第 1 問から第 4 問では、問題文の中の [　　] 内の数字はマークシートの問番号を示している。該当する問番号の解答記入欄に答をマークしなさい。

第 1 問　次の問 1 ～ 8 の空所 [　1　] ～ [　8　] に入れるのに最も適切なものを (1) ～ (4) から 1 つ選び、その番号をマークしなさい。

問 1.　A: Did you hear about the investor who betrayed his business partners?
B: Yes, I did. He is known for being dishonest. His business partners probably [　1　] trusted him. It was foolish to take such a risk.

(1) should be　(2) should have　(3) should not be　(4) should not have

問 2.　From the publisher’s perspective, it was deemed to be too [　2　] of the author to hand out so many free copies of her book.

(1) crucial　(2) generous　(3) precious　(4) surprised

問 3.　He had little [　3　] with the problematic work situation because he was on vacation at the time it happened.

(1) do　(2) done　(3) to do　(4) to doing

問 4.　It was the intense quarrel between them that [　4　] just after they began to talk about politics that did it.

(1) bore out　(2) broke out　(3) called out　(4) got out

問 5.　Our newest employee was put in [　5　] of that critical task.

(1) change　(2) charge　(3) reliability　(4) responsibility

問 6. She gradually became all [6] offended by her grandchildren’s lack of respect.

(1) more (2) most (3) the more (4) the most

問 7. The police want to identify a suspicious vehicle that passes by the Nolan family’s home [7] 10:15 every day.

(1) at (2) from (3) in (4) on

問 8. Working conditions [8] from any danger are appealing to most people.

(1) derived (2) different (3) free (4) suffered

第 2 問　次の問 1 ～ 4 においては、それぞれ日本語の意味に合うように下の (1) ～ (7) の語句を並べかえて空所を補い、最も適切な文を完成させなさい。解答は [　9　] ～ [　16　] に入れるものの番号のみをマークしなさい。ただし文頭にくる文字も小文字にしてある。

問 1.　5 日間で 5 件の交通事故が起きた。

[　9　] ＿＿＿ ＿＿＿ ＿＿＿ ＿＿＿ [　10　] ＿＿＿ days.

(1) as	(2) five	(3) happened	(4) have
(5) in	(6) many	(7) traffic accidents	

問 2.　インドが今のようになったのは経済成長のおかげだ。

India ＿＿＿ [　11　] ＿＿＿ ＿＿＿ ＿＿＿ [　12　] ＿＿＿.

(1) become	(2) has	(3) it	(4) its economic growth
(5) owes	(6) to	(7) what	

問 3.　日本人には当たり前の習慣でも、外国人観光客には風変りなものであることがよくある。

It is common ＿＿＿ [　13　] ＿＿＿ ＿＿＿ ＿＿＿ ＿＿＿ [　14　] unusual ones for foreign tourists.

(1) by	(2) for	(3) for customs	(4) granted
(5) Japanese people	(6) taken	(7) to be	

問 4.　留年だけは絶対にしたくない。

The ＿＿＿ [　15　] ＿＿＿ ＿＿＿ [　16　] ＿＿＿ ＿＿＿.

(1) do	(2) I	(3) is	(4) last
(5) repeat a year	(6) thing	(7) want to	

第 3 問 Read the article and answer the questions that follow.

Jessica Morris' knee started buckling back in March 2022 while she played with her daughter at the park. "Well, that's kind of odd," she thought. Maybe she needed to up her exercise routine. But when her symptoms intensified, a genetic test confirmed that Morris had ALS – just like 22 other people in her family with the hereditary ALS-associated mutant SOD1 gene. ALS is short for amyotrophic lateral sclerosis, a terminal neurodegenerative disease. By December, she required a foldable, mechanical wheelchair and resorted to crawling up the stairs to her bedroom.

"At that point, we knew what we were dealing with," the 36-year-old says. When she was 6 years old, her father died in August 1994 in his early 30s after a nearly year-long battle with ALS. Nearly 5,000 new patients are diagnosed with ALS each year, per the CDC. Devastated by her diagnosis, she started thinking about her short-term future, including a Disney Cruise with her husband and their three kids. But treatments, studies and research are giving patients hope in 2024. And for the 2% of patients with the mutant SOD1 gene, one new medication – Qalsody (tofersen) – is offering more hope than ever. It's actually slowing the disease down in some people like Morris and, anecdotally, may even make them better.

