

平成 27 年度 福岡女子大学 帰国生特別入試

〔 試験問題 〕

英 語

【 60 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 7 ページにあります。
- 3 試験中に問題用紙の印刷不鮮明、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。
- 4 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。
- 5 試験終了後、**問題冊子は持ち帰ってください。**

二酸化炭素 (CO₂, carbon dioxide) について書かれた次の文章を読み、設問に答えなさい。

(*のついた語には注があります。)

Take carbon dioxide. Reduced to the 1:2 ratio* of its components, it sounds (ア)unremarkable; add to that the knowledge that it is messing up the climate and who could like the stuff? But if the ancients had known of the great cycle whereby plants use carbon dioxide to store the energy in sunlight, and humans and other (①) return it to the air, they would surely have put it up there with earth, air, fire and water. If it had been part of our sense of the world and our language, its cultural resonance would have echoed through the ages; it would be in Shakespeare and the Book of Common Prayer, Wordsworth and Goethe*. And its role in the foundation of human history might be better appreciated.

For most of the thousands of years that humans talked, made tools, wore clothes and created art, they had no domesticated* crops and therefore no agriculture, no cities and no (②). About 10,000 years ago that began to change; 5,000 years later agriculture prevailed everywhere from Peru to Japan.

It is natural to link this change to the end of the last ice age, which was at its peak 20,000 years ago and had mostly melted away 10,000 years later. But (イ)why did the ice age preclude the development of agriculture? Though pretty much everywhere was colder in the ice age than it is today, many subtropical places that are warm now had perfectly mild temperatures back then, and the tropics were quite hot. And though the ice-age climate was dry, it was not so arid* that crops everywhere would wither away. (ウ)The climate was certainly unstable by modern standards, changing violently in a way that primitive farmers would have found hard to deal with. But is that really all there was to it?

(エ)Rowan Sage, a Canadian plant physiologist*, thinks not. He suggested in the 1990s that it was not the climate itself that kept the ice age free of agriculture. Instead, he points the finger at one cause of that cooling: the low carbon-dioxide level (that ice sheets reflect back a lot of sunlight is a big factor too). And since carbon dioxide is (オ)life to growing plants, they suffer in its absence. Plants grown in labs under the low-carbon-dioxide conditions of the ice age are spindly, grotty things. The total mass of the plant life at the peak of the ice was about half what it is today. When changes in ocean circulation at the end of the ice age started to refill the atmosphere's stock of carbon dioxide, the plants went wild. Forests chased the ice-caps back towards the poles; the soils of the (③) grew richer and darker, roots ran deeper and rains returned; the amount of grain produced by some wild grasses doubled.

If you were a hunter-gatherer, this (カ)Great Fertilisation* was the dawn of a golden

age. A more productive ecosystem meant you needed to travel less far to forage*—it might even allow you to stay in one place all year. It also meant you could concentrate on a few productive species for most of your food (and because carbon-dioxide fertilisation has varying effects on different plants, it would produce some particularly productive winners). So such specialisation would bring about the selection, conscious or not, of particular kinds that grow better under certain conditions—the beginnings of domestication, which, with sedentary* settlement, is a necessary precursor to agriculture. At ice-age levels of carbon dioxide these might have been impossible.

When I first heard Sage’s idea, I expected it to change popular perceptions of prehistory. It hasn’t. But it has largely been ignored rather than rejected—and the principles it rests on can be seen at work today. Satellite pictures show the Earth is greener now than it was even a few decades ago—and that abundance of plant life is partly due to more carbon dioxide. (④) suck up about a quarter of the carbon dioxide humans emit into the atmosphere every year.

In the 1950s an American geochemist* called ^(*)Harrison Brown (who was, among other things, a mentor to John Holdren, Barack Obama’s science adviser) speculated that it might be worth deliberately doubling or tripling the planet’s carbon-dioxide level to feed its booming population. He concluded that it wouldn’t be a good idea—and that was without really appreciating what carbon dioxide does to the climate. The risks posed by disrupting the climate seem greatly to outweigh the benefits of more carbon dioxide for crops—and there are other ways to increase yield.

“(^ツ)The carbon cycle is one of growth and decay, creation and destruction. But when we see the ruinous aspects of carbon dioxide at work, our imagination should at least find room to remember the beneficial ones—and to relish the richness of the world worth saving. If only our words made it a little easier.”

(From *Intelligent Life*)

注

ratio: 比率

Shakespeare, the Book of Common Prayer, Wordsworth and Goethe: the Book of

Common Prayer は英国国教会系で用いられる祈りを集めた祈祷集。他はイギリスやドイツの文豪

domesticated: 栽培化された

arid: 不毛の

plant physiologist: 植物生理学者

Fertilisation: 肥沃化

forage: 家畜の食べる草、飼料を**与える**

sedentary: 定住性の

geochemist: 地球化学者

【設問】

- 1 下線部(ア)の意味として、最も適切なものを記号で選びなさい。
(あ) 気づかれない
(い) 答えられない
(う) さえない
(え) 理解できない

- 2 空欄①から④に入る最も適切な単語を記号で選びなさい。ただし、文頭に
来る単語も小文字で示してあります。
(あ) animals
(い) plants
(う) civilisation
(え) planet

- 3 下線部(イ)に関して、著者はどう考えているか、最も適切なものを記号で
選びなさい。
(あ) 氷河期は気温が低すぎた。
(い) 現在の熱帯地方は氷河期にはさらに暑かった。
(う) 氷河期でも場所によっては温かかった。
(え) 氷河期は私たちが考えているよりも長かった。

- 4 下線部(ウ)を日本語に訳しなさい。

- 5 下線部(エ)の人物は、氷河期における農業の欠如の原因として何を挙げま
したか。日本語で簡潔に述べなさい。

- 6 下線部(オ)はこの場合どういう意味ですか。日本語で簡潔に分かりやすく
説明しなさい。

- 7 人類が農業を始めるために下線部(カ)がもたらした大きな変化が、本文には二つ挙げられています。それぞれを日本語で説明しなさい。
- 8 下線部(キ)の人物は、どのような考えを検討しましたか。日本語で簡潔に挙げなさい。
- 9 下線部(ク)を日本語に訳しなさい。

訂正文

5 ページ、一番下の注 “forage” で、「飼料」の後に「を与える」という文言を追加してください。