

平成30年度 入学者選抜試験問題

一般入学試験

英語 (70分)

I 注意事項

- 1 試験開始の合図があるまで、この問題冊子の中を見てはいけません。
- 2 この問題冊子は23ページあります。ただし、出題ページは下記のとおりです。
4～23ページ
- 3 試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁および解答用紙の汚れ等に気づいた場合は、手を挙げて監督員に知らせなさい。
- 4 解答用紙には解答欄以外に次の記入欄があるので、その説明と解答用紙の「記入上の注意」を読み、それぞれ正しく記入し、マークしなさい。
 - ① 受験番号欄
受験番号を記入し、さらにその下のマーク欄にマークしなさい。正しくマークされていない場合は、採点できないことがあります。
 - ② 氏名欄
氏名・フリガナを記入しなさい。
- 5 試験開始後30分間および試験終了前5分間は退出できません。
- 6 この表紙の受験番号欄に受験番号を記入しなさい。この問題冊子は試験終了後回収します。

II 解答上の注意

- 1 解答はすべて解答用紙の所定の欄へのマークによって行います。たとえば、

3

と表示のある問いに対して②と解答する場合は、次の〈例〉のように解答番号3の解答欄の②をマークします。

〈例〉

解答 番号	解 答 欄									
	1	2	3	4	5	6	7	8	9	0
3	①	●	③	④	⑤	⑥	⑦	⑧	⑨	⑩

受 験 番 号			

(問題は次ページから始まる)

1 次の各問に答えなさい。

A 次の英文を読み、問に答えなさい。

Flamingos expend less energy standing on one leg than in a two-legged stance, scientists have confirmed. It may be their signature pose, but how and why the birds perch on one limb has been a longstanding puzzle. Now, a team from the US has shown that flamingos employ no active muscular effort when they're unipedal, meaning they are also . A passive mechanism is engaged in the one-legged position, allowing flamingos to stand proud while having a doze. Previously, researchers had wondered whether the one-legged position might help reduce muscle fatigue, as the birds alternated from standing on one leg to the other.

Other teams have proposed that this behavior helps regulate body temperature. Now, Prof. Young-Hui Chang, from the Georgia Institute of Technology (Georgia Tech) in Atlanta, and Lena H. Ting, of Atlanta's Emory University, have uncovered the mechanical secrets behind this impressive trick. The researchers conducted several experiments with both live and dead birds. Amazingly, they found that flamingo *cadavers could be made to stand one-legged without any external support. In a paper published in the Royal Society journal *Biology Letters*, they describe this phenomenon as a "passive gravitational stay mechanism." "If you look at the bird from the front, while they're standing on one leg, the foot is directly beneath the body which means that their leg is angled inward. That's the pose you have to strike in order to engage the stay mechanism," Prof. Chang told BBC News.

, dead birds cannot stand unsupported on two legs, suggesting a greater role for active muscle force in this posture: "If you tilt it to the vertical, like you would if you were standing on two legs, the whole thing *disengages," said the director of the Comparative Neuromechanics Laboratory at Georgia Tech. The researchers also studied live birds and showed that when they were standing one-legged and resting, they hardly moved at all — underlining . However, the birds did sway somewhat when the one-legged posture was combined with an activity, such as

grooming or calling out.

Prof. Chang said the underlying *anatomical apparatus that enables the passive posture was not yet understood — this is the next step in the team’s research. But he explained that the phenomenon did not involve the *limb joints locking. “A lock would imply that . What we found is that it’s fixed in one direction, but flexible in the other direction, so we call it a ‘stay’ rather than a ‘lock.’ It’s more akin to a doorstep,” he told me.

Dr. Matthew Anderson, an experimental psychologist who specializes in animal behavior at St. Joseph’s University in Philadelphia, described the team’s results as a “significant step forward.”

