、時間配分に注意すること。

**I** 次のインタビュー記事を読み、以下の設問に答えなさい。

Fareed Zakaria は、アメリカのテレビ局である CNN に勤めるインタビュアーである。彼は、Bill Gates が関わる財団である Bill & Melinda Gates Foundation のニュースレターを読み、その内容について Bill Gates にインタビューをした。以下はそのインタビューである。

**F. Zakaria:** So this letter is all about the things that surprised you, and one of the things that surprised me was that you say, “Africa is the youngest continent.” What is the surprise about that, and why is that important?

**B. Gates:** Well, when people think about population growth, they tend to think that there's more babies being born. In fact, the number of babies has peaked, and outside of Africa, it's going down quite a bit, but Africa is just making up for that. And so it's going to have ... over half the young people are going to be on one continent. Now that continent will also have 90% of the people living in extreme poverty. It has some of the weakest governance<sup>註1</sup> in the world, so the question of “Do we invest in Africa and make those youth an asset, or are they an incredible source of instability<sup>註2</sup>”: That's way more stark than when I started to look into “How different is Africa?” (途中略)

**Zakaria:** “A New York City is going to be built every month for the next 40 years.” What does that mean? Is that good or bad?

**Gates:** (laughs quietly) Well, I use that as an opportunity to explain that when people think of climate change, they think mostly about electricity, and that's only a quarter of the emissions<sup>註3</sup> coming from coal and natural gas plants that are generating your electricity. When we make materials, like steel and cement, those two alone are about an eighth of the emissions. And so the fact that we're going to build these cities, that the world is urbanizing, means that unless you have a totally ( A ) emission way of making steel and cement, then you haven't come near to solving the overall climate problem. And so moving away, the term “clean energy” has handicapped the field, because that makes people think, “Oh maybe it's just electricity and passenger cars,” and they don't see agriculture, industry, buses, and trains as part of the problem.

**Zakaria:** One crucial part is agriculture, and one thing you said you were particularly surprised by was how great a problem bovine flatulence is.

**Gates:** Exactly.

**Zakaria:** Do you want to explain what that is, and why it's a problem?

Gates: Yeah, so the animals that can eat grass have very unusual stomachs that have these bacteria that are methanogenic in there, so they leak natural gas both out the front and the back, and so people have said, "Let's change the hay or throw some things in there." Nobody knows how to get rid of that . . .

Zakaria: **No one knows how to get cows to stop farting.**

Gates: Exactly. Or burping. And so there is artificial meat, but that's at a very early stage, but that's another big source of greenhouse gas emission, so I'm just trying to make sure that the people who acknowledge the problem — which I think is fantastic — that they understand the breadth<sup>(b)</sup> of innovation required before you can get anywhere near to what we have to do, which is ( A ). If it was a 50% reduction, then you could ignore . . . OK, leave the cows alone. But, because we're trying to avoid the temperature continuing to go up, you do need to go to ( A ). Otherwise, you're continuing to have a temperature increase. (途中略)

Zakaria: **So when you look at the problem of climate change, and as you said, to get to ( A ) emissions involves revolutions in dozens and dozens of crucial parts of the world. You've got . . . massive urbanization, you've got the reality of Africa with all these young men: Doesn't it get you down? Doesn't it make you think that these problems are insurmountable,<sup>(c)</sup> they're so large?**

Gates: No, absolutely not! I mean you have to remember the base case. We were all [subsistence] farmers, and on average, people lived to about age 30. And then as energy came along, the industrial revolution, and the digital revolution, and the understanding of biology, life has improved dramatically. And so childhood death went from about 10% before our foundation got going. Now with our partners we have it down to 5%, globally, of children who died before the age of five.

Zakaria: It used to be 10%. It's now 5%. So you've cut in half.

Gates: Exactly. So that's 6 million children a year who survive, that were not surviving as recently as 1990. So, you know, I see incredible progress. Yes, you can worry about nuclear war, pandemics, the AI takeover,<sup>(d)</sup> and polarization. There are many things that we as humans should be worried about, think about. OK, how do we minimize that risk, or adapt to that problem, including climate change — and I've probably put more investments into these various innovations, including better seeds to help with the adaptation piece, because we will have warming even if things go perfectly. There's a lot more warming coming between now and the end of the century even in the perfect case.

