日本医科大学

# 令和２年度　入学試験問題

# 英　語　問 題 用 紙（前期）

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|---|---|
| 試験時間 | ９０分 |
| 問題用紙 | １～１８頁 |

## 注 意 事 項

1. 指示があるまで問題用紙は開かないこと。
2. 問題用紙および解答用紙に落丁，乱丁，印刷の不鮮明な箇所があったら，手を挙げて監督者に知らせること。
3. 解答が終わっても，または試験を放棄する場合でも，試験終了までは退場できない。
4. 携帯電話等の電子機器類は電源を必ず切り，鞄の中にしまうこと。
5. 机上には，受験票と筆記用具（鉛筆，シャープペンシル，消しゴム）および時計（計時機能のみ）以外は置かないこと。（耳栓，コンパス，定規等は使用できない。）
6. 問題用紙および解答用紙に受験番号と氏名を記入すること。
7. 解答はすべて解答用紙の所定の解答欄に記入すること。欄外には何も書かないこと。
8. この問題用紙の余白は自由に用いてよい。
9. 質問，トイレ，体調不良等で用件のある場合は，無言のまま手を挙げて監督者の指示に従うこと。
10. 中途退室時は，問題用紙および解答用紙を裏返しにすること。
11. 受験中不正行為があった場合は，試験の一切を無効とし，試験終了時間まで別室で待機を命じる。
12. 試験終了後，解答用紙は裏返し，問題用紙は持ち帰ること。

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| 受験番号 | | 氏　名 | |

[ I ] 次の英文を読み，設問に答えよ。解答用紙(記述用)に記入すること。

For millions of years, humans have created many kinds of artifacts, such as hammers, knives, and forks, which allow them to do things that they would not be able to do otherwise. A hammer allows you to hit an object with a force that would be impossible with a bare hand. While hammers and knives are examples of artifacts that extend the physical abilities of humans, there is also a category of artifacts called *cognitive artifacts*.

One example of a cognitive artifact is mathematics. Humans are not born with the ability to perform mathematical reasoning or do algebra, geometry, or calculus. Neither do humans learn mathematics naturally as they grow up, as in the case of language. You acquire these skills only if you study mathematics in school, for example, and they allow you to solve problems that people who haven't studied mathematics cannot solve. Used in the processes of thinking, remembering, and problem-solving, these kinds of artifacts enhance the cognitive abilities of humans. Even number systems, which seem obvious to most modern humans, are cognitive artifacts that allow humans to count things beyond ten.

Historically, there have been many number systems in the world, and some of them have been better than others at extending our cognitive abilities. Western Europe used Roman numerals from about the second century B.C. to 1500 A.D. In this number system, letters are used to represent numbers. For example, the letters I, V, X, L, and C represent the numbers 1, 5, 10, 50, and 100 respectively, such that XXVIII represents the number 28. Roman numbers are effective for measuring magnitude, even for large numbers of objects, but very poor for performing calculations. To add XXVIII (28) and CXXIII (123), for example, you would have to put all the number symbols in order from largest to smallest to get CXXXXVIIIIII, and then replace groups of numbers with higher-order ones (IIIII = V, VV = X, XXXXX = L) to get CLI (151). Doing addition this way is very cumbersome, but doing multiplication or division with this system is beyond cumbersome. In spite of the extreme difficulty of multiplying XII by IV or dividing CCCXII by IX, Europeans continued to use this system for over 1,500 years, with the consequence that they were not able to multiply and divide numbers effectively. However, in India and Arabia, a much more effective number system was being used. The Arabic number system, which was developed around the second century A.D., is the base 10 number system we still use today. This system can be easily used to multiply and divide even large numbers, making it a more useful cognitive artifact than the Roman numerals.

Another benefit of the Arabic number system is that once you have learned the system, it is possible to do calculations by imagining them in your mind's eye, without writing them down on paper. These kinds of tools that (1)complement human cognition are called *complementary* cognitive artifacts. While all cognitive artifacts augment your ability

to reason in some way, complementary cognitive artifacts enable people to continue to use them to some extent in their heads, even when the external artifact is absent.

Another example of a complementary cognitive artifact is the abacus. The abacus is a device for doing arithmetic physically with our hands and eyes. It is a wire frame with beads representing numbers—an upper bead is "five" and lower beads are "one" each. Rows represent powers of ten. The abacus is an ancient calculator that allows users to do addition, subtraction, multiplication, and division on very large numbers quickly by sliding the beads on the wire frame. However, as abacus users move from novices to experts, the part of the brain where the abacus is represented moves to the visual cortex, that is, the part of the brain responsible for visual-spatial processing. More simply, this means that they can do the calculations by imagining an abacus and manipulating the image in the mind. This makes abacus experts more intelligent in a sense by enabling them to do complex calculations in their heads more quickly and efficiently than other people. In this way, complementary cognitive artifacts can actually reorganize our brains and make us more intelligent.