The researcher, who was not involved with the latest study, added: “They flamingos are able to rest on one leg. Importantly, these authors do not examine *when* and *where* flamingos actually utilize the behavior in question, and thus this paper does not really address the issue of *why* flamingos rest while on one leg.”

Dr. Anderson’s own research suggests that the birds adopt the unusual posture in order to conserve heat. Among other things, his team found that the number of birds resting on one leg as temperatures rise. It appears that this decrease in numbers provides evidence of the mechanism that supports/allows for the behavior to occur, yet it does not necessarily provide insight into why it happens in the first place.

Notes:

cadavers 「死体」 disengage 「解かれる」 anatomical 「解剖学上の」

limb joints 「足の関節」

問1 ~ の空所を補うのに最も適切なものを、下の①~④の中からそれぞれ1つ選びマークしなさい。

- | | | |
|--------------------------------|-----------------------------------|--------------------------------|
| <input type="text" value="1"/> | ① feeding more easily | ② expending less energy |
| | ③ lowering their body temperature | ④ activating their nerve cells |

問2 次の ・ の各問の答えとして最も適切なものを、下の①～④の中からそれぞれ1つ選びマークしなさい。

According to the passage, which of the following sentences is TRUE?

- ① From the passage, we can tell that flamingos do not always stand on one leg.
- ② When flamingos rest on one leg, they make no movements, no matter what happens.
- ③ Prof. Chang has made it clear how and why flamingos stand on one leg.
- ④ Dr. Anderson admires wholeheartedly the results of the study by Prof. Chang's team.

Which of the following ideas could be drawn from the passage?

- ① Scientific mysteries will certainly be solved by scientific progress in the future.
- ② Arriving at a conclusion hastily is always to be avoided in scientific reasoning.
- ③ An explanation of a phenomenon does not always lead to a resolution of what the phenomenon means and why it occurs.
- ④ You can solve any longstanding puzzle if you observe the phenomenon carefully and accumulate the data thoroughly.

B 次の英文を読み、問に答えなさい。

One of the first things doctors tell people who want to get healthier is to change their diet. And most will say that the less animal fat you eat, the better. Getting rid of the butter and shifting to olive, corn, and other vegetable oils, many doctors said, is better for heart health.

They had their reasons. Countless studies have shown that people who eat more vegetable oils have lower cholesterol than people who eat a lot of *saturated fats. And other studies connected lower cholesterol with lower risk of heart troubles. The other elements central to the popular Mediterranean diet, such as nuts, fresh produce, and fish, are highly nutritious, *to boot. But in a study published in the *British Medical Journal*, researchers re-analyzed data from older unpublished studies and found the link between vegetable oil and heart health [9]. They revealed that it's possible that too much vegetable oil could actually increase the risk of heart disease — rather than decrease it.

Christopher Ramsden, a medical investigator at the National Institutes of Health, and his colleagues searched into the data from the Minnesota Coronary Experiment, conducted from 1968 to 1973. They learned that only part of the trial's results were published, and other data, suggesting the contrary idea that switching animal fats for vegetable fats didn't protect the heart, [10]. "We saw that they didn't publish a lot of things they planned to," says Ramsden.

Until now. In the study, more than 2,300 men and women were randomly assigned to a diet in which all the oils were replaced with vegetable oils, or a control diet high in animal fats and margarines. Ramsden found that those who ate more vegetable oils (primarily corn oil) did indeed lower their cholesterol by nearly 14% compared with those who did not, but that after a year or more, they did not see any lower rates of heart disease or dying from heart events. [11], for every 30mg/*dL drop in cholesterol, there was a 22% increased risk of death. So people who ate animal fats tended to live longer than those who switched to vegetable oils.

"The diet-heart hypothesis predicts that [12]," says Ramsden. "Basically we

found the opposite.” (The researchers say it’s unlikely that the people who switched to vegetable oils ate more unhealthy *trans fats, which are known to be terrible for heart health.)

