（令７前）

問 題 訂 正

外国語（英語）

訂正箇所	大問Ⅰ　２ページ　注の部分
誤	rover　　惑星探査車
正	rover<u>s</u>　　惑星探査車

I　次の文章は，JAXAの「小型月着陸実証機」について書かれたものである。この文章を読んで，問1～5に答えなさい。(配点35点)

Japan landed its *Smart Lander for Investigating the Moon* (SLIM) craft on the surface of the Moon on January 20, 2024. Despite a power issue(1) with the lander, the event can be considered a success in terms of both its political and technical significance. It is Japan's first lunar landing — making it only the fifth country in the world to successfully land on the Moon. This is a significant achievement and solidifies(a) Japan's position as a leader in space technology. The craft landed successfully on the lunar surface and deployed(b) its rovers*, but SLIM's solar cells were not functioning properly — meaning that the craft could likely only operate for a few hours.

Like NASA and other space agencies, the Japan Aerospace Exploration Agency (JAXA) wants to advance(c) research and technology by demonstrating new techniques and collecting scientific data. The landing is also a part of something (　A　) — a growing global interest in lunar activity.

However, Japan's achievement is not only symbolic — JAXA is demonstrating a number of new technologies with the lander. The name, *Smart Lander for Investigating the Moon*, refers to the spacecraft's new precision-landing* technology. SLIM's landing technology helps it detect and avoid potential obstacles. This technology could assist future landings by allowing spacecraft to land in relatively small areas amid rocky or uneven terrain, rather than having to find (　B　) clearings. This ability will be particularly important in the future as countries focus on very specific areas of interest at the lunar south pole.

The lander also carried two small rovers, each of which will demonstrate a new technology for moving on the Moon. Lunar Excursion Vehicle 1 (LEV-1) has a camera, as well as scientific equipment, and uses a hopping mechanism to maneuver on the Moon. Lunar Excursion Vehicle 2 (LEV-2), developed in a partnership among government, industry and academia, is a sphere (　C　) enough to fit in the palm of one hand. Once on the surface, its two halves separate slightly, allowing it to roll

around.

SLIM is designed to land within a 100-meter zone, far (D) than previous lunar landers which have had landing zones spanning multiple kilometers. SLIM used a vision-based navigation system that took images of the lunar surface. Its system rapidly compared these images to crater patterns on lunar maps that JAXA developed with data from previous missions. As countries identify areas that are most likely to hold useful resources, such as water (2) in the form of ice, precision-landing technology will allow space agencies like JAXA to avoid nearby obstacles and reach these areas without incident.

There is a political element to these activities. China, India and Japan — the three nations that have successfully landed on the Moon since 2000 — engage in regional competition across a number of areas, including space. In addition to regional considerations, these accomplishments help to establish nations as leaders on a global scale — capable of something that few nations have ever done. Japan's launch comes only six months after India's Moon landing and just weeks after a failed attempt by a U.S. company, Astrobotic. Both Russia and the private company iSpace made unsuccessful landing attempts in 2023. Japan's success in landing on the Moon — even with solar panel issues shortening the timeline for the mission — demonstrates that JAXA is a major player in this global endeavor.

Despite recent setbacks*, such as NASA announcing delays to its next Artemis mission, the U.S. is still a clear leader in space and lunar exploration. NASA has multiple spacecraft orbiting (d) the Moon right now, and it has already successfully launched a new rocket that is capable of taking humans back to the Moon.

注　rover　惑星探査車
　　precision-landing　高精度着陸
　　setbacks　挫折

問 1　下線部(1)の内容を具体的に表すものを，本文中から抜き出された(あ)～(え)の中から一つ選び，記号で答えなさい。

(あ) The craft landed successfully on the lunar surface

(い) SLIM's solar cells were not functioning properly

(う) There is a political element to these activities

(え) JAXA is a major player in this global endeavor

問 2　下線部(2)を日本語に訳しなさい。

問 3　本文中の(　A　)～(　D　)の空所に入る最も適切な単語の組み合わせはどれか。選択肢(あ)～(え)から一つ選び，記号で答えなさい。

	(　A　)	(　B　)	(　C　)	(　D　)
(あ)	smaller	large	bigger	small
(い)	bigger	large	small	smaller
(う)	bigger	small	smaller	large
(え)	smaller	small	large	bigger

