

【医学科】

英語問題

2022(令和4)年度

【注意事項】

1. この問題冊子は「英語」である。
2. 試験時間は90分である。
3. 試験開始の合図まで、この問題冊子を開いてはいけない。ただし、表紙はあらかじめよく読んでおくこと。
4. 試験開始後すぐに、以下の5および6に記載されていることを確認すること。
5. この問題冊子の印刷は1ページから12ページまでである。
6. 解答用紙は問題冊子中央に3枚はさみこんである。
7. 問題冊子に落丁、乱丁、印刷不鮮明な箇所等があった場合および解答用紙が不足している場合は、手をあげて監督者に申し出ること。
8. 試験開始後、3枚ある解答用紙の所定の欄に、受験番号と氏名を記入すること（1枚につき受験番号は2箇所、氏名は1箇所）。
9. 解答は必ず解答用紙の指定された箇所に記入すること。解答用紙の裏面に記入してはいけない。
10. 問題番号に対応した解答用紙に解答していない場合は、採点されない場合もあるので注意すること。
11. 問題冊子の中の白紙部分は下書き等に使用してよい。
12. 解答用紙を切り離したり、持ち帰ってはいけない。
13. 試験終了時刻まで退室を認めない。試験中の気分不快やトイレ等、やむを得ない場合には、手をあげて監督者を呼び、指示に従うこと。
14. 試験終了後は問題冊子を持ち帰ること。



[I] 次の文章を読んで、下の問いに解答欄の範囲内で答えなさい。

*が付いている語句には本文の後ろに注があります。

Numbers do not exist in all cultures. There are numberless hunter-gatherers embedded deep in Amazonia, living along branches of the world's largest river tree. Instead of using words for precise quantities, these people rely exclusively on terms *analogous to “a few” or “some.”

Cultures without numbers, or with only one or two precise numbers, include the Munduruku and Pirahã in Amazonia. Researchers have also studied some adults in Nicaragua who were never taught number words.

Without numbers, healthy human adults struggle to precisely differentiate and recall quantities as low as four. In an experiment, a researcher will place nuts into a can one at a time, then remove them one by one. The person watching is asked to signal when all the nuts have been removed. Responses suggest that anumeric ⁽⁷⁾ people have some trouble keeping track of how many nuts remain in the can, even if there are only four or five in total.

This and many other experiments have *converged upon a simple conclusion: When people do not have number words, they struggle to make quantitative *distinctions that probably seem natural to someone like you or me. While only a small portion of the world's languages are anumeric or nearly anumeric, they demonstrate that number words are not a human universal. ⁽⁴⁾

It is worth stressing that these anumeric people are *cognitively normal, well-adapted to the environs they have dominated for centuries. As the child of *missionaries, I spent some of my youth living with anumeric *indigenous people, the aforementioned Pirahã who live along the sinuous banks of the black Maici River. Like other outsiders, I was continually impressed by their superior understanding of the riverine ecology we shared.

Yet numberless people struggle with tasks that require precise *discrimination between quantities. Perhaps this should be unsurprising. After all, without counting, how can someone tell whether there are, say, seven or eight coconuts in a tree? Such seemingly straightforward distinctions become *blurry through numberless eyes.

This conclusion is echoed by work with anumeric children in industrialized societies.

Prior to being spoon-fed number words, children can only approximately discriminate quantities beyond three. We must be handed the cognitive tools of numbers before we can consistently and easily recognize higher quantities.

In fact, acquiring the exact meaning of number words is a painstaking process that takes ⁽⁷⁾children years. Initially, kids learn numbers much like they learn letters. They recognize that numbers are organized *sequentially, but have little awareness of what each individual number means. With time, they start to understand that a given number represents a quantity greater by one than the *preceding number. This “successor principle” is part of the foundation of our *numerical cognition, but requires extensive practice to understand.

