

# 令和 2 年度 個別学力試験問題

## 外国語 (英語)

(120 分)

- 人文・文化学群 (人文学類, 比較文化学類, 日本語・日本文化学類)  
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,  
知識情報・図書館学類)  
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 9 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。

Emotions do not lie. They are never false. If you feel something you are definitely feeling it. If someone tells you that you are not justified in feeling it, that doesn't help. Nor does it help if they tell you that they feel completely (1) differently. There is still always a reason you are feeling it, and in this sense there is always some sort of logic to emotions. Instead of denying or suppressing emotions we should understand and explain them. I will go one step further and say we should even use them: it is important to remember that emotions can, and probably should, play a role even when we're being logical. Our access to emotions is an important difference between us and computers. Emotions can help us in all of our logical endeavors, and I would even go as far as to say they are crucial.

First of all, emotions can help us work out what we really believe in, just like they help us guess what is logically correct in mathematics before we start trying to prove it. Then when we do start trying to justify things, emotions help us to arrive at logical justifications, if we closely analyze where our gut feelings are coming from.

The next stage of a useful logical process involves persuading other people of things. We are going to discuss the importance of using emotions for this. But the emotions shouldn't supersede the logic — they should reinforce it.

Sometimes people try to argue that we should *only* use logic and scientific evidence to reach conclusions. However, if we then meet someone who isn't convinced by logic and evidence, how are we going to persuade them to be convinced by it? We can't use logic and evidence because that doesn't convince them. We are going to have to use emotions.

In a way this means that emotions are much more powerful than logic, and are much more convincing than any other possible method of justification. (3) If you feel something, there is absolutely no way to contradict it. This power should be

harnessed in a good way, to back up logic rather than contradict it.

(4) Living too much in the logical world can make it difficult to deal with other people, as they do not usually, or ever, behave entirely logically. On the other hand, those who live too much in the emotional world may have trouble dealing  
(5) with the world in as much as it *does* behave logically. But living very predominantly in the emotional world doesn't mean being actively irrational; it might just mean being guided more by emotions than by logic. And it might mean being unable to follow complex reasoning about the complex world.

Children often live very predominantly in the emotional world. All their emotions are valid and strongly felt, but they are unable to see more complex long-term arguments such as: if you only ever eat ice cream then eventually this will probably not be very good for you. Or even: if you roll around in the snow it might well be fun, but your clothes will get wet and then you'll be miserable.

One aspect of growing up is developing the ability to comprehend longer chains of causation and logic. One concrete way this manifests itself is in the ability to make long-term plans, or make short-term sacrifices for long-term gains, rather than just living for instant gratification in the moment. At least,  
(6) this is one of my personal axioms; at the other extreme there are some people who strongly believe in only living in the moment, or living entirely emotionally. When adults live strongly in the emotional world it doesn't necessarily mean they are neglecting the logical world. I believe I live very strongly in both. I respect and trust my emotions, but always look for logical explanations of them so that they're not "just" emotions. The two are not mutually (ア).

出典：Eugenia Cheng (2018) *The Art of Logic: How to Make Sense in a World that Doesn't*, pp. 262–266, Profile Books, London より，一部省略改変

(注意) 解答する際、句読点は1マスに1文字記入すること。

1. 下線部(1)が言おうとしていることを, that が指す内容を明らかにして, 40 字以内の日本語で述べなさい。
2. 下線部(2)の *supersede* と同じ意味を表す表現を次の中から 1 つ選び, 記号で答えなさい。  
(A) take advantage of                      (B) take the shape of  
(C) take care of                              (D) take the place of
3. 下線部(3)のように言っているのはどうしてか, その理由を本文に即して 30 字以内の日本語で述べなさい。
4. 下線部(4)の *harnessed* の代わりに使える語として最も適切なものを次の中から 1 つ選び, 記号で答えなさい。  
(A) achieved      (B) utilized      (C) produced      (D) obtained
5. 下線部(5)の内容を, 50 字以内の日本語でわかりやすく説明しなさい。
6. 下線部(6)の内容を, 25 字以内の日本語で簡潔に説明しなさい。
7. 空所(ア)に入る最も適切な語を次の中から 1 つ選び, 記号で答えなさい。  
(A) dependent      (B) related      (C) exclusive      (D) consistent

II 次の英文を読んで、下の問いに答えなさい。

(星印(\*)のついた語には本文の後に注があります。)

One of the most striking features of living organisms, both animals and plants, is the way their physiology and behavior have adapted to follow the fluctuations of daily light and nightly darkness. A clock in the brain synchronized to environmental cues generates biological changes that vary over a 24-hour cycle—circadian rhythms (from the Latin words *circa* and *diem*, meaning “about” and “a day,” respectively). In this way, the Earth’s rotation is reproduced in the dynamics of our neural\* circuits.

