

令和2年度一般入試前期日程

英語問題紙

注意事項

1. 試験開始の合図があるまで、この問題紙を開いてはいけません。
2. 英語の問題紙は、11ページあります。
3. 解答用紙は4枚あります。
4. 受験番号は、監督者の指示に従って、全ての解答用紙の指定された箇所に必ず記入しなさい。
5. 受験番号および解答以外のことを解答用紙に書いてはいけません。
6. 解答はすべて解答用紙の指定された欄に書くこと。裏面に書かないこと。
7. 解答用紙のみを提出しなさい。問題紙は持ち帰りなさい。



問題 1 以下の英文を読み、問いに日本語で答えなさい。

### THE INVENTION OF THE AVERAGE

In 2002, UC Santa Barbara neuroscientist Michael Miller conducted a study of verbal memory. One by one, sixteen participants lay down in an \*fMRI brain scanner and were shown a set of words. After a rest period, a second series of words was presented and they pressed a button whenever they recognized a word from the first series. As each participant decided whether he had seen a particular word before, the machine scanned his brain and created a digital “map” of his brain’s activity. When Miller finished his experiment, he reported his findings ①the same way every neuroscientist does: by averaging together all the individual brain maps from his subjects to create a map of the Average Brain. Miller’s expectation was that this average map would reveal the neural circuits involved in verbal memory in the typical human brain.

Whenever you read about some new neuroscience discovery accompanied by a blob-splotched †cross section of a brain — here are the regions that light up when you feel love; here are the regions that light up when you feel fear — it’s a near certainty that you are looking at a map of an Average Brain. As a graduate student, I was also taught the method of producing and analyzing the Average Brain (referred to as the “random effects model” in the jargon of science) when I was trained in brain imaging at Massachusetts General Hospital. ②The driving assumption of this method is that the Average Brain represents the normal, typical brain, while each individual brain represents a variant of this normal brain — an assumption that mirrors the one that motivated the Norma look-alike contest. This premise leads neuroscientists to reject left-handed people from their studies (since it is presumed the brains of

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\*fMRI 脳の機能活動がどの部位で起きたかを画像化する手法

†cross section 断面図

left-handed people are different from normal brains) or sometimes even throw out those individuals whose brain activity deviates *too* far from average, since researchers worry these outliers might cloud their view of the Average Brain.

(3)There would have been nothing strange about Miller reporting the findings of his study by publishing his map of the Average Brain. What *was* strange was the fact that when Miller sat down to analyze his results, something made him decide to look more carefully at the individual maps of his research participants' brains. Even though Miller was investigating a well-studied mental task using the standard method of brain research — and even though there was nothing unusual about his participants' Average Brain — he glanced over a few of the individual maps. “It was pretty startling,” Miller told me. “Maybe if you scrunched up your eyes real tight, a couple of the individual maps looked like the average map. But most didn't look like the average map at all.”

Other people before Miller had noticed that individual brains often failed to resemble the Average Brain, but since everyone else ignored (4)this awkward fact, they usually ignored it, too — just as scientists and physicians long ignored the fact that no real woman looked like Norma. But now Miller did something that might seem perfectly obvious to do, yet few had ever bothered to attempt: he systematically compared each of the sixteen individual brain maps from his verbal memory experiment to the map of the Average Brain. What he found astonished him. Not only was each person's brain different from the average, they were all different from one another.

Some people's brains were mostly activated on the left, others on the right. Some brains were mostly activated in the front, others in the back. Some looked like a map of Indonesia with long, thick archipelagos of activation; others were almost entirely blank. But there was no avoiding the most salient fact: nobody's brain looked like the Average Brain. Miller's results paralleled those

obtained by Gilbert Daniels during his investigation of hands, except this time the organ being studied wasn't a limb — it was the very cradle of thought, feeling, and personality.

