

2021（令和3）年度 福岡女子大学 一般選抜個別学力検査

[前期日程試験問題]

英 語

【 90 分 】

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 問題は4ページから10ページにあります。問題は全部で**3題**です。
- 3 解答用紙には裏にも解答欄があります。
- 4 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、手を挙げて監督者に知らせてください。
- 5 試験開始と同時に解答用紙の受験番号欄に受験番号を記入してください。
- 6 試験終了後、問題冊子は持ち帰ってください。

問題I 次の英文を読み、本文に即して設問に答えなさい。
(*印がついている語句には注があります。)

What kind of vegetables, fruits, or nuts have you eaten recently? Maybe you have treated yourself to some of the following: a healthy salad containing cabbage, carrot, and celery; tasty slices of roasted onion with fried *aubergine; an apple pie or fresh strawberries with cream; a juicy pear, some cherries, or a slice of almond cake. In the near future, such delicious food items as these might no longer be available on our dining tables, if a particular kind of insect disappears from the world: bees.

Perhaps you have enjoyed watching these small, yellow-and-black, hard-working creatures flying from flower to flower in a garden. You might have been aware that they are useful to us because they make honey. Bees, however, play a far more significant role in the natural environment than just making ^(a)that golden sweetener used by humans. There are at least two hundred and fifty thousand species of plants on earth, and more than three quarters of them depend on the activity of insects or animals in order to bear fruit and produce seeds. Flowers contain *pollen, and the insects, birds, or bats that help plants to multiply by carrying pollen from one flower to another are called pollinators. From the human point of view, bees are surely the most important pollinators, because they are responsible for *pollinating some seventy percent of the top one hundred kinds of plants we eat, including all the vegetables and fruits mentioned above. ^(b)Meat-lovers may think that plant pollination does not matter to them, but in fact even the species of grass that cattle eat require bees in order to reproduce.

Since around 2007, a disturbing phenomenon has caught people's attention: the number of bees in the northern hemisphere has begun to decline drastically. Many beekeepers have suddenly found that the hives they make as houses for their bees are almost empty, and the few surviving bees are weak and soon die. If a natural enemy were attacking the hives, many dead bees should be found, but ^(c)this is not the case. It has been reported that more than thirty percent of bees in the USA and Canada have disappeared in the past year alone, and a similar loss of bees has affected Europe and Asia. People around the world have become alarmed, and scientists have started to investigate the probable causes.

At first, *electromagnetic waves were suspected. Other suspects included the overheating of the climate due to global warming, and the possible influence of genetically modified corn. Although none of these three factors can be proved with sufficient evidence to be the actual cause, the first two are considered to have had some negative effect on bees. Still, they () out such large numbers of bees instantly and simultaneously. On the other hand, an insect disease called nosema, caused by a *microscopic creature, does seem to be a more direct cause of the widespread death of bees.

Furthermore, a new type of *pesticide, using poisons called neonicotinoids, has certainly had a deadly impact on bees. When it was first introduced in the 1990s, it was thought to be a perfect solution to the problem of *pest control, because it was supposed to kill (⑧) while doing no harm to other animals. As a result, it was instantly popular with farmers, and came to be used all over the world. However, those who praised neonicotinoids seem to have forgotten about bees, which are, of course, insects, too. Recently, scientists have begun to point out other troubling effects of pesticides based on neonicotinoids. Reacting to this new information, the EU decided to ban some of them in 2018.

^(d)In addition to being poisoned, bees' health is weakened because they are made to work like slaves for the benefit of humans. Nowadays, bees are rented by farmers from beekeepers, and they are forced to travel long distances in crowded boxes throughout the year, for example from an apple farm in one area to a peach orchard in another, because different flowers bloom in different places in turn.

Meanwhile, in the United States, the production of almonds has been one of the biggest economic successes of the early twenty-first century, and many farmers have begun to plant almond trees, after rooting out many of the other plants they used to cultivate. As a result, bees now often have no choice but to feed on the *nectar of almond flowers, instead of that of various other flowers. ^(e)Although farmers give weakened bees sweet syrup to provide them with more energy, it does not always have the desired effect. By way of comparison, if we humans ate only one kind of food and worked too hard, we could not maintain good health even if we consumed plenty of energy drinks, so we would of course become weak against disease or pollution. That is like the negative situation we have carelessly imposed on bees.

After considering many factors, an eco-journalist, Rowan Jacobsen, argues that there is not one decisive reason for the disappearance of bees; rather, we should think of their decline as the result of a complex combination of conditions that are harmful to them. We must think seriously about our relationship with bees and how to care for them, not only because we rely on them so heavily to make our agriculture possible, but also because we are living together in the same ecosystem, so their well-being and our well-being are *interdependent.

