前 期 日 程

2023 年度

外 国 語 問 題

(英 語)

注 意 事 項

1 問題冊子は，監督者が「解答始め」の指示をするまで開かないこと。

2 問題冊子は全部で18ページ，解答用紙は１枚である。脱落のあった場合には申し出ること。

3 解答用紙の所定欄に，受験番号（左右２箇所），氏名を必ず記入すること。

4 解答は，すべて解答用紙の所定欄に記入すること。

5 解答以外のことを書いたときは，該当箇所の解答を無効とすることがある。

6 第３問は学部・学域等により異なる。次により解答すること。

文学部・法学部・経済学部・商学部・獣医学部・医学部医学科・生活科学部

17ページ

現代システム科学域・理学部・工学部・農学部・医学部リハビリテーション学科・看護学部

18ページ

7 問題冊子の余白は下書きに使用してもよい。

8 問題冊子は持ち帰ること。

（余　　白）

第1問　次の英文を読んで，設問に答えよ。　（40点）

In the early 1980s Taiwan's army realised it had a problem. More and more of its conscripts* seemed to be short-sighted, meaning they needed glasses to focus on distant objects. "They were worried that if the worst happened [ie, an attack by China] their troops would be fighting at a disadvantage," says Ian Morgan, who studies myopia at Australian National University, in Canberra. An island-wide study in 1983 confirmed that around 70% of Taiwanese school leavers needed glasses or contact lenses to see properly.

These days, (1)that number is above 80%. But happily for Taiwan's generals, the military disparity* has disappeared. Over the past few decades myopia rates have soared across East Asia. In the 1960s around 20-30% of Chinese school-leavers were short-sighted. These days they are just as myopic as their cousins across the straits, with rates in some parts of China running at over 80%.

Elsewhere on the continent things are even worse. One study of male high-school leavers in Seoul found 97% were short-sighted. Hong Kong and Singapore are not far behind. And although the problem is worst in East Asia, (2)it is not unique to it. Reliable numbers for America and Europe are harder to come by. But one review article, published in 2015, claimed a European rate of between 20% and 40%—an order of magnitude higher than that which people working in the field think is the "natural", background rate.

For most of those affected, myopia is a lifelong, expensive nuisance*. But severe myopia can lead to untreatable vision loss, says Annegret Dahlmann-Noor, a consultant ophthalmologist* at Moorfields Eye Hospital, in London. A paper published in 2019 concluded that each one-dioptre worsening in myopia was associated with a 67% increase in prevalence of myopic maculopathy*, an

untreatable condition that causes blindness. (A dioptre is a measure of a lens's focusing power.) In some parts of East Asia, 20% of young people have severe myopia, defined as -6 dioptres or worse. "This is storing up a big problem for the coming decades," says Kathryn Rose, head of orthoptics* at the University of Technology, Sydney.

All that, in turn, is beginning to attract official attention. In 2018 Xi Jinping, China's president, made controlling childhood myopia a national priority. Crackdowns on the country's private-tutoring and video-games industries, which began in 2021, were partly motivated by worries about children's eyesight, says Dr Morgan. The governments of Taiwan and Singapore are [ア] trying to do something about the matter. "I think it's fair to say that public health is starting to wake up to myopia as a problem," says Dr Dahlmann-Noor.

Most myopia is caused by misshapen* eyeballs. A properly working eye focuses incoming light precisely onto the retina, the light-sensitive surface at the back of the eyeball. In a myopic eye, by contrast, the eyeball is distorted* in a way that causes the light to end up focused short of the retina. Sufferers can see normally up close, but distant objects are blurred. And the condition tends to be progressive, with vision worsening throughout childhood and adolescence, before stabilizing in adulthood.

For decades, researchers had thought myopia was mostly genetic. It runs in families, and genomic studies have turned up several gene variants which increase the risk of developing the condition. There were early hints, [イ], that this could not be the whole story. A study of Inuit in Alaska, published in 1969, found that myopia was virtually unknown in those middle-aged or older, but that rates were above 50% in older children and young adults. Such a change is much too fast to be purely genetic, and it had happened just as the study

participants had begun to adopt a more settled, Westernised way of life. But the results went against the dogma of the day, says Dr Morgan, and were ignored.

