令和６年度　個別学力試験問題

# 外　国　語　(英　語)

(120 分)

●総　合　選　抜

文系Ⅰ，理系Ⅰ，理系Ⅱ，理系Ⅲ

●学類・専門学群選抜

人文・文化学群　(人文学類，比較文化学類)
社会・国際学群　(社会学類，国際総合学類)
人　間　学　群　(教育学類，心理学類，障害科学類)
生命環境学群　(生物学類，生物資源学類，地球学類)
理　工　学　群　(数学類，物理学類，化学類，応用理工学類，工学システム学類，社会工学類)
情　報　学　群　(情報科学類，情報メディア創成学類)
医　　学　　群　(医学類，看護学類，医療科学類)

**注　　意**

1. 問題冊子は１ページから 13 ページまでである。
2. 解答は解答用紙の定められた欄に記入すること。

I　次の英文を読んで，下の問いに答えなさい。
（星印（＊）のついた語句には本文の後に注があります。）

［ ① ］

Attempts to teach chimpanzees to talk have failed dismally. In contrast, each of the species of great ape has been taught to communicate quite well using visual and manual signals. Chimpanzees, gorillas, and an orang-utan have been taught a simple form of sign language, and both chimpanzees and bonobos have learned to use a keyboard containing symbols, which they point to in sequence to deliver messages. At least one of these animals, the bonobo Kanzi, has invented gestures to add to the repertoire, and can understand spoken sentences uttered by humans — although he cannot himself speak.

Although these animals can produce and understand short sequences of signs or symbols,(1) their accomplishments cannot be described as true language. The systems they use typically consist of symbols for objects and actions, usually combined to form requests. There is no way of representing different tenses, such as past and future, and no way of distinguishing between requests, statements, questions, commands, and negations. There is no recursion*, whereas in human speech we readily embed phrases within other phrases in a recursive manner to convey complex propositions, as in *I suspect that she knows that I'm watching her talking to him.* The level of language reached by the so-called linguistic apes is roughly that of a 2-year-old child, and has been called protolanguage* rather than true language.

Just as the 2-year-old must await the next stage of development for syntax* to emerge, the common ancestor of ourselves and the chimpanzee was not yet ready for true language.

［ ② ］

If we accept that this common ancestor did not possess true language, it follows that language must have evolved at some point in the hominin branch,

which split from the branch leading to modern chimpanzees and bonobos some six million years ago. The hominins were distinguished chiefly from the other great apes by being bipedal, that is, using only two legs for walking. They habitually walked upright, although the earliest hominins probably retained some adaptations to living in the trees. Bipedalism would have freed the hands, perhaps leading to a wider range of communicative gestures. However, there is no evidence to suggest that anything approaching syntax would have evolved until the emergence of the genus *Homo** around 2.5 million years ago.

[ ③ ]

Stone tools first emerged in the archaeological record at around the same time as the first known species of the genus *Homo*, *Homo rudolfensis*. This also marked the beginning of an increase in brain size — the earlier hominins had brains no larger, when corrected for body size, than that of the chimpanzee. *Homo ergaster* and its Asian cousin, *Homo erectus*, emerged a little later, and had larger brains, while both the Neanderthals and modern *Homo sapiens* had brains that were about three times the size of that predicted for an ape of the same body size. And nearly two million years ago, *Homo erectus* began what appears to be a series of migrations from Africa to Asia. (2) These events all suggest an advance in the ability to think and plan. Migrations and manufacture also suggest that communication may have become more effective. It therefore seems reasonable to suppose that language developed beyond protolanguage, probably gradually, over the past two million years. I shall argue, though, that language developed first as a primarily gestural system, involving movements of the body, and more especially the hands, arms, and face. Nevertheless, there was probably increasing vocal accompaniment, with speech finally becoming the dominant mode only following the emergence of our own species, *Homo sapiens*, within the last 170,000 years.

[ ④ ]

One reason to believe that speech evolved late is that the vocal apparatus and the brain mechanisms controlling it had to undergo considerable change

before speech was possible. One change relates to the control of the tongue, which of course is critically involved in speech — that's why (3) languages are sometimes called "tongues". It is generally recognized that the Neanderthals were distinct from *Homo sapiens*, but share a common ancestor dating from some 500,000 years ago. It might also be reasonable to conclude that this common ancestor possessed sufficient control of the tongue for articulate* speech.