注

aubergine ナス pollen 花粉 pollinate 受粉する electromagnetic 電磁気の
microscopic 非常に小さい pesticide 農薬 pest 有害生物 nectar (花の) 蜜
interdependent 相互依存の

【設問】

- 問 1 下線部(a)を文中の別の英語で言い替えなさい。
- 問 2 地球上で、花粉を媒介する生物を必要とする植物は何種類以上存在するか。
最も近いものを（ア）～（オ）から選んで、記号で答えなさい。
(ア) 6万種以上 (イ) 8万種以上 (ウ) 18万種以上
(エ) 25万種以上 (オ) 75万種以上
- 問 3 下線部(b)の人々にとっても、ミツバチが重要なのはなぜか。その理由を日本語で書きなさい。
- 問 4 下線部(c)とは具体的にはどのようなことか、日本語で説明しなさい。
- 問 5 以下の語を並べ替えて、空欄（Ⓐ）を完成させなさい。
not wipe to harmful as are so
- 問 6 空欄（Ⓑ）に入るもっとも適切な語を、同じ段落から探して英語で書きなさい。
- 問 7 下線部(d)に関して、ミツバチの健康が人間によって損なわれている事例を2つ日本語で説明しなさい。
- 問 8 下線部(e)を日本語に訳しなさい。

問題Ⅱ 次の英文を読み、本文に即して設問に答えなさい。
(*印がついている語句には注があります。)

Let's begin with a simple fact: time passes faster in the mountains than it does at sea level.

The difference is small, but it can be measured with *precision timepieces that can be bought today on the internet for a few thousand pounds. With practice, anyone can witness the slowing down of time. With the timepieces of specialized laboratories, this slowing down of time can be detected between levels just a few centimetres apart: a clock placed on the floor runs a little more slowly than one on a table.

It is not just the clocks that slow down: lower down, all processes are slower. Two friends separate, with one of them living in the plains and the other going to live in the mountains. They meet up again years later: the one who has stayed down has lived less, aged less, the mechanism of his cuckoo clock has *oscillated fewer times. He has had less time to do things, his plants have grown less, his thoughts have had less time to unfold ... Lower down, there is simply less time than at *altitude.

Is this surprising? Perhaps it is. But this (Ⓐ) Time passes more slowly in some places, more rapidly in others.

^(a)The surprising thing, perhaps, is that someone understood this slowing down of time a century before we had clocks precise enough to measure it. His name, of course, was Albert Einstein.

The ability to understand something before it's observed is at the heart of scientific thinking. In antiquity, Anaximander understood that the sky continues beneath our feet long before ships had *circumnavigated the Earth. At the beginning of the modern era, Copernicus understood that the Earth turns long before astronauts had seen it ^(b)do so from the moon. In a similar way, Einstein understood that time does not pass uniformly everywhere *before* the development of clocks accurate enough to measure the different speeds at which it passes.

In the course of making such strides, we learn that the things which seemed self-evident to us were really no more than prejudices. It seemed obvious that the sky was above us and not below; otherwise, the Earth would fall down. It seemed self-evident that the Earth did not move; otherwise it would cause everything to crash. (Ⓑ) time passed at the same speed everywhere seemed equally *obvious* to us ... Children grow up and discover that the world is not as it seemed from within the four walls of their homes. *Humankind as a whole does the same.

Einstein asked himself ^(c)a question which has perhaps puzzled many of us when studying the force of gravity: how can the sun and the Earth 'attract' each other without touching and without utilizing anything between them?

He looked for a *plausible explanation and found one by imagining that the sun and the Earth do not attract each other directly but that each of the two gradually acts on that which is between them. And, since what lies between them is only space and time, he imagined that the sun and the Earth each modified the space and time that surrounded them, just as a body *immersed in water displaces the water around it. This modification of the structure of time influences in turn the movement of bodies, causing them to ‘fall’ towards each other.

What does it mean, this ‘modification of the structure of time’? It means precisely the slowing down of time described above: a mass slows down time around itself. The Earth is a large mass and slows down time in its *vicinity. It does so ((X)) in the plains and ((Y)) in the mountains, because the plains are closer to it. This is why the friend who stays at sea level ages ((Z)) slowly.

Carlo Rovelli, *The Order of Time*

注

precision timepiece 精密時計 oscillate (振り子のように) 振れる altitude 高地
circumnavigate (船で) 一周する humankind 人間 plausible 妥当と思われる
immerse 浸す vicinity 周辺

【設問】

問1 以下の語を並べ替えて、空欄（Ⓐ）を完成させなさい。

world how the is works

問2 下線部(a)を日本語に訳しなさい。

問3 下線部(b)を、この段落で用いられている英語の動詞を使って言い替えなさい。
ただしその動詞を適切な形に変えること。

問4 空欄（Ⓑ）に入るもっとも適切な語を（ア）～（エ）から選んで、記号で答えなさい。

(ア) As (イ) That (ウ) The (エ) This

問5 下線部(c)はどのような疑問か。具体的に日本語で書きなさい。

問6 空欄（ⓧ）～（⓫）には、more か less のいずれかの語が入る。それぞれの空欄に適した語を選んで、英語で書きなさい。

問7 (ア)～(オ)から本文の内容と一致しているものをすべて選んで、記号で答えなさい。

(ア) 高低差が数メートル程度では、時間の流れの速さに差はない。

(イ) 高地に住んでいる人の方が低地に住んでいる人よりも早く老ける。

(ウ) コペルニクスの研究がアインシュタインの発想の元となった。

(エ) アインシュタインは百年前の装置を使って実験を行い、結論を導くことができた。

(オ) 太陽と地球は周囲の空間ではなく時間に影響を与える。

問題Ⅲ 次の文を英語に訳しなさい。

問1 この角に置けるように、あなたはもっと小さなベッドを買うべきでした。

問2 驚いたことに、ついさっきまで妻がいた所に、一匹のキツネが座っていたのです。