The sleep-wakefulness cycle is a typical circadian rhythm. Wakefulness is characterized by sensory activity and movement; during sleep the senses lose touch with their surroundings, and movements subside.<sup>(1)</sup> This periodic loss of consciousness appears on electroencephalogram (EEG)\* recordings as a clear signature; deep sleep consists of slow oscillations\* of high amplitude\*. Wakefulness, in contrast, is made up of fast, low-amplitude oscillations. Much about sleep remains a mystery, however. Why would an animal shut down basic sensory and motor activity for hours on end, leaving itself a target for predators? This question becomes more acute in aquatic mammals, which need to regulate<sup>(2)</sup> breathing and body temperature while they sleep.

Remarkably, some animals have solved this problem by developing the ability to sleep with one half their brain while remaining alert with the other—a behavior known as unihemispheric\* slow-wave sleep (USWS). Still others engage in USWS under some circumstances but put both hemispheres to bed when necessary. Marine mammals, bird species and possibly reptiles enter a half-on/half-off state, sometimes keeping one eye open during these intervals. Recently researchers have even discovered a remaining form of unihemispheric sleep in humans.

Half-sleep provides a compelling means to study the science of sleep. While

studies are carried out on the resting half, the opposite side can serve as the requisite control for experiments. The ability to thrive with a relative lack of sleep, as dolphins and some birds do, may provide ideas for treating human sleep disorders, which often affect one brain hemisphere more than the other.<sup>(3)</sup>

The study of unihemispheric sleep started in 1964, when controversial researcher John C. Lilly suggested that dolphins could sleep using one side of the brain after observing that the animals keep only one eye closed during their daily rest. Lilly assumed that when asleep, dolphins could still watch and listen to their surroundings. It would take later experiments to determine what was happening in cetacean\* brains.

Cetaceans — whales, dolphins and porpoises — are still the subjects of studies on unihemispheric sleep. The animals preserve two physiological features from their ancestors' life on land: lungs for breathing air and mechanisms for maintaining nearly constant body temperature in water. Sleeping with half a brain, it seems, has allowed them to retain those features in an aquatic environment.

More recently, Lev Mukhametov of the A. N. Severtsov Institute of Ecology and Evolution at the Russian Academy of Sciences and his colleagues looked more deeply than John C. Lilly did into what was happening in the cetacean brain. Mukhametov and his colleagues studied sleep extensively in bottlenose dolphins. In EEG recordings, the researchers consistently found that one hemisphere of the animals' brain was in a state of slow-wave sleep, while the other was awake. They rarely observed sleep in both hemispheres, and they recorded no clear signs of the rapid eye movement (REM) sleep associated with dreaming.

During USWS the awake hemisphere of a dolphin's brain controls swimming and surfacing to breathe. As Lilly guessed from  cursory  observation, the animal's one open eye, linked to the opposite-side awake hemisphere of the brain,<sup>(4)</sup> allows a dolphin to monitor for predators and swim in unison with its companions while the other half of the brain rests. In 1999 P. Dawn Goley of Humboldt State University observed — as did Guido Gnone of the Aquarium of Genoa in Italy and

his colleagues in 2001—that when dolphins swam in groups, the open eye of a group member maintained visual contact with others. If a partner shifted to the opposite side, the eye pattern (ア).

Dolphins also confront cold water temperatures that expose them to high heat loss. Keeping one hemisphere of the brain awake during rest allows the animals to stay warm by frequently moving their flippers and tail to swim and hover near the surface while they sleep—observations reported by Praneshri Pillay and Paul R. Manger, both then at the University of the Witwatersrand, Johannesburg.