A researcher, Philip Lieberman, has long argued that the changes that resulted in the modern human vocal tract were not complete until the emergence of our own species around 170,000 years ago, and that the changes were also incomplete in the Neanderthal, even as recently as 30,000 years ago. In human children, the lowering of the larynx* in the first few years of life is accompanied by a flattening of the face, so that, relative to chimpanzees and other primates, we humans have short mouths. The fossil evidence shows that the Neanderthals did not have flattened faces like ours, but had long mouths, more like those of apes. Since the flattening of the face had apparently not occurred in the Neanderthal, it is a reasonable assumption that the lowering of the larynx had not taken place, or was at least incomplete.

Moreover, for the length of the pharynx* to match the length of the mouth, the larynx would have to have been placed in the chest. As such, it is plausible to suppose that the changes to the face and vocal tract that have given us the power of articulate speech had not yet occurred, or were incomplete, in the Neanderthal. If Lieberman's argument is correct, the fully formed human vocal tract must have emerged ( ア ) the parting of the ways between the Neanderthals and the line leading to *Homo sapiens*. Indeed, it might be considered a critical part of the "speciation* event" that gave rise to our own species some 170,000 years ago.

Lieberman's views are controversial, but it is unlikely that speech itself arrived suddenly. Even Lieberman has acknowledged that the Neanderthals could probably speak, but without the full range of articulation possessed by *Homo sapiens*. Presumably, if Lieberman is correct, they would have the vocal

range of modern human infants. The alterations to the vocal tract must surely have occurred gradually, perhaps reaching their present level of elaboration with the emergence of our species.

出典：Michael C. Corballis (2003) "From Hand to Mouth: The Gestural Origins of Language," *Language Evolution*, edited by Morten H. Christiansen and Simon Kirby, pp. 201-218, Oxford University Press, Oxford/New York より抜粋，一部改変

(注) recursion 反復
protolanguage 原(型)言語
syntax 統語法，構文
the genus *Homo* ヒト属
articulate 明瞭な
larynx 喉頭
pharynx 咽頭
speciation 種分化，種形成

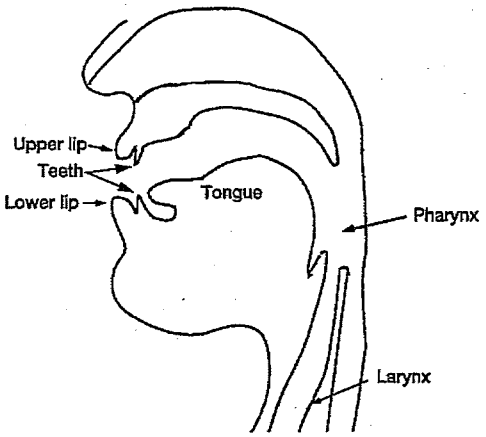


Figure: Parts of Modern Human Vocal Tract (Based on Mike Davenport and S. J. Hannahs (1998) *Introducing Phonetics & Phonology*, p. 8, Arnold, London)

(注意) 解答する際，句読点は1マスに1つ，英数字は大文字・小文字ともに1マスに2文字(奇数文字の時は1マスに1文字)記入すること。

(例：

| 英 | 単 | 語 | の | th | e |
|---|---|---|---|---|---|

)

1. 下線部(1)の short sequences of signs or symbols は，どのようなものによって構成され，どのような内容を表すことができるか，本文に即して30字以内の日本語で説明しなさい。

2. 下線部(2)の内容を These events の内容を明らかにしながら，50字以内の日本語で説明しなさい。

3. 下線部(3) languages are sometimes called "tongues" とあるが，その理由を本文に即して30字以内の日本語で答えなさい。

4. 空欄( ア )に入る語として，文脈上最も適切なものを次の中から選び，記号で答えなさい。

(A) since (B) until (C) before (D) because

5. 空欄[ ① ][ ② ][ ③ ][ ④ ]に入るセクションの見出しとして最も適切なものを次の中から1つずつ選び，記号で答えなさい。ただし，同じ記号は1度しか使えない。

(A) Why Speech Arrived Late

(B) The Emergence of *Homo*, and a Cognitive Advance

(C) Teaching Language to Apes

(D) Hominin Evolution

6. 以下の(A)(B)(C)(D)(E)の出来事が生じた時期について，本文の内容に即して古い順に並べ替えなさい。

(A) The hominin branch newly emerged.