So, it's a world of immense progress. You'd rather be born today if you're a woman, a gay person, a person who gets a disease — you'd rather be born today than 20 years ago. And I feel very strongly you'd rather be born 20 years from now than today.

**Zakaria:** Bill Gates, it's a pleasure to have you on.

注 1 : governance 統治

注 2 : instability 不安定さ

注 3 : emission 排出

出典 : CNN Video. (2019). *On GPS: Bill Gates & lessons from foundation*. February 18, 2019. Retrieved from <https://edition.cnn.com/videos/tv/2019/02/18/exp-gps-0217-bill-gates-interview-foundation-letter-full-part-2.cnn> なお分かりやすさのために、挿入語を省略した箇所や、文法の誤りを訂正した箇所がある。

問 1 英文の内容に合うように、(1)~(9)の質問に対する答えとして最も適したものを、それぞれ選択肢 1 ~ 4 の中から選びなさい。

(1) What does the word an asset refer to?

- <sup>(a)</sup>  
1. a resource      2. an inspiration      3. goods      4. needs

(2) What does the word breadth refer to?

- <sup>(b)</sup>  
1. cost      2. bonus      3. leisurely type      4. large variety

(3) What does the word insurmountable refer to?

- <sup>(c)</sup>  
1. hard to upset      2. hard to compete  
3. impossible to solve      4. impossible to climb

(4) What does the word takeover refer to?

- <sup>(d)</sup>  
1. removal      2. seizing control  
3. transportation      4. programming ideas

(5) What does the word immense refer to?

- <sup>(e)</sup>  
1. slow      2. huge      3. local      4. male

(6) According to the interview, why did Bill Gates say "Africa is the youngest continent"?

1. Because it is the newest land mass on earth.
2. Because many African governments are weak.
3. Because it has a large proportion of youth.
4. Because Africa is still developing economically.

(7) According to this interview, why did Bill Gates dislike the term "clean energy"?

1. He wants to increase the number of nuclear power plants.
2. He thinks that all forms of energy are essentially dirty.
3. He thinks that the term limits our understanding of the problem.
4. He worries that it will get mixed up with the issue of public cleaning.

(8) What was Fareed Zakaria referring to when he said, "It used to be 10%. It's now 5%"?

1. death rate of young people
2. speed of global warming
3. the cost of energy
4. price of goods

(9) What feeling did Bill Gates express in the last interview message?

1. unemotional      2. optimistic      3. disappointed      4. annoyed

問 2 英文の内容に合うように、( A )の空所を補うものとして最も適したものを、選択肢 1～4の中から選びなさい。( A )は他にも3か所あるが、すべて同じ語が入る。

... unless you have a totally ( A ) emission way of making steel and cement, then you haven't come near to solving the overall climate problem.

1. zero                      2. half                      3. 90 percent                      4. 100 percent