None of us, then, is really a “numbers person.” We are not *predisposed to handle quantitative distinctions adroitly. In the absence of the cultural traditions that *infuse our lives with numbers from infancy, we would all struggle with even basic quantitative distinctions.

Number words and written numerals transform our quantitative reasoning as they are *coaxed into our cognitive experience by our parents, peers and school teachers. The process seems so normal that we sometimes think of it as a natural part of growing up, but it is not. Human brains come equipped with certain quantitative instincts that are refined with age, but these instincts are very limited. For instance, even at birth we are capable of distinguishing between two markedly different quantities—for instance, eight from 16 things.

So, how did we ever invent “unnatural” numbers in the first place?

The answer is, literally, at your fingertips. The *bulk of the world’s languages use base-10, base-20 or base-5 number systems. That is, these smaller numbers are the basis of larger numbers. English is a base-10 or decimal language, as evidenced by words like 14 (“four” + “10”) and 31 (“three” × “10” + “one”).

We speak a decimal language because an ancestral tongue, proto-Indo-European, was decimally based. Proto-Indo-European was decimally oriented because, as in so many cultures, our linguistic ancestors’ hands served as the gateway to realizations like “five fingers on this hand is the same as five fingers on that hand.” Such transient thoughts were manifested into words and passed down across generations. This is why the word “five” in many languages is derived from the word for “hand.”

Cultures without numbers also offer insight into the cognitive influence of particular numeric traditions. Consider what time it is. Your day is ruled by minutes and seconds, but these *entities are not real in any physical sense and are nonexistent to numberless people. Minutes and seconds are the verbal and written *vestiges of an uncommon base-60 number system used in Mesopotamia millennia ago. They *reside in our minds, numerical *artifacts that not all humans inherit conceptually.

Research on the language of numbers shows, more and more, that one of our species' key characteristics is tremendous linguistic and cognitive diversity.

(出典 Caleb Everett, “Anumeric’ People: What Happens When a Language Has No Words for Numbers?,” *The Conversation*, April 26, 2017, 一部改変)

Notes

analogous: similar.

converge: to come together.

distinction: difference.

cognitively (*adv.*) < cognitive (*adj.*): connected with mental processes of understanding.

missionary: a person who is sent to a foreign country to teach people about religion, especially Christianity.

indigenous: living natively in a particular place.

discrimination: the ability to understand small differences.

blurry: difficult to see clearly.

sequentially (*adv.*) < sequential (*adj.*): having a particular order.

preceding: existing before something.

numerical: expressed in numbers.

predispose: to make someone more likely to behave in a particular way.

infuse: to fill something with a particular quality.

coax: to persuade somebody to do something.

bulk: most of something.

entity: something that exists as a single unit.

vestige: a small part of something that existed in the past; trace.

reside: to stay in a place.

artifact: an object that is made by a person.

- (1) 下線部 (ア) と同じ意味で使われている単語を本文より 1 つ抜き出さない。
- (2) 下線部 (イ) の事柄を明らかにした実験の方法を、本文に即して日本語で具体的に説明しない。
- (3) 下線部 (ウ) を和訳しない。
- (4) インド・ヨーロッパ祖語に由来する英語のような言語が十進法を用いるのはなぜか。その理由を本文に即して日本語で簡潔に述べない。
- (5) 下線部 (エ) とはどのような概念か。本文に即して日本語で具体例を挙げながら説明しない。



〔 II 〕 次の文章を読んで、下の問いに解答欄の範囲内で答えなさい。

*が付いている語句には本文の後ろに注があります。

The man came on the bus quite early and Esther Kuroiwa noticed him briefly as he entered because he said *gaily to the driver, “You robber. All you guys do is take money from me every day, just for giving me a short *lift!”

Handsome in a red-faced way, greying, medium of height, and dressed in a dark grey sport suit with a yellow-and-black flowered shirt, he said this in a nice, *resonant, carrying voice which got the response of a scattering of *titters from the bus. Esther, somewhat amused and classifying him as a *somatonic, promptly forgot about him. And since she was sitting alone in the first regular seat, facing the back of the driver and the two front benches facing each other, she returned to looking out the window.