"That's extraordinary because most people in this field never believed we could do that," says neurologist Dr. Richard Bedlack of Duke University, head of the Duke ALS Clinic. "They believed the best we might be able to do is slow the disease down. But it's pretty clear now that this disease can be stopped or even reversed if we hit the right target."

After Morris started receiving monthly injections of Qalsody that December, she was walking up the stairs again by May of last year. Now she doesn't use a wheelchair at all. She didn't even need one on that Disney Cruise and climbed up and down a ladder in the middle of the ocean with her kids. Her doctor was floored and told her that her leg was stronger than when she started. Morris' nurses were also surprised because they see many ALS patients without a positive prognosis. So, they said it's nice to see someone improving. People rarely associate ALS patients with such stark improvements.

The average age of ALS onset is about 60 years old. It presents differently in all patients, though typically shows up as weakness in hands and feet. About one-third of people start with slurred speech and have difficulty swallowing, and a small percentage have difficulty breathing. Patients ultimately die of ALS because they can't breathe. The prognosis, too, varies. You're likely to live about three to five more years once diagnosed, but some live past seven years and others live decades.

Morris (　あ　), of course. "I'm not trying to say I don't have limitations because I do. I walk with a cane. Uneven surfaces are not good for me. But otherwise, I am so much more independent." Dr. Jonathan Glass, director of the Emory ALS Center, adds: "We can't stop the disease at this point." The only exception is Qalsody, though only for that small percentage with the mutant SOD1 gene. ALS specialists remain hopeful for more advancements.

Only 10% of ALS cases run in families. It's otherwise sporadic. In Morris' case, 22 people in her family have the mutant SOD1 gene; you have a 50% chance of having the gene if one of your parents

does. Morris is one of six people in her family receiving treatment right now. “If you’re carrying one of these highly pathogenic mutations, you probably have 22 people in your family that have had it,” Glass says. “But you just don’t know about it.” Morris recommends talking to your doctor to see if genetic testing is right for you if you have something like ALS in your background.

注 buckle: 曲がる
amyotrophic lateral sclerosis: 筋萎縮性側索硬化症
mutant: 突然変異による
SOD1: 活性酸素から細胞を保護する酵素の一種
neurodegenerative: 神経変性の
prognosis: 予後（病状についての経過見通し）
stark: 著しい
onset: 発症
slurred speech: 不明瞭な話し方
sporadic: 孤発性の
pathogenic: 病原性の

問 1. Based on the context of the article, which phrase best fits (あ)? Write the number of your answer in [17].

(1) has no remaining symptoms
(2) has yet to be diagnosed
(3) is unable to function by herself
(4) still struggles in some ways

問 2. Which statement is closest to what is mentioned in this article? Write the number of your answer in [18].

(1) One out of ten people who have a parent with the mutant SOD1 gene will inherit the gene.
(2) Qalsody seems effective only for the ALS patients with the mutant SOD1 gene.
(3) Researchers have been able to verify that ALS is almost always hereditary.
(4) The first symptom most commonly experienced by ALS patients is trouble speaking.

問 3. Which statement is closest to what is mentioned in this article? Write the number of your answer in [19].

(1) After first learning she had ALS, Jessica Morris’ biggest concern was how long she would live.
(2) Despite 22 family members having the mutant SOD1 gene, Jessica Morris is the only one in her family eligible for Qalsody treatment.
(3) Jessica Morris’ symptoms were getting worse until she started getting treated with Qalsody.
(4) Scientists believe that Jessica Morris has improved so drastically because her ALS onset was much earlier than the average age.

第 4 問 Read the article and answer the questions that follow.

In the video game and TV show *The Last of Us*, humans struggle to survive after an infectious fungus turns ordinary people into zombies. Creators of the franchise didn't look far for inspiration — the series is based on a real-life species of fungus that performs a kind of "mind control" on its insect hosts.

