平成30年度　　〔試験時間　60分〕

T 6　英　語

この冊子は，英語の問題で1ページより11ページまであります。

〔注　　意〕

(1) 試験開始の指示があるまで，この冊子を開いてはいけません。

(2) 監督者から受験番号等記入の指示があったら，解答用マークシートに受験番号と氏名を記入し，さらに受験番号をマークしてください。

(3) 解答は，所定の解答用マークシートにマークしたものだけが採点されます。

(4) 解答用マークシートについて

① 解答用マークシートは，絶対に折り曲げてはいけません。

② マークには黒鉛筆(ＨＢまたはＢ)を使用してください。
指定の黒鉛筆以外でマークした場合，採点できないことがあります。

③ 誤ってマークした場合は，消しゴムで丁寧に消し，消しくずを完全に取り除いたうえ，新たにマークしてください。

④ 解答欄のマークは，横1行について1箇所に限ります。
2箇所以上マークすると採点されません。
あいまいなマークは無効となるので，はっきりマークしてください。

⑤ 解答用マークシートに記載されている解答上の注意事項を，必ず読んでから解答してください。

(5) 試験開始の指示があったら，初めに問題冊子のページ数を確認してください。
ページの落丁・乱丁，印刷不鮮明等に気づいた場合は，手を挙げて監督者に知らせてください。

(6) 問題冊子は，試験終了後，持ち帰ってください。

1 Read the following passage and answer the questions below. (54 points)

[1] There's a kind of rice growing in some test plots in the Philippines that's unlike any rice ever seen before. It's yellow. Its backers call it "golden rice." It's been genetically modified so that it contains beta-carotene*, a source of vitamin A.

[2] Millions of people in Asia and Africa don't get enough of this vital (1) nutrient, so this rice has become the symbol of an idea: that genetically engineered crops can be a tool to improve the lives of the poor. It's a statement that rouses emotions and sets (　　) (2) fierce arguments. There's a raging, global debate about such crops. But before we get to that debate, and the role that golden rice plays in it, let's travel back in time to golden rice's origins.

[3] It began with a conversation in 1984. The science of biotechnology was in its infancy at this point. There were no genetically engineered crops yet. Scientists were just figuring (　　) (3) how to find genes and move them between different organisms. Some people at the Rockefeller Foundation thought that these techniques might be useful for giving farmers in poor countries a bigger harvest. So they arranged a meeting at the International Rice Research Institute (IRRI), in the Philippines, to talk about this.

[4] Gary Toenniessen, who was in charge of the foundation's biotechnology program at the time, says that a lot of people at this meeting were very skeptical about biotechnology. They were plant breeders, masters of the traditional way to improve crops. One evening, after the formal sessions, "a group of these breeders were sitting around at the guesthouse at IRRI, having a beer or two," says Toenniessen. After listening to their skepticism for a while, Toenniessen spoke up. If this technology did actually pan out (4), he said, and you could put any gene you wanted into rice, which one would you pick? "What's your favorite gene?"

[5] They went around the room. Breeders talked about genes for (a) disease or (b) droughts*. They came to a breeder named Peter Jennings, a legendary figure in these circles. He'd created perhaps the most famous variety of rice in history, called IR8, which launched the so-called Green Revolution in rice-growing countries of Asia in the 1960s. "Yellow endosperm," said Jennings. (The endosperm of a grain of rice or wheat is the main part that's eaten.)

[6] "That kind of took everybody by surprise. It certainly took me by surprise. So I said, 'Why?'" Toenniessen recalls. Jennings explained that the color yellow signals the presence of beta-carotene — a source of vitamin A. Yellow kinds of corn or sorghum* exist naturally, and for years, Jennings said, he had been looking for similar varieties of rice. Regular white rice doesn't provide this vital nutrient, and it's a big problem. "When children are weaned*, they're often weaned on a rice gruel*. And if they don't get any beta-carotene or vitamin A during that period, they can be harmed for the rest of their lives," says Toenniessen.

[7] Toenniessen was persuaded, and the Rockefeller Foundation started a program aimed (7) ( ) creating, through technology, what Jennings had not been able to find in nature. A global network of scientists at nonprofit research institutes started working on the problem. The first real breakthrough came in 1999. Scientists in Switzerland inserted two genes into rice that switched on production of beta-carotene. A few years later, other researchers created an even better version.