Contrast the abacus with a digital calculator. The digital calculator is also fast and efficient for doing mathematical calculations—in many cases faster than an expert abacus user. Also, while the abacus takes years of training to master, the digital calculator can be used with minimal or no training. However, without the physical calculator, users retain none of the enhanced cognitive abilities that it gave them, regardless of how much experience they have. Furthermore, people who frequently rely on calculators may even become worse at doing simple mental arithmetic. In this way, the digital calculator is a *competitive* cognitive artifact because it competes with our own cognition rather than improving it. Unlike complementary cognitive artifacts, these cognitive artifacts have the potential to make us less intelligent and lose or weaken cognitive skills.

問1　本文の内容に照らし，cognitive artifacts とはどのような特徴をもつものであるかを日本語で説明せよ。

問2　下線部(1)に関して，設問に答えよ。

(1)　下線部(1)の単語を用いた次の英文を完成させるのに適切なものを，(あ)～(え)から1つ選べ。

This is meant to complement...

(あ)　environmental pollution by minimizing waste.
(い)　existing legal practices, not to replace them.
(う)　her on her appearance without being inappropriate.
(え)　your physical health because it disturbs your sleep patterns.

(2)　上記(1)で完成させた英文を日本語訳せよ。

問3　complementary cognitive artifacts に関して，設問に答えよ。

(1)　その特徴を有する例として本文中に示されているものを2つ挙げよ。本文中の表現のまま書き抜くこと。

(2)　それらに共通する特徴は何か，日本語で説明せよ。

問4　abacus は日本語で何と呼ばれるか，1語で書け。

問5　本文中の内容に合わないものを(あ)～(お)から１つ選び，その記号を書け。さらにそのように判断した理由を，本文および選んだ選択肢の具体的な内容に照らして日本語で説明せよ。

(あ)　The author explains how to do addition with Roman numerals in order to demonstrate its inefficiency.

(い)　The author believes that competitive cognitive artifacts benefit humans.

(う)　The author favorably discusses complementary cognitive artifacts.

(え)　The author argues that humans do not acquire language in the same way that they acquire mathematical skills.

(お)　The Roman number system is older than the Arabic number system.

[ II ] 下記の指示にしたがって英文を書け。解答用紙(記述用)に記入すること。

The text in [ I ] discusses cognitive artifacts. Write a paragraph or two giving one example of a complementary cognitive artifact and one example of a competitive cognitive artifact. For each example, explain clearly why it is complementary or competitive. Do not use any of the examples described in the reading.

(下書き用紙)

[III] 次の英文を読み，設問に答えよ。解答用紙(記述用)に記入すること。

1. Many people view climate change as a distant, abstract threat. But having them imagine the tangible consequences of resulting droughts or floods may [ A ] shift this perception and encourage pro-environmental behavior, a new study suggests.

2. Researchers asked 93 college students in Taiwan to read a report on temperature anomalies, floods and (1)other climate change-related events that have [ B ] the island. The scientists then asked 62 of the participants to write down three ways in (2)which such phenomena might impact their future lives. Half the people in that group (3)was instructed to imagine such scenarios in detail, including specific individuals and settings. The remaining 31 students did not complete either the writing (4)or imagining steps, acting as a control group.

3. All the participants then rated their perceptions of climate change risks by [ C ] to prompts such as "How likely do you think it is that climate change is having (1)serious impacts on the world?" (2)They used a scale from 1 ("very unlikely") to 7 ("very likely"). The average score was higher among (3)subject who had been asked to envision detailed scenarios than among (4)those who had not. The results were later [ D ] in a second experiment involving 102 participants.

4. Individuals in the first experiment (1)who had visualized the effects of climate change were subsequently more likely to say they would use air conditioning in an energy-saving manner. In the second experiment, nearly two-thirds of people in the visualizing group signed up to help clean a beach, compared with 43 percent in the non-visualizing one. And when [ E ] a choice of a vegetarian or non-vegetarian lunch box, nearly half the visualizers selected the (2)environmentally friendlier meatless option—compared with about 28 percent of the non-visualizers, the researchers reported online (3)on July in *Environment and Behavior*. The investigators did not track people to see(4)if they behaved differently in their day-to-day lives.