Ophiocordyceps unilateralis, otherwise known as cordyceps or zombie-ant fungus, infects insects such as ants or spiders. Like other parasites, cordyceps drains its host completely of nutrients before filling its body with spores that will let the fungus reproduce. It then compels the insect to seek height and remain there before it expels these spores, infecting other nearby insects in the process.

Bryn Dentinger, a biology professor at the University of Utah and curator of mycology at the Natural History Museum of Utah, said that the fungus is one of the best known, and probably most commonly encountered, kinds of organisms with this mind control capability.

And he said that scientists aren't entirely sure how cordyceps is able to have the effect that it does on insects, although there are theories.

"There seems to be some combination of physical manipulation of muscle fibers, for example, possibly growth into the brain itself, that can impact its behavior," he said. "But there's also very likely some sort of chemical attack on the host, either small molecules, or proteins or some other things, that end up manipulating brain behavior."

Dentinger, who is also a fan of the TV show adaptation of *The Last of Us,* said that there are some major (　あ　) between how the fungus is portrayed in the show and in real life. Cordyceps does not typically infect other hosts through the mouth, for example, and the infected aren't connected to one another through a network. And, perhaps the most important: The fungus cannot infect humans.

"Our body temperatures are high enough that most organisms, their proteins would denature at that temperature and so they can't survive in our bodies," he said.

But there are species of fungus that are able to withstand higher temperatures, and can therefore infect humans. Climate change, as Dentinger explains, is equipping certain fungi with the capacity to withstand higher temperatures. And it's possible that a fungus with similar mind-control capabilities could, at some point, be able to withstand a human's body temperature.

"That may be one reason why we're seeing more fungal infections in humans, but again, to date, none of them are cordyceps," he said. "However, maybe that will happen in the future, but, at the moment, that is not a possibility." And, as Dentinger said, there are already species of fungus that alter a human's mental processing, such as psilocybin mushrooms, otherwise known as "magic mushrooms." Meanwhile, other kinds of fungi are already ubiquitous in human life. Take yeast, for example, which is found in bread and in the human gut.

And while the prospect of a fungus being able to manipulate human behavior isn't impossible,

it’s not likely, according to Dentinger. The traits the fungus has that allow it to attack an insect host are very specific to that insect — and it’s not easily transferable to another species. “It’s unlikely that they would be able to hop from, say, an ant to a human, because we’re so different,” he said.

注 fungus: 菌類　cordyceps: 冬虫夏草属　spore: 胞子
curator: 学芸員　mycology: 菌類学　denature: 変性する
psilocybin: サイロシビン　yeast: 酵母菌

問 1. Based on the context of the article, which word best fits (あ)? Write the number of your answer in [20].

(1) distinctions (2) parallels (3) possibilities (4) relationships

問 2. Which statement about cordyceps is closest to what is mentioned in this article? Write the number of your answer in [21].

(1) Among organisms that are capable of mind control, cordyceps is the type most likely to be encountered.
(2) Ants or spiders can become infected with cordyceps by being completely drained of nutrients.
(3) Cordyceps is based on a real species of fungus that has been featured in a video game and TV show.
(4) Cordyceps is known as zombie-ant fungus because infected ants can turn ordinary people into zombies.

問 3. Which statement is closest to what is mentioned in this article? Write the number of your answer in [22].

(1) Certain fungi that are similar to cordyceps but can withstand higher temperatures are starting to contribute to climate change.
(2) It cannot be ruled out that a fungus capable of mind control may one day be able to withstand a human’s body temperature.
(3) Psilocybin mushrooms and cordyceps are the most common examples of fungi that are known to alter a human’s mental processing.
(4) Scientists found convincing evidence that cordyceps manipulates physical muscle fibers and attacks the host using chemicals.

この後の第 5 問と第 6 問は記述用解答用紙に解答しなさい。

第 5 問　次の英文を読み、後の問いに答えなさい。

The town of Kampi Ya Samaki was once a bustling fishing and tourism center on the shores of Lake Baringo, one of a chain of major lakes nestled in the Great Rift Valley of western Kenya. Today, however, much of the town is submerged, with only the tops of houses, hotels, churches, and schools still visible. Seven islands used to sit just offshore. But the rising waters mean now “there are six,” says Evans Limo, a local tour guide.