[8] A single bowl of this new golden rice can supply 60 percent of a child's daily requirement of vitamin A. "It's a great product. And it's beautiful! It looks just like saffron* rice," says Toenniessen, who's now a managing director at the Rockefeller Foundation.

[9] Others, though, don't find it beautiful at all. For instance, consider what happened just a few months ago. Some U.S.-funded researchers published the

results of a nutritional study showing that people's bodies easily absorb (8) the beta-carotene in golden rice. However, they had hidden the fact that golden rice is a genetically modified crop from those taking part in the study. For some people, this makes all the difference in the world.

[10] This is where golden rice gets caught (　　) (9) in the bigger argument over genetically engineered crops — specifically, the argument over who benefits from them.

[11] Neth Daño, who works in the Philippines for the ETC Group, an advocate on behalf of small farmers, says the main purpose of genetically modifying crops has not been to help people; it's been driven by profit. She says, "A handful of corporations in developing countries has reaped (10) billions in profits selling genetically modified seeds and proprietary* herbicides*". Yet (a) (b) (c) (d) (e) (11) this technology would benefit the poor. "The poor have always been at the center of each and every assertion about the importance of genetically modified organisms to mankind."

[12] So, this is the real significance of golden rice, she says. It gives biotech companies a chance to say, "See, biotechnology is good for the poor!" "Some proponents (12) are already announcing that the debate is over, that the golden rice product is the clincher*." Don't misunderstand me, Daño says: Golden rice is not purely public relations. It is, indeed, supposed to help malnourished people — although she doesn't think it's a very good way to help. She thinks it will be more expensive and less effective than traditional nutrition programs. This rice is mainly going to help the image of biotechnology, she says.

Adapted from *National Public Radio*

(Notes)

beta-carotene : a substance found in some green and some yellow fruit and vegetables

droughts : periods of unusually low rainfall

sorghum : a plant that is an important source of nutrition in dry areas of the world

weaned : moved from milk to solid food

gruel : a thin soup

saffron : a plant used to add flavor and yellow coloration to food

proprietary : registered as the property of a corporation

herbicide : a product that kills unwanted plants

clincher : that which makes something final or firm

(1) Which of the items below is the closest in meaning to the underlined part (1) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 abundant 2 healthy 3 lively 4 necessary

(2) Which of the items below correctly fills in the blank in the underlined part (2) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 about 2 by 3 in 4 off

(3) Which of the items below correctly fills in the blank in the underlined part (3) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 for 2 in 3 out 4 up

(4) Which of the items below is the closest in meaning to the underlined part (4) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 get integrated
2 get upgraded
3 handle well
4 work well

(5) Which of the items below shows the pair of words that correctly fill in the blanks (**a**) and (**b**) in paragraph [5] in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 (a) diagnosing (b) suffering
2 (a) diagnosing (b) gaining
3 (a) resisting (b) preventing
4 (a) resisting (b) surviving

(6) What does the underlined pronoun "That" in paragraph [6] in the passage refer to? Choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 going around the room
2 perhaps the most famous rice in history, called IR8
3 Peter Jennings' reply of "Yellow endosperm"
4 the so-called Green Revolution

(7) Which of the items below correctly fills in the blank in the underlined part (7) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 at 2 of 3 to 4 with

(8) Which of the items below is the closest in meaning to the underlined part (8) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 take after 2 take in 3 take off 4 take out

(9) Which of the items below correctly fills in the blank in the underlined part (9) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 by 2 out 3 up 4 with

(10) Which of the items below is the closest in meaning to the underlined part (10) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 diverted 2 earned 3 removed 4 withdrawn

(11) Choose one item from the answer choices below to fill in each blank in the underlined part (11) in the passage and complete the phrase in the best possible way. Mark the numbers from top to bottom on your **Answer Sheet.**

1 always claimed 2 companies 3 have
4 that 5 those

(12) Which of the items below is the closest in meaning to the underlined part (12) in the passage? Consider the context, choose one from the following answer choices, and mark the number on your **Answer Sheet.**

1 members of the committee
2 members of the corporation
3 people against the idea
4 people in favor of the idea

(13) Decide which of the following sentences best summarizes the content of the whole passage. Choose one from the following answer choices, and mark the number on your **Answer Sheet**.

1 Golden rice is very likely to save millions of lives throughout the world as a result of its ability to transfer genes to people who need to get better nutrition.

2 If more research is done into switching on genes in rice that help people get better nutrition, the people who will benefit the most economically are those currently living in poverty.