II 次の英文を読み、下記の設問に答えなさい。①～⑬は段落番号を表す。

- ① You walk into the grocery store with the best intentions, filling your cart with kale, broccolini, tofu and Greek yogurt.
- ② Then you get home, feel pressed for time and order a pizza.
- ③ Before you know it, the perishables<sup>註1</sup> are going bad at the back of the fridge. They'll wind up in the trash, like so many other well-intentioned meals that never came to be.
- ④ Your efforts to eat better have flopped<sup>註2</sup> again. But that's not your only fail. You've also squandered the natural resources used to produce that food and contributed to environmental <sup>(a)</sup> degradation for nothing.
- ⑤ If you're ready to accept the full guilt of the situation, you're in luck: Researchers have added it all up for you.
- ⑥ According to a new report in the journal PLOS One, we Americans wasted just over 25% of our food between 2007 and 2014.
- ⑦ Although we did a decent job of finishing up our nuts and seeds (only 12% wasted) and potatoes (about 16% wasted), we were not as careful with seafood (nearly 35% wasted), whole fruit (almost 33% wasted) and soups (30% wasted).
- ⑧ Incredibly, Americans even wasted 23% of our bacon, 26% of our grain-based desserts (think cookies, cakes and brownies), and 29% of our salty snacks.
- ⑨ Each year, just short of 4.2 trillion gallons of water were used to produce all this uneaten food. That includes nearly 1.3 trillion gallons to grow uneaten fruits and 1 trillion gallons to grow uneaten vegetables.
- ⑩ In addition, farmers used 1.8 billion pounds of nitrogen fertilizer<sup>註3</sup> (which affects marine and terrestrial ecosystems), 1.5 billion pounds of phosphorus fertilizer (which can feed algal blooms that are dangerous to fish) and 2.3 billion pounds of potassium-containing potash fertilizer annually to grow these wasted crops. They also applied nearly 780 million pounds of pesticide<sup>註4</sup> to protect food that never passed our lips.
- ⑪ Not interested in taking responsibility for the entire country? The study authors also broke things down on a per-capita<sup>註5</sup> basis.
- ⑫ On an average day, an average American wasted a little less than a pound of food (422 grams, to be exact). That represented a dietary loss of more than 800 calories per person per day.
- ⑬ Fruits and vegetables accounted for 39% of that waste (measured by weight), and dairy items contributed an additional 17%. At the other end of the spectrum, egg dishes made up less than 1% of the waste, as did the combined category of table oils and salad dressings.

- ⑭ The research team, led by Zach Conrad of the U.S. Department of Agriculture's Grand Forks Human Nutrition Research Center in North Dakota, put all of this together by linking information in a variety of government databases.
- ⑮ For instance, they gleaned information about Americans' diets from the National Health and Nutrition Examination Survey, conducted by the Centers for Disease Control and Prevention. To find the ingredients in those diets, they used the Environmental Protection Agency's Food Commodity Intake Database. Surveys conducted by the USDA provided information about agricultural resources such as water and pesticides, and the department's Economic Research Service provided data to calculate food waste.
- ⑯  The results revealed substantial variance in the quality of Americans' diets. On a scale of 0 to 100, those in the bottom 20% scored an average of 32, while those in the top 20% scored an average of 82. (Nationwide, the average was 58.)
- ⑰ One trend was unmistakable: The higher the diet quality, the more food was wasted. Americans in the bottom 20% wasted an average of 295 grams of food per day, while those in the top 20% wasted an average of 535 grams of food per day.
- ⑱  The more healthful your diet, the more water and pesticides you wasted as well, the researchers reported.
- ⑲ Past studies have focused on the environmental benefits of producing (and ultimately consuming) fewer animal-based foods and shifting instead to foods that come from plants. But the new findings show that it's not that simple.
- ⑳ "Improving diet quality and reducing environmental impact are efforts that should be pursued concurrently<sup>26</sup>," Conrad and his colleagues wrote. "Consumers should increase their consumption of fruits and vegetables and simultaneously<sup>27</sup> waste less of them."
- ㉑ The study authors acknowledged that this ( A ).
- ㉒ One way to reduce food waste is to buy fewer perishable goods and choose canned or packaged foods that have a longer shelf life. But these items often contain more sodium<sup>28</sup>, saturated fat and added sugar.
- ㉓  Americans would waste less food if they knew more about "how to tell when fruits and vegetables are ripe, how to store and prepare them, and how to tell the difference between bruises/abrasions and spoilage<sup>29</sup>," the researchers wrote.
- ㉔ Bringing some clarity to the "sell by," "use by" and "best before" dates that are printed on packages could also stop consumers from tossing perfectly good items into the garbage, they added.
- ㉕  In the longer term, engineers are developing sensors that can alert people when food has actually spoiled, reducing the risk that they will wind up sick.

- ㉔ “It is ... important to ensure that efforts to reduce food waste at the consumer level do not undermine legitimate food safety concerns,” the study authors wrote. “Spoiled food is a health risk.”