The spike* in East Asia, which occurred as places there industrialised, was harder to dismiss. (3)Short-sightedness is stereotypically an affliction* of the bookish, and a procession of studies has confirmed a strong, reliable link with education. (4)"The more educated you are, and the higher your grades, and the more you participate in after-school classes and tutorials—the more likely you are to be myopic", says Dr Morgan. And an intriguing* study on orthodox Jewish children in Israel, in the 1990s, confirmed the link with long school hours. It showed that boys—who receive intensive religious education in addition to the normal curriculum—were more myopic than their sisters, who do not.

Since there is no obvious way in which learning sums, spelling or even the Talmud* could cause short-sightedness directly, the assumption was that education was a proxy* for something else. One possibility is the popular notion (raised by Johannes Kepler, a German astronomer who himself needed glasses, more than 400 years ago) that myopia is linked to too much close-in work, such as reading and writing.

(5)That theory remains popular, says Dr Rose, but evidence for it is mixed at best. Instead, the dominant hypothesis now is that exposure to daylight is the main variable. A study of Californian children, published in 2007, found that time spent outdoors was strongly associated with a lower risk of myopia. Another paper, published the following year by Drs Rose and Morgan and their colleagues, followed more than 4,000 children in Sydney for three years and came to a similar conclusion. The type of activity—sports, walking, picnics—did not seem to matter. Simply being outdoors was the crucial point. The researchers cross-checked the close-work hypothesis and found that being outside drastically reduced the risk of

short-sightedness, even for children that did a lot of it.

(6)This theory fits the data neatly. It explains why myopia seems, like diabetes* and heart disease, to be what doctors call a "disease of affluence"—more common in rich countries than poor ones—since economic growth brings with it more education, and therefore, for children, more time inside. It explains why rates are high in East Asia in particular, says Dr Morgan, since the ubiquity* of private tutoring and after-school classes mean schoolchildren there routinely work longer days than their Western counterparts. Most South Korean students, for instance, attend private tutoring schools called *hagwons* in which lessons often stretch well into the evening.

(出典：Short-sightedness was rare. In Asia, it is becoming ubiquitous. *The Economist*, Jun 9th 2022. 一部改変あり)

[注] conscript: a person who has been forced to serve in an army or in one of a country's armed forces

disparity: a lack of equality or similarity, especially in a way that is not fair

nuisance: something or someone that annoys you or causes trouble for you

ophthalmologist: a doctor who treats eye diseases

maculopathy: 黄斑症（眼底のほぼ中央に位置する黄褐色の部分である黄斑が傷められる病気）

orthoptics: the treatment or study of problems of the eye muscles; a profession allied to the eye care profession

misshapen: having a shape that is not natural

distort: to change the shape of something so that it looks strange or unnatural

spike: a very high amount, price, or level

affliction: something that makes you suffer

intriguing: very interesting because of being unusual or mysterious

the Talmud: タルムード（ユダヤ教の律法集）

proxy: a substitute

diabetes: 糖尿病

ubiquity: the fact that something or someone seems to be everywhere

問1　下線部 (1) が指す内容として最も適切なものを下から選び，番号で答えよ。

① the percentage of Taiwanese youths who are myopic

② the percentage of Taiwanese students coming out of school who need glasses or contact lenses in their everyday life

③ the percentage of Chinese conscripts who are myopic

④ the percentage of youths in East Asia who suffer from short-sightedness

問2　筆者が下線部 (2) と述べる理由を日本語で書け。

問3　空所［ア］［イ］に入る最も適切な語を下から選び，番号で答えよ。

① though　② firstly　③ true

④ although　⑤ likewise　⑥ unlikely

問4　下線部 (3) と同じ意味の英語（一語）を本文中から書き抜け。

問5　下線部 (4) を日本語に訳せ。

問6　下線部 (5) (6) が指す内容として最も適切なものを下から選び，番号で答えよ。ただし，同じ番号を繰り返し用いてはならない。

① People with higher education are more likely to be short-sighted.

② Short-sightedness can be avoided by being exposed to sunlight.

③ Overusing one's eyes by reading and writing too much causes short-sightedness.

④ Myopia is a genetically determined eye disorder.

⑤ Both genetic and environmental factors can contribute to poor eyesight.

問7　本文の内容と一致する英文を下から二つ選び，番号で答えよ。

① Short-sightedness is always regarded as a minor illness because it is very common among ordinary young people in East Asia.

② Recent studies based on reliable data in America and Europe demonstrate that how you act outdoors is more closely related to the cause of myopia than how you spend time indoors.

③ People believe reading and writing are related to myopia, and one study on orthodox Jewish children in Israel concluded that, compared to female students, male ones who studied hard outside school were more likely to be myopic.