At the next stop, a considerable mass of people piled on and the last two climbing up were an elderly Oriental man and his wife. Both were neatly and somberly clothed and the woman, ⁽⁷⁾ who wore her hair in a *bun and carried a bunch of yellow and dark red *chrysanthemums, came to sit with Esther. Esther turned her head to smile a greeting ⁽¹⁾ (well, here we are, Orientals together on a bus), but the woman was watching, with some concern, her husband who was asking directions of the driver.

His faint English was *inflected in such a way as to make Esther decide he was probably Chinese, and she noted that he had to repeat his question several times before the driver could answer it. Then he came to sit in the seat across the aisle from his wife. It was about then that a man’s voice, which Esther recognized soon as belonging to the somatonic, began a loud *monologue in the seat just behind her. It was not really a monologue, since he seemed to be addressing his seat companion, but this person was not heard to give a single answer. The man’s subject was a *figure in the local sporting world who had a nice fortune invested in several of the shining buildings the bus was just passing.

And he continued in this *vein, discussing the private life of the famous man so frankly that Esther knew he must be quite drunk. But she listened with interest, wondering how much of this *diatribe was true, because the public legend about the famous man was *emphatic about his charity. Suddenly, the woman with the chrysanthemums jerked around to get a look at the speaker and Esther felt her giving him a quick but thorough examination before she turned back around.

⁽⁷⁾ “So you don’t like it?” the man inquired, and it was a moment before Esther realized that he was now directing his attention to her seat neighbor.

“Well, if you don’t like it,” he continued, “why don’t you get off this bus, why don’t you go

back where you came from? Why don't you go back to China?"

Then, his voice growing *jovial, as though he were certain of the support of the bus in this at least, he *embroidered on this theme with a new eloquence.

彼が話し続けているとき、エステルは窓の外をみているふりをしながら、自分の隣りの婦人が(正)体をこわばらせているのを感じた。 The only movement from her was the trembling of the chrysanthemums with the motion of the bus. Without turning her head, Esther was also aware that a man, a mild-looking man with thinning hair and glasses, on one of the front benches was smiling at the woman and shaking his head *mournfully in sympathy, but she doubted whether the woman saw.

Esther herself, while believing herself properly annoyed with the speaker and sorry for the old couple, felt quite detached. She found herself wondering whether the man meant her in his exclusion order or whether she was identifiably Japanese. Of course, he was not sober enough to be interested in such fine distinctions, but it did matter, she decided, because she was Japanese, not Chinese, and therefore in the present case immune. Then she was startled to realize that what she was actually doing was *gloating over the fact that the drunken man had specified the Chinese as unwanted.^(オ)

(出典 Hisaye Yamamoto, "Wilshire Bus," *Pacific Citizen*, December 23, 1950 初出, *Seventeen Syllables and Other Stories*, Rutgers University Press, 2001 収録, 一部改変)

Notes

gaily (*adv.*) < *gay* (*adj.*): full of joy.

lift: a ride in a car, etc.

resonant: producing a loud, clear, deep sound.

titter: quiet and nervous laughter.

somatotonic: a person having the type of aggressive personality.

bun: a way of arranging long hair by twisting it into a round shape.

chrysanthemum: a kind of flower.

inflect: to change the form of a word when using it in a particular way.

monologue: a long speech made by one person that prevents anyone else from talking.

figure: a person who has a specified status.

vein: a particular style, quality, etc.

diatribe: a speech or writing directed against some person or work; a bitter and violent criticism.

emphatic: expressing an opinion in a clear, strong way.