Of course, this does not mean doctors have been misleading us about the benefits of vegetable oils. While (A)the study didn’t explore what could account for the contrary results, there are some theories about how the vegetable-oil group could have lower cholesterol [13] the people eating animal fats. The unsaturated fats found in vegetable oils, when they’re heated, tend to *oxidize. In this form, they’re more dangerous to body tissues and can trigger *inflammation, a known risk factor for making blood-vessel plaques unstable enough to cause a heart attack.

It’s also possible that the sheer amount of oils that the people ate reversed any advantage for the heart. Ramsden says the amount in the study was about double what the average American tends to eat and, in this case, it might be a situation where those people [14] .

He also found that the effect was strongest among people over age 65. Older people tend to be more prone to *oxidative stress, and it’s possible that with age, (B)eating too much vegetable oil may backfire and undo some of the benefits they may have on the heart. Similarly, people who smoke and engage in other behaviors that are known to promote oxidation, including getting exposed to certain environmental pollutants, might also show little benefit from switching to vegetable oils.

All of these explanations, for now, are just speculation, since this is among the first studies to compare head to head what happens to people who give up animal fats and move to vegetable oils to (C)those who stick with animal fats. It doesn’t mean that [15] should now make up the bulk of your diet, but it does suggest that loading up on vegetable oils isn’t such a great idea either.

Notes:

saturated fats 「飽和脂肪」 to boot 「その上に」 dL 「デシリットル」
trans fats 「トランス脂肪」 oxidize 「酸化する」 inflammation 「炎症」
oxidative stress 「酸化ストレス (酸化反応により引き起こされる有害な作用)」

(B)

- ① excess consumption of vegetable oil may have negative effects on them
- ② the benefits of vegetable oils may decrease if they are consumed excessively
- ③ the more vegetable oil they consume, the healthier they may become
- ④ consuming a lot of vegetable oil may enhance the quality of their health

(C)

- ① those who are against toward animal fats
- ② those who continue to use animal fats
- ③ those who are careless about animal fats
- ④ those who are ready to avoid animal fats

問3 次の ・ の各問の答えとして最も適切なものを、下の①～④の中からそれぞれ1つ選びマークしなさい。

According to the passage, which of the following sentences is TRUE?

- ① Thanks to recent studies, new light is being shed on the benefits of animal fats.
- ② It is possible that doctors have deliberately made us believe that vegetable oils are good for our health.
- ③ How much vegetable oils we consume seems to have little to do with their benefits.
- ④ The positive effects of vegetable oils may be offset by other harmful factors.

Which of the following ideas could the passage suggest?

- ① With regard to health, we should follow what the experts tell us.
- ② With health issues, what is widely accepted as true may prove to be otherwise.
- ③ In general, we should always have doubts about the advice of doctors.
- ④ Medical experts sometimes take advantage of the ignorance of ordinary people.

英語の試験問題は次に続く。

2 次の各問に答えなさい。

A 次の会話文を読み、問に答えなさい。

Interviewer : Mr. Renard, thank you for talking to me today. It's not every day I get to speak to a French chef!

Renard : You're welcome.

Interviewer : I'd like to talk to you about changes in our eating habits over, say, the past five or ten years. I mean, lately it's been much easier to buy food that used to be expensive and hard to find — you know, delicacies like snails, lychee nuts, and so on ... They've become quite a hit in a lot of American cities.

Renard : What you're saying is quite true. As the world becomes smaller, we're witnessing a change in people's eating habits. People want to experiment with new tastes. If you go to any large supermarket, you'll see shelves stacked with food from all over the world.

Interviewer : So ... there's been a shift in our eating habits, in other words.

Renard : Oh yes, and in our cooking habits, too. You know, women make up almost 50 percent of the workforce these days. People like to eat at home, but it's tough to cook if you've been working outside the house all day! So buying take-out food is part of a big social change. It's a relatively recent phenomenon.