- 注1 : perishable 腐りやすいもの      注2 : flop 完全に失敗する  
注3 : nitrogen fertilizer 窒素肥料      注4 : pesticide 殺虫剤  
注5 : per-capita 一人あたりの      注6 : concurrently 同時に  
注7 : simultaneously 同時に      注8 : sodium ナトリウム  
注9 : bruises/abrasions and spoilage 傷・擦り傷と腐敗

出典 : Kaplan, K. (2018) *Los Angeles Times* (World report; a special section produced in cooperation with The Yomiuri Shimbun), p. 12. June 17, 2018. なお綴りの誤りについて訂正した箇所がある。

問1 英文の内容に合うように、(1)~(4)の各文の空所を補うものとして最も適したものを、それぞれ選択肢1~4の中から選びなさい。

- (1) The word squandered in paragraph ④ is closest in meaning to \_\_\_\_\_.  
(a)  
1. wasted      2. respected      3. inherited      4. blamed
- (2) The word gleaned in paragraph ⑤ is closest in meaning to \_\_\_\_\_.  
(b)  
1. protected      2. destroyed      3. gathered      4. exchanged
- (3) The word variance in paragraph ⑥ is closest in meaning to \_\_\_\_\_.  
(c)  
1. dissimilarities      2. decreases      3. conditions      4. controversies
- (4) The word undermine in paragraph ㉔ is closest in meaning to \_\_\_\_\_.  
(d)  
1. bend      2. abuse      3. crash      4. weaken

問2 英文の内容に合うように、(1)~(5)の質問に対する答えとして最も適したものを、それぞれ選択肢1~4の中から選びなさい。

- (1) What is the most likely reason why the author described a scene of “ordering a pizza” in paragraph ②?
1. to contrast an enjoyable shopping time with a busy dinner time
  2. to show an example that many readers might have experienced
  3. to suggest what many readers are likely to decide to do after they read this article
  4. to indicate the pizza probably includes the same type of vegetables bought at the shop



(2) What do paragraphs ⑥ to ⑩ imply?

1. Americans waste more food than any other country on earth.
2. Seafood and whole fruit are not purchased as much as nuts and seeds.
3. We should consider the impact of food waste on natural resources.
4. People should reduce the amount of water used to produce food.

(3) What is the expression that most likely fits into ( A ) in paragraph ⑪?

The study authors acknowledged that this ( A ).

1. was more difficult than eating canned food
2. would easily be achieved in practice
3. was easier said than done
4. would certainly be worse

(4) According to paragraphs ⑫ to ⑮, what was NOT recommended?

1. trying to eat canned or packaged foods in a healthy way
2. emphasizing food labels that show dates
3. learning to detect which food can be eaten
4. developing technology to show when food goes bad

(5) What is the best title for this passage?

1. Wasted food is not just a matter of wasted money.
2. Wasted fruits and veggies are to be recycled.
3. Clever ways to make food waste environmentally friendly
4. Historical views toward struggling with food waste

問 3 次の文は文中の  ~  で示したいずれかの位置に入る。最も適した場所を選択肢 1 ~ 4 の中から選びなさい。

Still, the situation is not hopeless.

1.
3.

2.
4.