Cetaceans evolved from a common terrestrial ancestor with hippopotamuses and other hoofed\* mammals. The move from a terrestrial to an aquatic environment was gradual and may have included a semi-aquatic transition that entailed significant physiological and behavioral adjustments. Consequently, cetaceans' sleep behavior represents a singular example of adaptation to a new environment that demonstrates a trade-off between the need for sleep and survival.<sup>(5)</sup>

Humans do not engage in classic USWS, but they occasionally experience something reminiscent of it. Masako Tamaki and her group at Brown University<sup>(6)</sup> made EEG recordings when people spent the night in an unfamiliar environment. In a 2016 publication by Tamaki, the EEGs showed slow waves indicative of deep sleep in the right hemisphere and shallow slow-wave activity in the left hemisphere, a sign of more alertness. The left hemisphere, moreover, was more easily aroused than the opposite half. This asymmetry, referred to as the first-night effect, disappears by the second night but seems to preserve alertness in an unfamiliar place.

出典：Gian Gastone Mascetti (2019) “One Eye Open: Why dolphins, seals and other animals developed the capacity to sleep with half their brain awake,” *Scientific American*, June 2019 issue, pp. 42–45 より，一部省略  
改変

(注) neural 神経の  
electroencephalogram (EEG) 脳波図  
oscillations 振動  
amplitude 振幅  
unihemispheric 半脳の  
cetacean 海洋哺乳類(の)  
hoofed 蹄(ひづめ)のある

(注意) 解答する際、句読点は1マスに1文字記入すること。

1. 下線部(1)の内容を40字以内の日本語でわかりやすく説明しなさい。
2. 下線部(2)のように言えるのはどうしてか、その理由を本文に即して35字以内の日本語で述べなさい。
3. 下線部(3)の thrive と同じ意味を表す表現を次の中から1つ選び、記号で答えなさい。  
(A) stay awake (B) stay resting (C) stay healthy (D) stay warm
4. 下線部(4)の cursory の代わりに使える語として最も適切なものを次の中から1つ選び、記号で答えなさい。  
(A) careful (B) rough (C) close (D) detailed
5. 下線部(5)の内容を30字以内の日本語でわかりやすく説明しなさい。
6. 下線部(6)の something は具体的にどのような現象を指しているか、35字以内の日本語で簡潔に説明しなさい。
7. 空所(ア)に入る最も適切な語を次の中から1つ選び、記号で答えなさい。  
(A) disappeared (B) reversed (C) resulted (D) followed



Ⅲ 次の[A], [B]に答えなさい。

[A] 下の英文の文脈に適合するように, (1)から(3)の( )内の語または句を並べ替えるとき, 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。

Modesty or humility is (1) (① important ② of ③ proper behavior ④ aspects ⑤ the most ⑥ one of) in Japan. In Japanese society, people are expected to be modest regardless of their social position; that is, they must learn to modulate the personal display of talent, knowledge, or wealth in an appropriate manner. Self-assertiveness is more or less discouraged, while consideration for others is encouraged. This attitude is illustrated in a famous Japanese proverb “The (2) (① that ② nail ③ down ④ sticks up ⑤ gets ⑥ hammered)” (*Deru kui wa utareru*), which means that those who display their abilities too openly (3) (① by ② the risk ③ crushed ④ run ⑤ of ⑥ being) others.

出典: Roger J. Davies and Osamu Ikeno (eds.) (2002) *The Japanese Mind: Understanding Contemporary Japanese Culture*, p. 143, Tuttle Publishing, North Clarendon, VT より抜粋, 一部改変

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|-----|-----------|-----------|
| (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、あなた自身の経験に基づいた具体的な理由を明示しながら、日本における food waste の問題に対する考えを 100 語程度の英語で述べなさい。ただし、句読点は語数に含めません。

Food waste is an increasingly serious problem worldwide. Roughly 1.3 billion tons of food is reportedly wasted globally each year — even as more than 800 million people worldwide continue to suffer from malnutrition. The United Nations Sustainable Development Goals (SDGs) call for halving per capita food waste by 2030. Overproduction of food and the disposal of food also result in wasteful energy consumption and the discharge of gases that contribute to global warming. Cutting back on food waste is a particularly serious challenge for Japan since it relies heavily on imports to meet its food demand.

出典：Editorial (May 26, 2019): “Addressing the nation’s food waste problem,” *The Japan Times* より抜粋  
(<https://www.japantimes.co.jp/opinion/2019/05/26/editorials/addressing-nations-food-waste-problem/>)