Interviewer : I guess people want the convenience. In fact, 21 .

Renard : You know, what's so interesting is that food is like a core cultural value. Food is connected with people's entire lifestyles. In the past, preparing and eating food were intimate family activities. But that's changing, even in France.

Interviewer : In a way, it's sad that we're losing the tradition of a sit-down meal.

Renard : Perhaps. But, on the other hand, all this experimentation is leading to some really interesting new dishes. Some cooks come up with all kinds of innovations.

問 1 Fill in by choosing the most appropriate statement from those below.

- ① I've recently got a lot better at cooking genuine French dishes
- ② you'll find as many as five genuine French restaurants in my neighborhood
- ③ my neighborhood is also being overrun by fast-food restaurants
- ④ more and more fast-food restaurants are closing these days

問 2 What does Mr. Renard think about the changes in people's eating habits?

- ① He is positive about the changes in food culture, though he understands that food is one of the essential elements in people's lifestyles.
- ② He has a favorable opinion of the changes in food culture, but he does not like the kind of creative cuisine that ordinary people make.
- ③ He takes a conservative attitude toward French cooking, and he is trying very hard to preserve traditional cuisine.
- ④ He thinks it is best to eat dinner at home even if the food is not what you have cooked but what you bought outside.

問 3 Which of the following statements is NOT TRUE?

- ① The interviewer is glad to talk with a French cook about recent changes in eating habits as he has few opportunities to do so.
- ② If you are in a big supermarket in America, you can easily find a wider variety of foodstuffs from abroad these days.
- ③ The interviewer is anxious to enjoy innovative dishes, though he regrets having lost a traditional eating habit.
- ④ Today, not only are people looking for new tastes but professional cooks are also offering innovative dishes.

B 次の(1)・(2)の英文について、(1)ではア～エを、(2)ではア～カを、論理的に意味が通るように並べかえたものとして最も適切な選択肢を、①～④の中からそれぞれ1つ選びマークしなさい。

(1)

24

Is it too good to be true that chocolate fights cancer?

ア. An antioxidant found in chocolate called catechin was linked with lower rates of lung cancer in a study of elderly Dutch men.

イ. However, the authors of the studies pointed out that other foods and drinks, especially tea, apples, and pears, are richer sources of catechin than chocolate.

ウ. Maybe not, according to some emerging data.

エ. A year later, a study of postmenopausal women in the United States found that those who consumed the highest level of catechin had a 45% lower risk of rectal cancer, compared with those who consumed the lowest level.

And the lower rates of cancer could have more to do with people consuming them.

- ① ウーエーイーア
- ② アーエーイーウ
- ③ ウーアーエーイー
- ④ アーイーエーウ

(2) 25

High temperatures are created when air is highly compressed in a diesel engine.

- ア. However, the high pressures created inside diesel engines make heavy engines with thick cylinder walls necessary.
- イ. So, unlike gasoline engines, diesel engines do not require spark plugs.
- ウ. Its weight makes the diesel engine unsuitable for use in aircraft, and it has found only limited acceptance in automobiles.
- エ. High weight and the need for careful maintenance of the fuel-injection system have made the diesel engine most useful for trucks, buses, ships, movable industrial-power systems, and diesel-electric railroad locomotives.
- オ. The heat causes the fuel to burn without ignition by spark plugs.
- カ. Very large diesel engines, which are used for stationary power production and to power boats and ships, can be twice as efficient as a conventional gasoline engine.

- ① カ-イ-ア-エ-オ-ウ
② オ-イ-カ-ア-エ-ウ
③ カ-オ-エ-イ-ウ-ア
④ オ-エ-イ-ウ-カ-ア

C 次の英文において、 ～ の空所を補うのに最も適切なものを、以下の①～⑧の中からそれぞれ1つ選びマークしなさい。ただし、文頭に来るものも書き出しは小文字となっている。

Hacking isn't just for computers and smartphones. According to a study published in November 2016 in the journal Science, scientists have found a way to hack a plant's genes in order to make it use sunlight more quickly. Someday, the results could increase the amount of food produced around the world.