Ⅲ 次の英文を読み、下記の設問に答えなさい。①～⑪は段落番号を表す。

- ① Ashley Whillans' summer started with what she calls "time famine."
- ② Time famine, a term that first emerged in the scientific literature around 1999, refers to the universal feeling of having too much to do but not enough time to deal with those demands.
- ③ After earning her doctorate degree in social psychology at the University of British Columbia in Canada, Whillans was offered a coveted assistant professorship at Harvard Business School. Last month, Whillans and her husband uprooted to Cambridge, Massachusetts, in the United States — and it was overwhelming, she said. 1
- ④ "I had multiple demands on my time. I was immigrating to a new country. I was trying to move to a new city. I was trying to move to a new job," Whillans said. 2
- ⑤ She felt as if there weren't enough hours in the days leading up to her big move, she added. In that moment, Whillans thought about her own research on how to buy time. 3
- ⑥ "We find that spending money on time-saving purchases promotes daily happiness and reduces negative mood, because it protects us from the time stress that we feel in our daily lives," Whillans said. "So, I definitely have used in the last few weeks time-saving services," such as grocery delivery or house cleaning services, car services like Uber or Lyft, or paying a teen in the neighborhood to mow the lawn. 4
- ⑦ Spending discretionary<sup>#1</sup> dollars on time-saving purchases may protect you from the detrimental effects that a time famine can have on your happiness, suggests a new study of which Whillans served as lead author.
- ⑧ How so? Buying time could provide a buffer against such time famine, thereby promoting overall well-being and happiness, according to the study, which was published in the Proceedings of the National Academy of Sciences on Monday.
- ⑨ On the surface, the study may seem like it's offering a solution only for the affluent<sup>#2</sup> — not everyone has the discretionary dollars to pay for time-saving services — but the study also points out how time famine impacts us all.
- ⑩ "I think our research actually flies in the face of the preconception<sup>#3</sup> that time-saving services are just for rich people," said Elizabeth Dunn, professor of psychology at the University of British Columbia and a co-author of the study.
- ⑪ "Sometimes when people imagine time-saving services maybe what they're picturing is a house keeper, a butler<sup>#4</sup>, and a gardener," she said, "but what we're talking about is just spending \$40 makes a difference."

- ⑫ On average, the hourly cost of a house cleaner can range from \$25 to \$45, according to the American home services website Angie's List.
- ⑬ “I have groceries delivered to my house. I had someone clean my house before my father came to visit. I had someone move away my moving boxes. I honestly think, if it wasn't for doing this research, I might have had some apprehension<sup>注5</sup> with making those purchases,” Whillans said.
- ⑭ The new study included self-reported data on 6,271 adults from the United States, Canada, Denmark and the Netherlands. The data were collected through questionnaire-based studies and an experiment.
- ⑮ The adults, of various income levels, all shared information about whether they tend to spend money — and how much — on time-saving purchases, as well as how satisfied they feel with their lives.
- ⑯ The researchers found that, regardless of income level, spending money to buy time was associated with greater life satisfaction. They also found that the negative effects of feeling stressed for time were reduced among those who reported making time-saving purchases, such as paying others to clean their home or run errands, for instance.
- ⑰ “What we actually find in our data is that the role of time-saving purchases ( A ) the role of income in predicting happiness,” Whillans said.
- ⑱ “Across studies we find that people who spend money in ways that allow them to have more free time report greater life satisfaction,” she said. “The way that people are spending money, and in this case, spending money to buy themselves free time, has a similar positive association with happiness as how much money people make.”

注1 : discretionary 自由裁量の

注2 : affluent 裕福な

注3 : preconception 予想

注4 : butler 執事

注5 : apprehension 不安

出典 : Howard, J. (2017). CNN Retrieved from <https://edition.cnn.com/health> なお分かりやすさのために、文法の誤りを訂正した箇所がある。

問1 英文の内容に合うように、(1)~(4)の各文の空所を補うものとして最も適したものを、それぞれ選択肢1~4の中から選びなさい。

(1) The word uprooted in paragraph ③ is closest in meaning to \_\_\_\_\_.

1. permitted

2. preferred

3. moved

4. managed

- (2) The word a <sup>(b)</sup>buffer in paragraph ⑧ is closest in meaning to \_\_\_\_\_.
1. an idea                      2. a protection                      3. an excuse                      4. a reputation
- (3) The phrase <sup>(c)</sup>flies in the face of in paragraph ⑩ is closest in meaning to \_\_\_\_\_.
1. contradicts                      2. corresponds to                      3. goes well with                      4. accuses
- (4) The phrase <sup>(d)</sup>run errands in paragraph ⑯ is closest in meaning to \_\_\_\_\_.
1. give money                      2. give time                      3. do exercise                      4. do tasks