問 4　下線部(a)～(d)の語について，本文中における意味に最も近いものを，それぞれの選択肢から一つ選び，記号で答えなさい。

(a) <u>solidifies</u>

(あ) freezes

(い) compacts

(う) bakes

(え) cements

(b) deployed

(あ) let in

(い) sent out

(う) put up

(え) went through

(c) advance

(あ) boost

(い) clarify

(う) complicate

(え) present

(d) orbiting

(あ) flying at

(い) driving over

(う) circling around

(え) returning from

問 5 本文の内容と合致する文を選択肢の中から二つ選び，記号で答えなさい。

(ア) The LEV-1 rover can split in half and roll along the surface of the Moon.

(イ) SLIM's navigation system compares images of the Moon's surface to existing maps.

(ウ) India's lunar landing took place half a year before Japan launched its SLIM craft.

(エ) Russia's 2023 mission succeeded, while Japan's can only be considered a partial success.

(オ) In view of its recent setbacks, the U.S. can no longer be considered the clear leader in space travel.

(カ) JAXA has already taken humans to the Moon in its newly developed rocket.

Ⅱ　次の文章は，老化について書かれたものである。この文章を読んで，問１～４に答えなさい。(配点 35 点)

Today, a child born in the UK has a greater than 50 percent chance of living into their nineties. That is a remarkable testimony to medical, scientific and social progress, which has lowered mortality rates so we die later. It is a widespread trend: global life expectancy now exceeds 70, up from about 47 in 1950.

It seems that one longevity revolution (1) is coming to an end. For the first time in human history, the most important health challenge is to age well. So begins a second longevity revolution — one focused on changing how we age, and slowing the ageing process so that lives aren't just longer but also healthier for longer. But this will require a transformation in our health system, careers and pensions as well as cultural norms and individual psychology (a). It also demands a shift in scientific focus away from individual diseases and towards a greater understanding of the biology of ageing.

Increasing life expectancy has changed the global burden of disease. The top ten causes of death now include cardiovascular disease*, pulmonary disease*, dementia* and diabetes*. All of these have a common risk factor: age. If we could find a way to slow down biological ageing, we could potentially impact multiple diseases. This would unleash enormous welfare gains (b), with one study estimating that a one-year gain in life expectancy in the US would be worth around $38 trillion.

But achieving this requires changing how we think about ageing. It means accepting that the biology of ageing is a mainstream line of scientific inquiry, not a throwback to alchemy* and promises of immortality.

Evidence that change is occurring is accumulating. Consensus is building around the key biological pathways of ageing, and researchers are making progress on pinning down (c) how some of these pathways work, for instance in areas of stem cells. There are now methods for measuring biological age. With a rising number of journals focused on ageing and billion-dollar funding flowing into the study of ageing, change feels firmly underway.

This shift also requires recognizing that ageing is not inevitable or fixed. (2) We too often draw a distinction between health and the consequences of ageing, assuming the latter are natural phenomena. That thinking reflects past success in treating diseases such as smallpox* or typhus*. For most of history, those were also seen as natural and inevitable. But no longer. We now need to translate that progress to tackling how we age — and remember the words of French philosopher Michel de Montaigne* that "to die of old age is a death rare, extraordinary, and singular, and therefore so much less natural than the others."

A focus on ageing and ageing-related diseases also ushers in (d) something unique — a virtuous circle that other diseases don't possess. When progress was made in treating infant diseases, infant deaths fell, so research moved on to the diseases of middle age. Breakthroughs there led to fewer midlife deaths, and so science shifted to focus on ageing-related diseases. But the better we get at ageing, the more older people there will be and the more valuable further gains will be. When we are ill in our 90s, living into our 100s has little appeal. But if we can be healthy 90-year-olds, then we may want to live for even longer. A second longevity revolution focused on changing how we age thus opens up the possibility of living to ages far greater than ever before.