3 It is difficult to decide whether research into golden rice is done with the sole purpose of helping companies become wealthier, or whether it has been done to help people with poor nutrition.

4 Research into the genetic modification of crops in developing countries is best done with rice because it is well-suited to the diet of the differing groups of people who live in those regions.

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2 Read the conversation and answer the questions below. (22 points)

The following is an adapted version of a radio broadcast about the potential of blue-skies research versus directly applied scientific research, which took place at the Hay Festival of Literature and Arts on June 1st 2017. It is a conversation between the following three people:

Adam Rutherford: Geneticist, author and broadcaster

Robert Dijkgraaf: Director of the Institute of Advanced Studies at Princeton University

Martin Rees: Author and Emeritus Professor of Cosmology and Astrophysics at University of Cambridge

Adam Rutherford: So, are we only describing the sorts of research that are immediately useful, or is there tons of research that just goes nowhere and costs a lot of money?

Robert Dijkgraaf: I think that's true. For instance, if you think about the space race — it was kind of wonderful to put a man on the Moon but it was (Ⓐ) useless — it was a great way to get smartphones and computers though.

Adam Rutherford: So, I want to ask the panel about the open-ended blue-skies research that has resulted in technologies that have changed the world and changed economies. Martin first.

Martin Rees: Well it is important to (Ⓑ) in mind that it is not a one-way direction; it is not true to say that you have an idea and then you have an application. There is a feedback from the applications to the new ideas. In particular, my subject of astronomy has advanced hugely in the last 50 years but that's not through armchair (Ⓒ) like me. It is because of much better engineering, much more powerful telescopes, spacecraft, etc.

So, it's the feedback from the more powerful instruments to the science; there is a symbiosis* between these two. And I would say, in my subject, it is the engineers who (Ⓓ) 95% of the credit — not the thinkers — and if there are any engineers here, I would like to remind them of a wonderful cartoon in the *New Yorker*, I think, which showed two beavers looking up at a big hydro-electric dam and one was saying to the other "I didn't actually build it, but it is based on my idea!" And that represents, I think, not inaccurately, the balance between the role of technology in particle physics and astronomy, and the role of engineering.

(Note)

symbiosis : a relationship of mutual benefit

(1) Which of the items below correctly fills in the blanks in the underlined parts (Ⓐ), (Ⓑ), (Ⓒ) and (Ⓓ) in the passage? Consider the context, choose one from the choices, and mark the number on your **Answer Sheet.**

Ⓐ	1	completely	2	equally
	3	made	4	pretty
Ⓑ	1	appreciate	2	bear
	3	observe	4	stay
Ⓒ	1	conservationists	2	hobbyists
	3	individualists	4	theorists
Ⓓ	1	deserve	2	impose
	3	justify	4	lack

(2) For each of the following statements, mark your **Answer Sheet** with **T**, if it is True, or **F**, if it is False.

1 Blue-skies research has had little effect on our lives.

2 The beavers in the cartoon represent the thinkers.

3 Which of the items below correctly fills in the blanks ((1)), ((2)), ((3)) and ((4))? Choose one from the following answer choices, and mark the number on your **Answer Sheet.** (12 points)

(1) Companies must not only try to ((1)) raw materials more efficiently but also reduce their CO_2 output.

1 stop to use 2 stop using 3 use 4 using

(2) It will be difficult for us to say that our society has perfect gender equality if there are still ((2)) women in leadership positions in the future.

1 enough 2 few 3 less 4 little

(3) Katy and Sarah are in contact ((3)).

1 all together 2 each other
3 together 4 with each other

(4) People tend to ((4)) new information and experience new things in a way that will support what they already believe.

1 have understood 2 have known
3 know 4 understand

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4 Choose one item from the answer choices below to fill in each blank in the sentence and complete the phrase in the best possible way. Mark the numbers from top to bottom on your **Answer Sheet**. All answer choices start with lower-case letters. (12 points)

(1) Students should always (1) (2) (3) (4).

1 be encouraged　　2 go beyond

3 to　　4 the limits of their studies

(2) The (1) (2) (3) (4) (5) (6).

1 conclusions　　2 important　　3 in

4 experiment　　5 resulted　　6 several

(3) Many people (1) (2) (3) (4) (5) (6) and organize their lives.

1 on　　2 rely　　3 stay

4 technology to　　5 to the world　　6 connected

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