(B) Some great apes were shown to be able to use a keyboard for communication.

(C) *Homo sapiens* came into existence on the planet.

(D) *Homo erectus* started to move from one continent to another.

(E) First stone tools were made.

Ⅱ　次の英文を読んで，下の問いに答えなさい。
（星印（＊）のついた語句には本文の後に注があります。）

As a psychiatrist*, I learned that anxiety and its close cousin, panic, are both born from fear. As a behavioral neuroscientist*, I know that fear's main evolutionary function is helping us survive. （　ア　）, fear is the oldest survival mechanism we've got. Fear teaches us to avoid dangerous situations in the future through a brain process called negative reinforcement.

For example, if we step out into a busy street, turn our head, and see a car coming right at us, we instinctively jump back onto the safety of the sidewalk. That fear reaction helps us to learn quickly that streets are dangerous and to approach them with caution. Evolution made this really simple for us. So simple that we need only three elements in situations like this to learn: an environmental cue, a behavior, and a result.(1) In this case, walking up to a busy street is our signal to look both ways before crossing. Crossing the street uninjured teaches us to remember to repeat the action again in the future. We share this survival tool with all animals. Even the sea slug*, a creature with the most "primitive" nervous system known in science (twenty thousand neurons total, as opposed to roughly a hundred billion in the human brain), uses this same learning mechanism.

Sometime in the last million years, humans evolved a new layer on top of our more primitive survival brain; neuroscientists call this the prefrontal cortex (PFC)*. (From an anatomical* perspective, this "newer" brain region is located just behind our eyes and forehead.) Involved in creativity and planning, the PFC helps us to think and plan for the future. The PFC predicts what will happen in the future based on our past experience. Yet critically, the PFC needs accurate information to make accurate predictions. If information is lacking, our PFC plays out different versions of what might happen to help us choose the best path forward.(2) It does this by running simulations based on previous events in our

lives that are most similar. For example, trucks and buses are similar enough to cars that we can safely assume we should look both ways to avoid any fast-moving vehicle.

However, anxiety is born when our PFCs don't have enough information to accurately predict the future. We saw this (3) with COVID-19, when it exploded onto the world stage in early 2020. As would be true of any newly discovered virus or pathogen*, scientists raced to study the characteristics of COVID-19 (4) in order to find out precisely how infectious and deadly it was so that we could act appropriately. Yet especially in the early days of discovery, uncertainty abounded. Without accurate information, our brains found it easy to spin ( イ ) and dread, based on the latest reports that we had heard or read. And because of the way our brains are wired, the more shocking the news — increasing our sense of danger and ( ウ ) — the more likely our brains are to remember it. Now add ( エ ) and uncertainty — the illness or death of family members; the prospect of losing your job; hard decisions about whether or not to send your kids to school; concerns about how to safely reopen the economy; and so on — and you get a big heap of badness for your brain to try to sort through.

Notice how fear itself does not equal anxiety. Fear is an adaptive learning mechanism that helps us survive. Anxiety, on the other hand, is maladaptive*; our thinking and planning brain spins out of ( オ ) when it doesn't have enough information.

出典：Judson Brewer (2021) *Unwinding Anxiety: New Science Shows How to Break the Cycles of Worry and Fear to Heal Your Mind*, pp. 15–17, Avery, New York より抜粋，一部改変

(注) psychiatrist 精神科医，精神分析医
neuroscientist 神経科学者
sea slug ナマコ，ウミウシ
prefrontal cortex (PFC) 前頭前皮質
anatomical 解剖(学)の，解剖組織上の
pathogen 病原菌，病原体
maladaptive 順応性[適応性]のない

(注意) 解答する際，句読点は1マスに1つ，英数字は大文字・小文字ともに1マスに2文字(奇数文字の時は1マスに1文字)記入すること。
(例：

| 英 | 単 | 語 | の | th | e |
|---|---|---|---|---|---|

)

1. 空欄( ア )に入る語句として，文脈上最も適切なものを次の中から選び，記号で答えなさい。
(A) As usual
(B) However
(C) In fact
(D) Otherwise

2. 下線部(1)について，(a) an environmental cue，(b) a behavior，(c) a result とし，本文に即してそれぞれの具体例を20字以内の日本語で説明しなさい。

3. 下線部(2)の the best path forward を選ぶために，PFC はどのようなことをするのか，本文に即して40字以内の日本語で説明しなさい。