注　cardiovascular disease　心血管疾患
pulmonary disease　肺疾患
dementia　認知症
diabetes　糖尿病
alchemy　錬金術
smallpox　天然痘
typhus　チフス
Michel de Montaigne　16 世紀のフランスを代表する哲学者の一人

問 1　下線部(1)の内容を 35 字以内の日本語で説明しなさい。ただし，句読点も 1 字に数えます。

問 2　下線部(a)～(d)の語(句)について，本文中における意味に最も近いものを，それぞれの選択肢から一つ選び，記号で答えなさい。

(a) psychology

(あ) types of medicine

(い) means of therapy

(う) ways of thinking

(え) forms of intelligence

(b) gains

(あ) charges

(い) coupons

(う) debts

(え) benefits

(c) pinning down

(あ) specifying

(い) stabilizing

(う) experimenting

(え) restricting

(d) ushers in

(あ) gives rise to

(い) makes sense of

(う) takes over

(え) centers around

問 3　下線部(2)について，This の内容を明らかにしたうえで，日本語に訳しなさい。

問 4　本文の内容と合致する文を選択肢の中から二つ選び，記号で答えなさい。

(あ) In the future, researchers may be able to deal with a variety of diseases by delaying the biological ageing process.

(い) Accepting biological ageing as a legitimate field of research is nothing more than a throwback to alchemy.

(う) Some cures for illnesses affecting babies and middle-aged people were discovered as a result of research into ageing-related diseases.

(え) In the days of the philosopher Michel de Montaigne, dying of old age was the most common way to die.

(お) Despite the potential for significant advances in the treatment of ageing-related illnesses, research funding into ageing is increasingly being reduced.

(か) Longevity is not always welcomed: if someone in their nineties is terribly sick, they may lose the will to live.

Ⅲ　次の文章は，ある小説のクリスマス・シーズンを描いた一場面である。これを読んで，問１～４に答えなさい。(配点 30 点)

I know I can do this, I *know* I can. Whatever anyone else says. It's just a matter of perseverance.

"Effie, I already told you, that angel won't stay put,"(a) says my big sister Bean, coming up to watch me with a glass of mulled wine in her hand. "Not in a million years."

"(　A　)." Firmly I continue wrapping string round our beloved silver ornament, ignoring the pine needles pricking my hand.

"It won't. Just give up! It's too heavy!"

"I'm not giving up!" I retort. "We *always* have the silver angel on the top of the Christmas tree."

"But this tree is about half the size of the ones we normally have," points out Bean. "Haven't you noticed? (　B　)."

I briefly survey the tree, standing in its usual alcove in the hall. Of course I've noticed it's small. We usually have a huge, impressive, bushy tree, whereas this one is pretty puny. But that's not my concern right now.

"This *will* work." I tie my final knot with a flourish*, then let go — whereupon the whole branch collapses, the angel swings upside down and her skirt falls over her head, exposing her underclothes.

"Well, that looks super-festive," says Bean, snorting with laughter. "Shall we write 'Happy Christmas' on her pants?"

"*Fine.*" I untie the angel and step back. "I'll brace the branch with a wooden stick or something."

"Just put something else on top of the tree!" Bean sounds half amused, half exasperated. "Effie, why are you always so stubborn?"

(1)"I'm not stubborn, I'm *persistent.*"

"You tell 'em, Effie!" chimes in Dad, passing by with a bundle of fairy lights in his arms. "Fight the good fight! Never say die!"

Dad had obviously been at the mulled wine before I even arrived today — but then, why not? It's Christmastime *and* it's decorating day. It's always been our tradition, to decorate the tree together. Even now we're all grown-up, we come back to our family home in Sussex, every year.

As Dad disappears into the kitchen, I edge closer to Bean and lower my voice. "Why did Mimi get such a small tree this year?"

"I don't know," says Bean after a pause. "Just being practical, maybe? (C), we're all adults now."

"Maybe," I say, dissatisfied by this answer. Our stepmother, Mimi, is artistic and creative and full of eccentric ideas. She's always loved Christmas decorating, the bigger the better. Why would she suddenly decide to be practical? Next year, I'll go tree shopping with her, I decide.

"At last!" Bean interrupts my thoughts, peering at her phone.

"What?"

"Gus. He's just sent over the video. Talk about cutting it fine."
(b)

About a month ago, Dad said he didn't want presents this year, so we decided to be creative. Bean and Gus have put together a video montage, which Gus has been finalizing, and I've done my own surprise project, which I can't wait to show Dad.

"I expect Gus has been pretty busy with his girlfriend," I say, winking at Bean, who grins back.