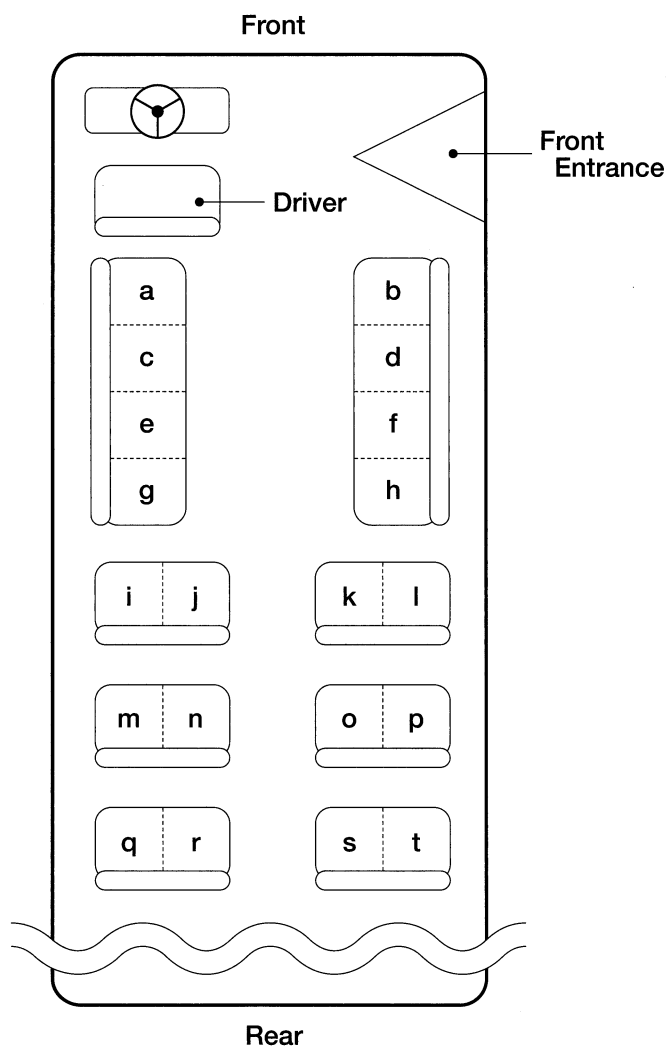
jovial: full of happiness and joy; cheerful.

embroider: to make (a story) more interesting by adding details that are not accurate.

mournfully (*adv.*) < mournful (*adj.*): very sad.

gloat: to feel great pleasure because of someone else's failure or bad luck.

- (1) Esther と下線部 (ア) で示された夫婦それぞれが座った場所を, 下の図から記号で選びなさい。



- (2) 下線部 (イ) のような行動をしたのはなぜか。本文に即して日本語で簡潔に説明しなさい。

- (3) 下線部 (ウ) のような発言をしたのはなぜか。本文に即して日本語で簡潔に説明しなさい。

(4) 下線部 (エ) を英訳しなさい。

(5) 下線部 (オ) について, Esther は自分のどのような心情に気づいて驚いたのか。本文に即して日本語で簡潔に説明しなさい。

〔Ⅲ〕

著作権の関係により、問題文を掲載することはできません。

こちらの問題は、横浜市立大学アドミッションズセンターにおいて

閲覧できます。

(出典 Cade Metz, "The Robot Surgeon Will See You Now: Real Scalpels, Artificial Intelligence—What Could Go Wrong?" *The New York Times*, April 30, 2021. 一部改変)

※参考までに設問を掲載いたします。

- (1) 下線部 (ア) のようなことをした目的について、本文に即して日本語で具体的に説明しなさい。
- (2) 医療以外の分野における自動運転(操作)の実例を本文から3つ英語で抜き出しなさい。
- (3) 下線部 (イ) を和訳しなさい。
- (4) 下線部 (ウ) の手術中の用途を1つ、手術後の用途を2つ、それぞれ本文に即して日本語で簡潔に説明しなさい。
- (5) 下線部 (エ) のようなことが起きた原因を、本文に即して日本語で簡潔に述べなさい。
- (6) 下線部 (オ) を英訳しなさい。