Photosynthesis is the word used to describe how plants use sunlight, water, and carbon dioxide to make their own food. Scientists who conducted the new study say this is a very slow process. . But by hacking a plant's genes, the scientists were able to increase the amount of leaf growth on plants between 14 and 20 percent.

Specifically, scientists hacked the plant's protective system. Normally, this system is activated when a plant gets too much sunlight, said scientist Krishna Niyogi, co-author of the study. When the plant senses the light, . When the plant is in shade, the protective system is turned off. But the process is slow.

Stephen Long, the lead author of the study, compared a plant's protective system to light-adjusting glasses. When a person wears the glasses outside during the day, the lenses darken and lighten depending on how sunny it is. Plants do the same thing, he said. But in plants . This makes it hard for plants to get the right amount of sunlight needed to create food.

The new study sped up the process. By changing the plant's genes, the protective system turned on and off more quickly than normal. As a result, leaf growth on the plants scientists used in the study increased. Leaf growth in two plants increased by 20 percent, while leaf growth on a third plant increased by 14 percent. Scientists conducted the study on tobacco plants. But they think in staples such as corn and rice.

"Now that we know it works, it won't be too difficult to do it with other crops," said Long. "If you look at crops around the world," he said, " ." It will be at least 15 years before scientists can adjust crops on a large scale, Long says. But he believes

the study is the first step in that direction.

Agriculture professor Tala Awanda, of the University of Nebraska-Lincoln, said he wasn't sure 31, but he said, "this study remains a breakthrough."

Currently, the world's population is about 7.3 billion. According to the United Nations, that number is expected to reach 8.5 billion by 2030, increasing the demand for food around the world.

- ① it gets rid of extra energy and creates more leaves
- ② the genetic modifications would produce the same results
- ③ it takes a shorter time to create enough energy
- ④ the yield would be quite as high
- ⑤ it would yield many million tons of food
- ⑥ plants use less than 1 percent of the energy available to them
- ⑦ better yield would lower food prices
- ⑧ the adjustment can take anywhere from 10 minutes to an hour

3 日本文の意味に合うように () 内の語 (句) を正しく並べかえ, 3番目と7番目に来る番号をマークしなさい。ただし, 文頭に来る単語も書き出しは小文字となっている。

(1) 魚を入れておく容器が何かありますか。

3番目 7番目

(① have ② in ③ do ④ fish ⑤ to ⑥ any ⑦ you ⑧ carry ⑨ containers)?

(2) この大学では, 休暇中に海外へ行く学生が増えています。

3番目 7番目

At this university, (① the vacation ② of ③ growing ④ during ⑤ is ⑥ going ⑦ students ⑧ the number ⑨ abroad).

(3) あの時に公的基金の援助がなかったら, 私は事業に失敗していたことでしょう。

3番目 7番目

(① from ② it ③ at ④ not ⑤ the help ⑥ public funds ⑦ had ⑧ for ⑨ been) that time, I would have failed in business.

(4) 言論の自由というのはすべての人にとって, どんなにあってもありすぎることはない, というのが私の意見だ。

3番目 7番目

In my opinion, (① too ② for ③ cannot ④ freedom ⑤ be ⑥ there ⑦ much ⑧ of ⑨ speech) everyone.

(5) マナーは学校ではなく家庭で学ぶべき重要なものだ。

3番目 7番目

Manners (① to ② are ③ school ④ important ⑤ but at ⑥ something ⑦ be learned ⑧ not at ⑨ home).

(6) 貧困と飢餓のために、非常に多くの人々が祖国を追われている。

3番目 7番目

(① home countries ② of ③ are ④ their
⑤ poverty and hunger ⑥ millions ⑦ driving ⑧ people
⑨ from).