Such flooding has become a common sight throughout the Rift Valley, where lakes have swelled over the past decade. Lake Baringo, for example, has doubled in area since 2010 to about 26,000 hectares. Kenyan officials say the flooding has created “panic and anxiety” in lakeshore communities and affected nearly 400,000 people, with many forced to abandon their homes. In some communities, shifting shorelines have exposed residents to deadly attacks by crocodiles and hippos.

【　あ　】

Now, a novel lawsuit brought by people living around Lake Baringo has put a spotlight on the question of ≪A≫whether climate change is to blame for the rising lakes—and ≪B≫whether Kenya’s constitution and a landmark 2016 climate law obligate government agencies to compensate flooding victims. The goal of the court challenge, which was scheduled to get a hearing this week, is to “enforce the climate change duties of public officials,” says Omondi Owino, the lead attorney representing the residents. The case, analysts say, is among the first in Africa to test a government’s responsibility for helping its citizens cope with the impacts of climate change.

【　い　】

For years, residents and researchers were uncertain about the cause of the expanding lakes. Some believed the trend was tied to the complex geology and groundwater hydrology of the Great Rift Valley, a series of faults and ridges stretching 7000 kilometers from Lebanon across eastern Africa to Mozambique. Historically, they noted, the lakes have periodically shrunk and grown dramatically, to sizes even larger than seen today, perhaps because of crustal movements.

Others believed climate change was to blame. Average temperatures in eastern Africa have climbed by about 1 °C over the past 50 years, and climate models have predicted that the region would become wetter as it warmed. But real-world data have complicated those predictions by showing that, although regional rainfall has increased in recent decades, droughts have also become more prevalent—a puzzle scientists have called “the eastern Africa climate paradox.”

【　う　】

To clarify the issues, in 2020 the Kenyan government commissioned a major inquiry into the causes and consequences of the flooding. Research teams visited the lakes and combed through data on land use, climate, and hydrology. In a 2021 report they concluded that a number of factors were likely contributing to lake expansion, including land use changes that have accelerated runoff and caused sediment to build up on lake bottoms. But, “The main reason for the rising water levels is climate change,” the authors wrote. The report noted that rainfall had increased in upland areas, as the models predicted, especially in 2019, a particularly wet year. Rivers feeding the lakes had swelled, even as rainy, cooler weather reduced evaporation. “The inputs increased and the main output—which is evaporation—was reduced due to the cold spells and extended rains,” says geologist Lydia Olaka of the Technical University of Kenya.

Mathew Herrnegger, a hydrologist of the University of Natural Resources and Life Sciences, Vienna, who was not involved in the report, agrees with that analysis. Other studies, he notes, have concluded that “the Rift Valley lakes are very sensitive to changes in climate, which has led to complete desiccation but also high [water levels] in the past.”

【　え　】

That inaction, argue the residents and Kituo Cha Sheria, a Nairobi-based advocacy group, violates human rights provisions of Kenya’s constitution and the 2016 climate law, which was the first such measure adopted by an African nation. Among other things, that law empowers the government to “mobilize … public and other financial resources for climate change response.” The lawsuit alleges that government officials “failed, refused, or neglected” to “anticipate, prevent, or minimize” the impacts of climate change.

【　お　】

Government lawyers have rejected that claim in recent filings at the Environment and Land Court in the town of Iten. Even if climate change is causing the flooding, they say the government is not responsible for paying damages because Kenya is not a major contributor to planetary warming. And the county government argues that it, too, is a victim of the flooding. It notes the rising lakes have swallowed numerous government facilities, such as police stations and schools, and reduced revenues from the tourism industry.