問1　[ A ] ～ [ E ] のそれぞれに入れるのに最もふさわしい動詞を次の語群から選び，必要ならば適切な形に直して1語で書け。なお，同じものを2度以上用いてはならない。

| | | | | |
|---|---|---|---|---|
| affect | agree | ask | confirm | contribute |
| correct | help | offer | prohibit | respond |

問2　段落2～4のそれぞれにおいて，下線部(1)～(4)のいずれか1か所に文法的な誤りがある。誤りの番号を解答欄にそれぞれ記入し，正しい英語に直した単語1語を矢印の右側に書け。

[IV] 以下の設問に答えよ。

> 解答用紙(マークシート)に記入すること。各問の末尾に示された，
> □内の数字に対応する欄に解答せよ。

問1 earthquake という名詞について，設問に答えよ。

(1) 第1アクセントが置かれる部分を下線部 (a)，(b) から1つ選べ。 1

earth - quake
(a) (b)

(2) 次のa～eの単語のうち，(1)で選んだ下線部と同じ発音をもち，しかもその部分に第1アクセントが置かれるものを1つ選べ。 2

a. conservative
b. headache
c. quivering
d. salesperson
e. workaholic

問2 bureaucracy という名詞について，設問に答えよ。

(1) 第1アクセントが置かれる部分を下線部 (a) ～ (d) から1つ選べ。 3

bu - reauc - ra - cy
(a) (b) (c) (d)

(2) 次のa～eの単語のうち，(1) で選んだ下線部と同じ発音をもち，しかもその部分に第1アクセントが置かれるものを1つ選べ。 4

a. authentic
b. democratic
c. logical
d. universality
e. viewpoint

問3　ginger という単語の最初の g の文字で表される部分と同じ発音をもつ単語をａ～ｅからすべて選べ。 5

a. guard
b. judgment
c. king
d. rigorous
e. rigid

問4　次のそれぞれの意味をもつ単語をａ～ｅから１つずつ選べ。

(1) sudden and unexpected 6

(2) not important or well-known 7

a. abrupt
b. anonymous
c. obscure
d. prevalent
e. sheer

問5　次のそれぞれの意味をもつ単語をａ～ｅから１つずつ選べ。

(1) to copy the way someone speaks or behaves 8

(2) not to give someone something that they want 9

a. diffuse
b. expel
c. ignite
d. mimic
e. withhold

問6　次のそれぞれの意味をもつ単語をａ～ｅから１つずつ選べ。

(1)　a person or thing that is likely to cause harm 10

(2)　the child of a person or animal 11

a. menace
b. offspring
c. orphan
d. prototype
e. sibling

問7　次のそれぞれの意味をもつ単語をａ～ｅから１つずつ選べ。

(1)　following one after the other in order 12

(2)　required by law or a rule 13

a. competent
b. compulsory
c. condensed
d. consecutive
e. consistent

問8　次のそれぞれの意味をもつ単語をａ～ｅから１つずつ選べ。

(1)　to cause a particular condition 14

(2)　to make the progress or growth of something slower 15

a. induce
b. inhale
c. inhibit
d. intimidate
e. intrude

(下書き用紙)

[ V ] Read the text and answer the questions that follow.

> 解答用紙(マークシート)に記入すること。各問の末尾に示された，
> □内の数字に対応する欄に解答せよ。

*Homo sapiens* has kept hidden a disturbing secret. Not only do we possess an abundance of uncivilized cousins, once upon a time we had quite a few brothers and sisters as well. (1)We are used to thinking about ourselves as the only humans, because for the last 10,000 years, our species has indeed been the only human species around. Yet the real meaning of the word human is "an animal belonging to the genus *Homo*", and there used to be many other species of this genus besides *Homo sapiens*. Moreover, in the not so distant future we might again have to (2)contend with non-*sapiens* humans. To clarify this point, I will often use the term "Sapiens" to denote members of the species *Homo sapiens*, while reserving the term "human" to refer to all extant members of the genus *Homo*.

Humans first evolved in East Africa about 2.5 million years ago from an earlier genus of apes called *Australopithecus*, which means "Southern Ape". About 2 million years ago, some of these archaic men and women left their homeland to journey through and settle vast areas of North Africa, Europe and Asia. Since survival in the snowy forests of northern Europe required different traits than (3)those needed to stay alive in Indonesia's steaming jungles, human populations evolved in different directions. The result was several distinct species, to each of which scientists have assigned a pompous Latin name.

Humans in Europe and western Asia evolved into *Homo neanderthalensis* ("Man from the Neander Valley"), popularly referred to simply as "Neanderthals". Neanderthals, bulkier and more muscular than us Sapiens, were well adapted to the cold climate of Ice Age western Eurasia. The more eastern regions of Asia were populated by *Homo erectus*, "Upright Man", who survived there for close to 2 million years, making it the most durable human species ever. This record is unlikely to be broken even by our own species. It is doubtful whether *Homo sapiens* will still be around a thousand years from now, so 2 million years is really out of our league.