4. 下線部(3)の this が指す内容を，本文に即して45字以内の日本語で説明しなさい。

5. 下線部(4)の scientists raced to study the characteristics of COVID-19 の目的について，本文に即して 45 字以内の日本語で説明しなさい。

6. 空欄(　イ　)と(　ウ　)と(　エ　)に入る表現の組み合わせとして，文脈上最も適切なものを次の中から選び，記号で答えなさい。

(A) (イ) elements of fear (ウ) stories of fear (エ) feelings of fear
(B) (イ) elements of fear (ウ) feelings of fear (エ) stories of fear
(C) (イ) stories of fear (ウ) elements of fear (エ) feelings of fear
(D) (イ) stories of fear (ウ) feelings of fear (エ) elements of fear

7. 空欄(　オ　)に入る語として，文脈上最も適切なものを次の中から選び，記号で答えなさい。

(A) control
(B) memory
(C) sight
(D) stock

Ⅲ　次の[A]，[B]に答えなさい。

[A]　次の英文の文脈に適合するように，(1)から(3)の(　　)内の語を並べ替えるとき，それぞれ3番目と5番目にくるものを選び，記号で答えなさい。

The surging development of artificial intelligence (AI) will produce medical breakthroughs that save and enhance billions of lives. It will become the most powerful engine for prosperity in history. It will give untold numbers of people, including generations not yet born, (1)(① never ② powerful ③ imagined ④ tools ⑤ their ⑥ ancestors). But the risks and challenges AI will pose are becoming clear too, and now is the time to understand and address them.

The health of democracy and free markets depends on access to accurate and verifiable information. In recent years, social media has made it (2)(① from ② fact ③ to ④ tougher ⑤ fiction ⑥ tell), but advances in AI will unleash legions of bots that seem far more human than those we've encountered to date. Much more sophisticated audio and video deep fakes will undermine our confidence in those who serve in government and those who report the news.

This problem extends beyond our institutions, because the production of "generative AI" (artificial intelligence that generates sophisticated written, visual, and other content in response to prompts from users) isn't limited to big tech companies. Anyone with a laptop and basic programming skills already has access to AI models far more powerful than those that existed even a few months ago and (3)(① volumes ② large ③ can ④ of ⑤ produce ⑥ content). The AI revolution will empower criminals, terrorists and other bad actors to code malware, create bioweapons, manipulate financial markets, and distort public opinion with startling ease.

出典：Ian Bremmer, "How the World Must Respond to the AI Revolution," *Time*, May 31, 2023 より抜粋，一部改変（https://time.com/6283716/world-must-respond-to-the-ai-revolution/）

(1) 3番目＿＿＿＿　5番目＿＿＿＿

(2) 3番目＿＿＿＿　5番目＿＿＿＿

(3) 3番目＿＿＿＿　5番目＿＿＿＿

[B] 次の英文を読んで，下の問いに80語程度の英語で答えなさい。ただし，句読点は語数に含めません。

Humans help each other—it's one of the foundations of civilized society. But a new scientific report citing three studies shows that a lack of sleep makes people less helpful and less generous. These studies used different techniques such as brain scans, interviews, surveys, and other quantitative methods. The brain scans showed that the parts of the brain which enable people to empathize with and understand others are less active after a sleepless night. Poor sleep quality also lowered people's desire to help others, such as holding an elevator door open for someone else, volunteering, or helping an injured stranger on the street. The analysis of 3 million charitable donations in the United States between 2001 and 2016 also found a 10% drop in donations after the transition to Daylight Saving Time—the practice of setting the clock forward one hour when summer arrives. As the time transition happens at midnight, if people sleep at their usual time and wake up at their usual time, people would have slept for one hour less. The report points out that our society often thinks sleep is unnecessary or a waste of time, but not having enough sleep can actually have social consequences. It concludes that sleeping is the best form of kindness we can offer ourselves, as well as the people around us.

出典：Robert Sanders, "Sleepless and Selfish: Lack of Sleep Makes Us Less Generous," *Berkeley News*, August 23, 2022 の要約(https://news.berkeley.edu/2022/08/23/sleepless-and-selfish-lack-of-sleep-makes-us-less-generous/)

**Question**

Based on the above article, discuss how your sleep quality and quantity could affect your helpfulness and generosity toward others. Provide specific examples to illustrate your points.