注　bustling: 活気のある　　nestled in: ～に位置している　　submerge: ～を水没させる
　　landmark: 画期的な　　crustal: 地殻の

comb through: ～を徹底的に調査する
periodically: 定期的に
cold spell: 低温続き
mobilize: ～を動員する
runoff: 地表を流れる雨水
desiccation: 枯渇
hydrology: 水文学
sediment: 堆積物
empower: ～に権限を付与する

問 1. ケニア当局者によれば、グレート・リフト・バレー周辺の湖で発生している洪水により、その地域の住民はどのような被害を受けているのか、本文の内容に即して日本語で述べなさい。

問 2. ケニア政府の調査団は、下線部 ≪A≫ に関しては気候変動が主な原因と述べているが、どのような気候変動がどのような経過をたどって湖面上昇につながったと報告しているのか、本文の内容に即して日本語で述べなさい。

問 3. 下線部 ≪B≫ に関して、ケニア政府側の弁護士はどのような主張をしているのか、本文の内容に即して日本語で述べなさい。

問 4. グレート・リフト・バレー周辺の湖で発生している洪水に関して、バリンゴの郡政府はどのような主張をしているのか、本文の内容に即して日本語で述べなさい。

問 5. 次の段落は本文のどの位置に置くのが最も適切か、【あ】～【お】の記号で答えなさい。

The report also suggested the government address the humanitarian crisis caused by the flooding, including by resettling displaced people and perhaps even buying submerged properties. But adequate help never materialized, alleges the lawsuit filed in 2022 by 66 members of the Ilchamus and Tugen communities against the county government of Baringo and national agencies.

注 humanitarian: 人道的な submerge: ～を水没させる materialize: 実現する

第 6 問　次の英文を読み、下線部(1)～(3)の内容を英語にしなさい。

Two galaxies near our own Milky Way may have had a close encounter billions of years ago that created a vast bridge of gas that links them together to this day, a new study finds.

Observations from the National Science Foundation's Green Bank Telescope, a massive radio instrument in Green Bank, West Virginia, indicate that hydrogen gas may be streaming between the colossal Andromeda Galaxy, or M31, and its neighboring Triangulum Galaxy, or M33.

"The properties of this gas indicate that these two galaxies may have passed close together in the distant past," Jay Lockman, of the National Radio Astronomy Observatory (NRAO), said in a statement. "(1)二つの銀河をつなぐガス状の橋がどのようなものなのかを研究することで、我々はそれらの両銀河の進化を理解する新しい手がかりを得ることができる。"

These results were hinted at in a 2004 discovery made by astronomers using the Westerbork Synthesis Radio Telescope in the Netherlands, but these early observations of a gaseous link between M31 and M33 were largely contested on technical grounds, the researchers said.

The new results, however, seem to indicate that astronomers' hunch eight years ago may have been correct. (2)高感度の Green Bank 望遠鏡は、ガス状の橋の存在を確認しただけでなく、その内部に６つのガスの密集塊を発見した。

Lockman and his colleagues examined these clusters and found that they share roughly the same relative velocity with respect to Earth as they do to the Andromeda and Triangulum galaxies. This indicates that they could be part of a bridge between the two neighboring structures, the researchers said.

The Andromeda and Triangulum galaxies are located approximately 2.6 and 3 million light-years from Earth, respectively. Both are members of the so-called Local Group of galaxies, which is made up of our own Milky Way and roughly 30 other galaxies.

When two galaxies pass close to one another, the encounter can cause gas from the galaxies being strewn across intergalactic space, creating a lengthy "tidal tail" between them.

"We think it's very likely that the hydrogen gas we see between M31 and M33 is the remnant of a tidal tail that originated during a close encounter, probably billions of years ago," Spencer Wolfe, of West Virginia University in Morgantown, said in a statement. "The encounter had to be long ago, because neither galaxy shows evidence of disruption today."

The researchers intend to use the Green Bank Telescope for follow-up studies to learn more about the gas bridge, and to better understand properties of the Andromeda and Triangulum galaxies themselves.

"The gas we studied is very tenuous and (3)それによる電波放出が微弱であるため、ほとんどの電波望遠鏡の観測可能範囲外にある," Lockman said. "We plan to use the advanced capabilities of the Green Bank Telescope to continue this work and learn more about both the gas and, hopefully, the orbital histories of the two galaxies."

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