問 2 英文の内容に合うように、(1)~(5)の質問に対する答えとして最も適したものを、それぞれ選択肢 1 ~ 4 の中から選びなさい。

- (1) According to paragraphs ① to ⑥, why did Professor Whillans relate her research to her own experience?
1. Because transferring to a new job left her with too little time.  
 2. Because her husband got a new job and she had to work with him.  
 3. Because she studied social psychology and her school work was stressful.  
 4. Because living separately from her husband made her feel lonely.
- (2) According to paragraph ⑪, what did Professor Dunn mean by "just spending \$40 makes a difference"?
1. How much one pays for a house keeper differs from person to person.  
 2. Paying lots of money is not difficult for rich people who need help.  
 3. Spending \$40 for time saving purchases is stressful for some people.  
 4. Using \$40 for time-saving purchases can improve people's lives.
- (3) Which of the following was NOT stated as research findings of the new study?
1. Overall, people felt happier after spending their money on time-saving purchases.  
 2. After the research, many people started to realize the importance of time-saving purchases.  
 3. Having their house cleaned is one example of how people made time-saving purchases.  
 4. People in various income levels felt more satisfied after making time-saving purchases.

(4) What is the best word or phrase that fits in ( A ) in paragraph ⑩?

What we actually find in our data is that the role of time-saving purchases ( A ) the role of income in predicting happiness.

- |                    |                        |
|--------------------|------------------------|
| 1. requires        | 2. is opposed to       |
| 3. defends against | 4. is independent from |

(5) What is the best title for this article?

1. How to do research based on your personal life
2. How to fight “time famine” and increase your happiness
3. How to overcome “time famine” by getting organized
4. How to effectively share your workload with others

問 3 次の文は文中の  ~  で示したいずれかの位置に入る。最も適した場所を選択肢 1 ~ 4 の中から選びなさい。

Suddenly, she put her research findings into action.

- |    |                                |
|----|--------------------------------|
| 1. | <input type="text" value="1"/> |
| 3. | <input type="text" value="3"/> |

- |    |                                |
|----|--------------------------------|
| 2. | <input type="text" value="2"/> |
| 4. | <input type="text" value="4"/> |

IV 次の英文を読み、下記の設問に答えなさい。①～⑦は段落番号を表す。

- ① The definition of death is surprisingly slippery. Before the 1950s someone was usually considered dead if their heart had stopped pumping and they'd ceased to breathe on their own. But in 1968, a Harvard Medical School committee upended<sup>(a)</sup><sup>註1</sup> this definition, arguing that people were only dead when the brain showed no electrical activity as measured by an electroencephalogram (EEG).

1

- ② For the next 50 years this concept of "brain death" has dominated medical definitions of death. When your brain stops functioning, you die. Simple. But what if you could start it working again?

2

- ③ The group, led by neuroscientist, Nenad Sestan were able to restore functioning in tissue obtained from 32 pig brains, four hours after a loss of blood circulation and eventual brain death in the pigs which formerly housed them. The revival was accomplished by circulating an oxygen- and nutrient<sup>註2</sup>-rich solution through the brains using a complex system called BrainEx, specifically designed for the task.

3

- ④ Up to six hours after the fluids were initially pumped, blood vessels and capillaries throughout the brains remained dilated<sup>註3</sup>, delivering oxygen and nutrients that were taken up by the surrounding tissue. The brains even showed levels of oxygen intake and carbon dioxide release comparable to a functional, intact brain. At this level of revival, these brains not only demonstrated less decomposition than other pig brains that were not hooked up to the BrainEx system, they began to show signs of recovery. They even engaged in a release of immune-system<sup>註4</sup> responses upon being activated to do so, suggesting the onset of self-reparation<sup>註5</sup> processes. (途中略)

4

- ⑤ The findings enable in-depth study of brain function and structure not previously achievable. The technique can be used to gain new insights into how the brain is wired and can advance clinical methods of preventing brain damage caused by lack of blood flow that occurs during cardiac arrest or stroke, for example.

- ⑥ But did these disembodied pig brains regain consciousness?