Miller was bewildered. According to the key assumption behind the method of the Average Brain, most people's brains should be fairly close to average. Neuroscientists certainly expected that *some* brains should be similar to the average. But hardly any of the brains in Miller's study even remotely resembled the Average Brain. Miller feared that perhaps there had been some kind of technical error in his equipment, so he brought many of the same participants back a couple of months later and once again scanned their brains as they performed the same word memory task. The results were nearly identical: each person's new brain map was pretty close to his original brain map — and each individual brain map remained quite different from the map of the Average Brain.

"<sup>(5)</sup>That convinced me that the individual patterns we were seeing were not random noise but something systematic about the way each individual performed the task, that each person's memory system consisted of a unique neural pattern," Miller explained to me. "But what was most surprising was that these differences in patterns were not subtle, they were *extensive*."

The "extensive" differences that Miller found in people's brains aren't limited to verbal memory. They've also been found in studies of everything from face perception and mental imagery to procedural learning and emotion. <sup>(6)</sup>The implications are hard to ignore: if you build a theory about thought, perception, or personality based on the Average Brain, then you have likely built a theory that applies to no one. The guiding assumption of decades of neuroscience research is unfounded. *There is no such thing as an Average Brain.*

(Adapted from *The End of Average: How to Succeed in a World that Values Sameness* by Todd Rose)

問 1 下線部(1)の内容を本文に即して述べなさい。

問 2 下線部(2)の内容を本文に即して述べなさい。

問 3 下線部(3)が意味するところを本文に即して述べなさい。

問 4 下線部(4)の内容を本文に即して述べなさい。

問 5 下線部(5)の内容を本文に即して述べなさい。

問 6 下線部(6)の内容を本文に即して述べなさい。

**問題 2** Read the following text and answer the questions in English.

ALSTON, England — It was not until Trevor Robinson received a letter notifying him of a missed appointment at the hospital that he realized he had not spoken to another human being in more than six weeks.

Mr. Robinson, a 77-year-old retired landscape gardener, had spent most of that time alone, sitting on his favorite frayed leather recliner looking out the window at the moorland surrounding his cottage in the northwestern county of Cumbria.

“When you spend every second by yourself, you lose track of time,” he said as tears trickled down his face. “I feel lonely, very lonely, and bored.”

Mr. Robinson’s isolation, shared by thousands of older people in Britain, is the result of a chain of cause-and-effect that stretches from rural Cumbria to the halls of power in London. He used to ride a subsidized bus to town until the local council discontinued the route. The council was responding to steep budget cutbacks stemming from the Conservative-led government’s decade-long austerity program.

Even as austerity has sliced through nearly every aspect of British life, the government has protected high-profile benefits for older people, and it has raised the state pension on a more generous basis than previous administrations.

But a free bus pass is of little use if buses no longer reach you, and many retired people have discovered that apparently minor cuts — the elimination of a bus route, the closing of a tiny health care center, community center or post

office — can profoundly upend their lives.

The effects are especially pronounced in rural areas, where the isolation of older residents has emerged as one of the greatest, and largely hidden, costs of local councils' straitened budgets, with funding slashed by half nationwide since 2010, the National Audit Office has found.

### **Cumbria, Land of Beauty and Poverty**

While experts say these problems are common to much of Britain's countryside, they are particularly severe in Cumbria. Best known for its Lake District National Park and historic lakeside mansions, it is also one of the poorest rural areas in England.

Twenty-nine of its communities are among the 10 percent most deprived nationwide. Household income levels trail the national average in all but one district.

And by 2020, nearly a quarter of Cumbria's residents will be over 65 — 5 percentage points higher than in 2008 and double the proportion projected for London. Half of those have long-term health problems or disabilities.

Cumbria has had problems since its lead and zinc mines closed in the 1960s. But they have been amplified by austerity. This year, Cumbria County Council plans to cut about \$23 million from its budget to cushion a steady drop in funding from the national government — to \$17.7 million this year from nearly \$200 million in 2012.