"I want to have a quick look at the video," says Bean. "Let's go upstairs." As she leads the way up the stairs, she adds, "Have you wrapped up your present for Dad?"

"(D)."

"Only I bought some extra wrapping paper, just in case you needed it, and ribbon. I've ordered the hamper* for Aunt Ginny, by the way," she adds. "I'll tell you what you owe me."

"Bean, you're brilliant," I say fondly. Which she is. She's always thinking ahead. She's always getting stuff done.
(c)

We head into her room and I look around it affectionately. It's been the same since

I can remember, with the hand-painted furniture she's had since she was five — twin white wooden beds, a chest, wardrobe and dressing table, all decorated with Peter Rabbit. Throughout our childhood she kept intending to upgrade to something cooler, (2) but she could never quite bear to say goodbye to the furniture, so it's still here. I associate it so strongly with her, I can't even see Peter Rabbit without thinking "Bean".

注　with a flourish　これ見よがしに
　　hamper　かご詰めの贈り物

問 1　空所(　A　)～(　D　)に入る最も適切なものを選択肢からそれぞれ一つ選び，記号で答えなさい。ただし，同じ記号は一度しか使えません。

(あ) I mean
(い) It's really skinny
(う) It will
(え) No, not yet

問 2　波線部(a)～(c)について，本文中の意味に最も近いものを，それぞれ選択肢から一つ選び，記号で答えなさい。

(a) stay put
(ア) stay around
(イ) stay on
(ウ) stay out
(エ) stay within

(b) cutting it fine
(ア) editing it as told
(イ) finishing it at the last minute
(ウ) making it shorter than planned
(エ) putting it out of our mind

(c) She's always getting stuff done.

(ア) She always accomplishes tasks efficiently.

(イ) She always receives things for free.

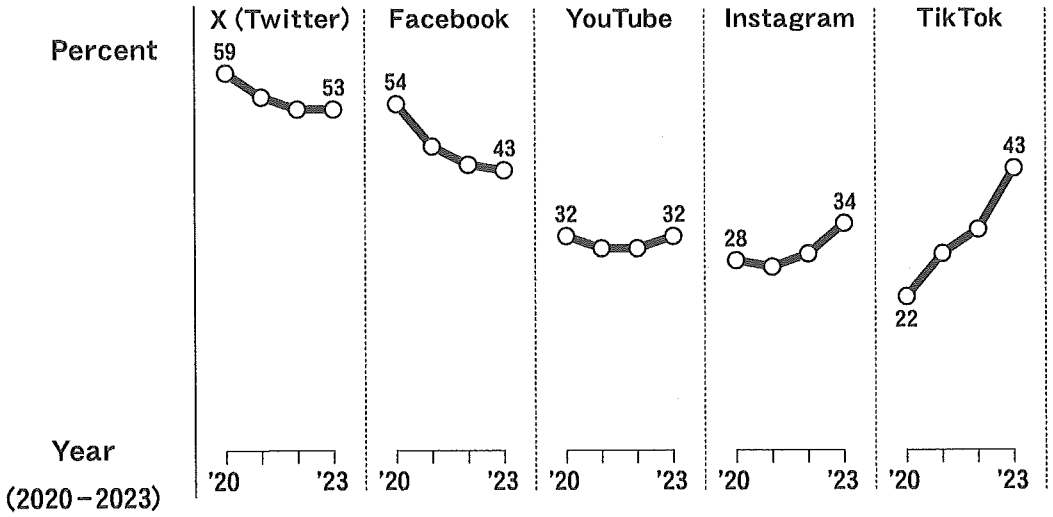
(ウ) She always speaks directly but politely to others.

(エ) She is always praised for her intelligence.

問 3　下線部(1)の表す意味を日本語でわかりやすく説明しなさい。

問 4　下線部(2)を日本語に訳しなさい。

Ⅳ　下のグラフは，アメリカにおける各ソーシャルメディアの成人利用者のうち，日常的に時事等のニュースを知る手段として，そのソーシャルメディアを利用する割合を示している。以下の問いに答えなさい。(配点 25 点)



(1)　Choose any <u>two</u> of the above social media sites and compare any changes during this period. Write in English (around 40 words).

(2)　Do you think people should use social media as a news source? Write in English (around 60 words), giving reasons to support your opinion.