- ⑦ Before the experimental testing began, the researchers considered this possibility, and therefore the chance that the pig brains would experience pain. To prevent such an

occurrence they monitored activity and prepared cooling protocols and anaesthesia<sup>注5</sup> to subdue<sup>注7</sup> any activity deemed<sup>注8</sup> to possibly indicate consciousness.

⑧ The clear answer, however, is no — the activations recorded in the partially revived brains were not comparable with recordings obtained from intact, aware brains. Bioethicist and co-author of the study, Stephen Latham said, “That monitoring didn’t show any kind of organised global electrical activity.” The pig brains met established criteria for brain death when they were obtained, during the study and after.

⑨ Yet it is the first study to demonstrate that cellular function can be artificially restored in brain tissue after clinical brain death. Since its release, it has drawn much attention both in philosophical and ethical<sup>注9</sup> communities by raising questions that confuse current definitions of life and death. (途中略)

⑩ A primary question regards how consciousness would be detected in a disembodied brain to begin with. If we are unable to detect any physical behaviour associated with consciousness it is impossible to attribute<sup>注10</sup> awareness to an organ without a body. Similarly, recordings obtained from brain monitoring techniques like electroencephalogram (EEG) can be compared with those obtained during conscious awareness but do not spell out consciousness in any yes/no dichotomy. Arguably, consciousness itself does not have a clear definition.

⑪ Ultimately, the study emphasizes that the line between life and death is blurred rather than clear — an issue that has come up time and again, for centuries.

注1 : upend ~をひっくり返す

注2 : nutrient 栄養素

注3 : dilate ~を膨張させる

注4 : immune-system 免疫系

注5 : reparation 修復

注6 : anaesthesia 麻酔

注7 : subdue ~を抑える

注8 : deem ~だと考える

注9 : ethical 倫理的な

注10 : attribute A to B AをBに関連づける

出典: Jaekl, P. (2019). April 29, 2019. Retrieved from <https://www.wired.co.uk/>





- (2) What is the main idea in paragraphs ③ and ④?
1. Function could be restored in dead brain samples.
  2. Whole pig brains could be made to work again.
  3. Oxygen is enough to bring brains back to life.
  4. It is now possible to make a dead pig walk again.
- (3) What is the main idea in paragraphs ⑦ and ⑧?
1. Consciousness could be guaranteed in the samples.
  2. Consciousness was shown in the samples.
  3. Consciousness caused pain in the samples.
  4. Consciousness did not exist in the samples.
- (4) What do paragraphs ⑩ and ⑪ imply?
1. If scientists had a body, they would know if there was consciousness.
  2. EEG readings distinguish states of consciousness.
  3. People have recently begun to discuss the nature of life and death.
  4. The debate about life and consciousness will continue into the future.
- (5) What is the best title for the passage?
1. Consciousness might be possible even after death.
  2. The pig brain experiment confuses our definition of death.
  3. Death may one day be a thing of the past.
  4. Science has found a way to reuse pigs.

問 3 次の文は文中の  ~  で示したいずれかの位置に入る。最も適した場所を選択肢 1 ~ 4 の中から選びなさい。

On April 17, researchers at Yale University in New Haven, Connecticut, raised precisely this question when they published details of a study showing it was possible to bring back limited cellular function in pig brains after slaughter. The results of the study were published in the scientific journal *Nature*.

- |    |   |    |   |
|----|---|----|---|
| 1. | 1 | 2. | 2 |
| 3. | 3 | 4. | 4 |

**V** 自由英作文問題

下記テーマについて、英語で自分の考えを述べなさい。書体は活字体でも筆記体でもよいが、解答は所定の範囲内に収めなさい。

The writing will be evaluated from the viewpoint of both quantity and quality. The evaluation will also consider whether what you write responds to the question.

You are expected to write one complete essay (not separate answers to questions). Your essay should also include an introduction, main text, AND conclusion. Please write as if you are writing for someone who has not read the topic question.

Online education has increased in popularity. When online learning first became available, only a few classes were provided. However, many schools are now offering a variety of online classes. In your opinion, what are the advantages and disadvantages of online education?