By 2021, the council expects the grant to disappear entirely, despite recent declarations by Conservative Party leaders that the austerity era is over. In April last year, Cumbria put up its local council tax by 4 percent, the first rise in several years, after the government eased restrictions on such increases.

"It's always been expensive to deliver services to rural communities because the population is so spread out," said Peter Thornton, the council's deputy leader and cabinet member for finance. "But since the central government cuts that started in 2010, this becomes more of a challenge each year."

The council's first major cut to services came in 2014: ending bus subsidies. It saved around 9 million pounds, around \$12 million, a year, and lost about 60 percent of the area's bus services.

"But we are starting to rethink ways of providing transport," Mr. Thornton said. "There's increasing recognition of how these cuts have contributed to the problem of rural isolation and the impact on people's mental health."

Bus cuts are also becoming a national issue. The leader of the opposition Labour Party, Jeremy Corbyn, proposed last month to spend £1.3 billion, or about \$1.7 billion, to restore lost services.

Until recent years, the quality of life for seniors had steadily improved. From a high point in the mid-1990s, the poverty rate among older people had declined, the Joseph Rowntree Foundation says, falling to 13 percent in 2012-13 before rising to 16 percent in 2015-16. But one in six pensioners remains in poverty, and the rate has started to increase.

“After positive progress, it is worrying that the number of pensioners living in poverty is once again on the rise,” said Caroline Abrahams, charity director at Age UK, Britain’s largest charity working with older people. And with the slowdown in economic growth associated with Britain’s tortured withdrawal from the European Union, the government is facing renewed budgetary strains.

### **A Steadily Shrinking Life**

Five years ago, Mr. Robinson used to take a bus to the city of Carlisle, about 40 minutes away, where he shopped at his favorite grocery store, Morrison’s, shot darts at a club and played cards and watched television with his best friend, Billy.

That ended in 2014, with the withdrawal of bus subsidies.

“I tried taking the new bus, but it only waits in Carlisle for an hour and a half before coming back,” Mr. Robinson said. “That’s just not enough time to get anything done, and if you miss the bus, you’re doomed.”

Since then, Mr. Robinson has barely left the house. He spends most of his \$175 weekly pension on food from the local store, which he gets a lift to once a week, and he rents a television.

“I used to buy my favorite beef lasagna and fresh veg from Morrison’s,” he said. “But there’s not much choice in the village, so now I’m mainly eating instant soup.”

He said he called the council to inquire about transport options to the city, but he was told, "Sorry sir, we simply do not have the funding."

Mr. Robinson draws a simple lesson from all this: "You need to be rich or upper middle class to survive in the countryside nowadays."

(Adapted from Britain's Big Squeeze: "'This Is All We Can Afford': Shrinking Lives in the English Countryside," *NY Times*, May 13, 2019, by Ceylan Yeginsu)

Question 1. Why was the bus route that Mr. Robinson used to go to town closed?

Question 2. Why is the council starting to rethink ways of providing transport services?

Question 3. Why doesn't Mr. Robinson buy his favorite food from Morrison's?

Question 4. Read the following statements, and mark T for true or F for false according to the text.

- A. During the time of the austerity program, the lives of pensioners improved in some ways.
- B. Older people are not able to use the free bus pass because the bus routes are not convenient for them.
- C. Cumbria's beautiful scenery has deteriorated since the government slashed the budget.
- D. Only one district of Cumbria attains a higher household income level than the national average.
- E. By 2020, the rate of older people over 65 will be almost a quarter of the population in London.
- F. Cumbria raised its tax rate because the government relaxed constraints on raising it.
- G. When Mr. Robinson asked the council about transport options to the city, he was told that in the future, they would reopen the bus route.

**問題 3** Imagine you could travel to any place in the past, present, or future. What time period would you choose? Where would you go? What would you do? Write a story in English including an introduction, a body, and a conclusion. Give details about your adventure.