[ 1 ] On another Indonesian island—the small island of Flores—archaic humans underwent a process of dwarfing. Humans first reached Flores when the sea level was exceptionally low, and the island was easily accessible from the mainland. When the seas rose again, some people were trapped on the island, which was poor in resources. [ 2 ] Big people, who need a lot of food, died first. Smaller fellows survived much better. Over the generations, the people of Flores became dwarves. [ 3 ] This unique species, known by scientists as *Homo floresiensis*, reached a maximum height of only one meter and weighed no more than twenty-five kilograms. They were nevertheless able to produce stone tools, and even managed occasionally to hunt down some of the island's elephants—though, to be

fair, the elephants were a dwarf species as well. [ 4 ]

In 2010 another lost sibling was rescued from oblivion, when scientists excavating the Denisova Cave in Siberia discovered a fossilized finger bone. Genetic analysis proved that the finger belonged to a previously unknown human species, which was named *Homo denisova*. Who knows how many lost relatives of ours are waiting to be discovered in other caves, on other islands, and in other climes.

While these humans were evolving in Europe and Asia, evolution in East Africa did not stop. The cradle of humanity continued to nurture numerous new species, such as *Homo rudolfensis*, "Man from Lake Rudolf", *Homo ergaster*, "Working Man", and eventually our own species, (4)which we've immodestly named *Homo sapiens*, "Wise Man".

The members of some of these species were massive and others were dwarves. Some were fearsome hunters and others meek plant-gatherers. Some lived only on a single island, while many roamed over continents. But all of them belonged to the genus *Homo*. They were all human beings.

It's a common (5)fallacy to envision these species as arranged in a straight line of descent, with Ergaster begetting Erectus, Erectus begetting the Neanderthals, and the Neanderthals evolving into us. This linear model gives the mistaken impression that at any particular moment only one type of human inhabited the earth, and that all earlier species were merely older models of ourselves. The truth is that from about 2 million years ago until around 10,000 years ago, the world was home, at one and the same time, to several human species. And why not? Today there are many species of foxes, bears and pigs. The earth of a hundred millennia ago was walked by at least six different species of man. It's our current exclusivity, not that multi-species past, that is peculiar—and perhaps incriminating.

**1.** Which of the following is closest to the author's meaning of the phrase *We are used to thinking*, marked (1) in the text? [16]

a. People make us think
b. We are accustomed to thinking
c. We can't help but think
d. We often thought in the past

2. Which of the following is closest in meaning to the phrase *contend with*, marked (2) in the text? 17

a. adjust ourselves to
b. compete with
c. live with
d. satisfy ourselves with

3. What does the word *those*, marked (3) in the text, refer to? 18

a. directions
b. human populations
c. snowy forests
d. traits

4. Which of the following best describes the purpose of the third paragraph of the text? 19

a. It gives a contrasting argument to that of the second paragraph.
b. It gives examples illustrating the idea in the second paragraph.
c. It outlines the effects of the ideas in the second paragraph.
d. It presents the main idea of the whole text.

5. Where should the following sentence be placed in the text? Choose the number corresponding to the location. 20

On the island of Java, in Indonesia, lived *Homo soloensis*, "Man from the Solo Valley," who was suited to life in the tropics.

a. 1
b. 2
c. 3
d. 4

6. Which one of the following does the author imply about the name *Homo sapiens* in the phrase marked (4) in the text? 21

a. Other species of humans were not wise.
b. Modern humans have bigger brains than other species.
c. Other species of humans tended to be modest.
d. Modern humans think very highly of themselves.

7. Choose ALL of the following that are NOT mentioned in the text about *Homo sapiens*. 22

a. why they became the dominant species of humans
b. where they originated
c. how long they have been the dominant species of humans
d. when they began to migrate

8. Choose ALL of the following statements that can be inferred from the text. 23

a. The author believes that it is unlikely that *Homo sapiens* will survive for another 1,000 years.
b. Multiple human species lived simultaneously from about 2 million years ago until about 10,000 years ago.
c. The author believes that *Homo sapiens* were larger and stronger than other species of humans.
d. *Homo sapiens* evolved in parallel with, rather than from, other species of humans.

9. Which of the following is closest in meaning to the word *fallacy*, marked (5) in the text? 24

a. misconception
b. theory
c. trend
d. argument

**10.** Which one of the following species of humans did NOT first appear in Europe or Asia, according to the text? 25

a. *Homo denisova*
b. *Homo ergaster*
c. *Homo floresiensis*
d. *Homo erectus*

使用著作物:

Based on a transcribed interview of David Krakauer by Sam Harris, *Complexity and Stupidity*, on the website *Making Sense* (https://samharris.org/podcast/complexity-stupidity), July 11, 2016 (accessed July, 2019).

Adapted from an article by Agata Blaszczak-Boxe on the website *Scientific American* (https://www.scientificamerican.com/article/visualizing-specific-impacts-of-climate-change-could-change-behavior/), November 1, 2018 (accessed August, 2019).

Adapted from an excerpt of a book by Yuval Noah Harari, *Sapiens: A Brief History of Humankind*, Signal, 2014.