(7) 彼らは、自分たちの資産の一部が当局によって不法に押収されたと主張している。

3番目 7番目

(① confiscated illegally ② claim ③ property ④ that
⑤ of ⑥ some ⑦ they ⑧ was ⑨ theirs) by the authorities.

(8) 音楽や映画は、国を知るための役に立つ材料のようなものである。

3番目 7番目

Music and movies are the (① we ② about ③ of ④ through
⑤ resources ⑥ can learn ⑦ kind ⑧ which ⑨ useful) a
country.

(9) この大都会にこんな静かな場所があるとは思ってもみなかった。

3番目 7番目

(① I ② such ③ there ④ little ⑤ quiet ⑥ did
⑦ imagine ⑧ was ⑨ a) place in this metropolis.

(10) 夕食を終えると間もなく、それまでに経験したこともない激しい地震が発生した。

3番目 7番目

It was (① strongest ② there ③ dinner ④ shortly
⑤ earthquake ⑥ the ⑦ after ⑧ came ⑨ that) that I had
ever experienced.

4 日本文の意味に合うように [52] ~ [61] に入れるのに最も適切な語句を、下の ①~④の中からそれぞれ1つ選びマークしなさい。

(1) がん血液検査をしたが、問題はなかった。

The blood [52] for the presence of cancer, but we've found no problem.

- ① has been examining ② is having examined
③ having been examined ④ has been examined

(2) これは日本語を母語としない人向けに新しく出版された漢字辞典である。

This is our newly published *kanji* dictionary for [53] mother tongue is not Japanese.

- ① people who ② those whose ③ the purpose of ④ the reason for

(3) 十分すぎるほどの水の供給に慣れてしまっているため、我々はそのありがたさについてめったに考えたりしない。

We are so accustomed to having an abundant supply of water that we rarely [54] how fortunate we are.

- ① stop to consider about ② stop considering about
③ stop to consider ④ stop considering

(4) 朝食は一日の活動を始める上で多くのエネルギーを与えてくれる。朝食を抜くと、健康にとって計り知れない損失となる。

Breakfast gives you enough energy to begin a day. [55] a tremendous loss for your health.

- ① Skipping it is ② To skip it results
③ Skip it, or ④ Whether you skip it causes

(5) 喫煙者が心不全で死亡する危険性は、非喫煙者の3倍だそうだ。

Smokers are [56] non-smokers to die of heart failure.

- ① the third as likely as ② the third likely as much as
③ three times more likely than ④ three times likely more than

- (6) 学生たちは、最も頭の良い者でもその数学の問題が解けなかったので、スミス教授に助けを求めた。

The students, couldn't solve the mathematical problem, asked Prof. Smith for help.

- ① the brightest of whom ② the brightest of them
③ even the brightest one ④ even one of the brightest

- (7) 最近ポールは勉強で忙しいので、深夜12時よりも早く就寝することはまずない。

Paul is so busy with his studies these days that he goes to bed before midnight.

- ① hardly, if any, ② seldom, if ever, ③ scarcely, if not, ④ rarely, if so,

- (8) あなたの白髪はとても魅力的なので、若作りをする必要なんてないよ。

Your gray hair is attractive enough; you don't have to younger.

- ① make yourself to see ② make you to see as
③ make yourself look ④ make you look like

- (9) この本で挙げた芸術作品は、特に但し書きがない限りは、ニューヨーク美術館に展示してあるものです。

The works of art mentioned in this book are displayed in New York museums, .

- ① as long as other stated ② as long as other stating
③ unless otherwise stated ④ unless otherwise stating

- (10) その二人の弁護士のうち、ワトソンのほうが知的所有権について詳しい。

Watson is about intellectual property rights of the two attorneys.

- ① more knowledge ② the more knowledge
③ more knowledgeable ④ the more knowledgeable