④ It is said that Johannes Kepler believed in the popular notion that myopia was inherited generation after generation among families because the myopic condition tended to be progressive through all ages.

⑤ The reason why youths in mainland China have become myopic is that people in the country have been so rich in recent years that most of them suffer from health problems like being overweight and diabetes.

⑥ Certain types of activity, such as sports, walking and picnics, reduced the risk of short-sightedness due to these activities providing people with an opportunity to go outside and to have exposure to sunlight.

（余　　白）

第2問　次の英文を読んで，設問に答えよ。　(40点)

(1)For Richard Gordon, origami is like a piece of music. While an individual fold may not be particularly impressive, many together can make the paper sing. A floppy* sheet can transform into a flapping* bird, a floating boat, a blooming flower, or in the case of Gordon's latest endeavor, a face mask.

"It's a kind of alchemy*," says Gordon, the founder and CEO of Air99 LLC.

Gordon is one of a growing number of mask designers who see the promise of better fit, function, and even fashion in the ancient art of origami. He began crafting masks more than a decade ago in Suzhou, China, when he couldn't find a mask that properly fit his son to protect against air pollution. But the pandemic has given Gordon and other designers' work fresh urgency.

As we wait our turn in the vaccination line, donning* a mask is a critical measure—along with social distancing, ventilation*, faster testing, and more—to help slow the spread of SARS-CoV-2. Newly inaugurated* President Joe Biden [　ア　] during the first 100 days of his term, and he signed new executive orders requiring masks in federal buildings, on federal lands, and on many planes, trains, public ships, city busses, and in airports.

"We're entering what may be the toughest and deadliest period of the virus," Biden said during the inauguration. "We must set aside politics and finally face this pandemic as one nation."

Masks may also become a mainstay* after the pandemic to help keep both viruses and pollution at bay*. While masking is already part of daily life in other countries, that hadn't been the case for the United States. But a recent *National*

Geographic and *Morning Consult* poll signaled a shifting attitude in the U.S. toward masking up. Some 63 percent of 2,200 American adults said they would continue to always or sometimes wear a mask while running errands post-pandemic. A similar number, around 64 percent, said they would turn to masks to fend off* air pollution. And 67 percent said they would mask up during flu season.

Yet there's a long list of mask complaints. Some flat coverings quickly turn into moist bits of cloth pressed across your face. Others can lead to a feeling of suffocation, even though cloth and medical masks allow plenty of oxygen through for healthy adults. And while all masks afford some level of viral protection, some are more effective than others. Origami holds promise to help alleviate many of these woes.

The first major hurdle for origami mask designs is material. The mask isn't a simple sieve*. [あ], the material is more like a maze for particles—the more chances the particles have to run into a wall, the better the filter works. Two or three layers are better than one, and materials with less orderly structures, like the non-woven polypropylene* of an N95 mask, make better filters. But most common fabrics are no good for origami, which requires rigidity in order to hold folds.

One potential solution is a polypropylene material commonly used in hospitals to wrap surgical instruments, explains Shu Yang, a professor of materials science and engineering at the University of Pennsylvania. She and her colleagues turned to this wrap during the early days of the pandemic when protective gear was [い] short.

A study of one common wrap called Halyard H300 suggested that three layers of the material could achieve a filter efficiency close to N95 masks, the gold standard

for filtration, which block at least 95 percent of 0.3-micron particles and even increase in efficiency for both larger and smaller particulates*. [　う　], the wrap is readily available in large sheets and is stiff enough to hold folds. Last spring, Yang and her colleagues delivered 10,000 origami masks made of the wrap to the University of Pennsylvania's medical school in case of shortages.

Another solution for holding a crease is creating an outer skeleton of stiff material. Air99's Airgami mask, for example, is made of a flexible N95-grade filter fused* with a more rigid and foldable layer. Since the outer structure doesn't allow air to pass through, it's punched with holes so air can reach the filter layer. And tests suggest that these materials can be sanitized* with heat and reused multiple times.

Other materials that are more readily available to the public can also be effective for some folded mask designs, says Jonathan Realmuto, a postdoctoral researcher at the University of California, Irvine. For example, non-fiberglass MERV-13 filters, which are commonly used for heating, ventilation, and air conditioning systems, are particularly effective and available at most hardware stores.

Finding the right material is just the first step of crafting an effective mask. "[　イ　]," says John Volckens of Colorado State University, who led an intensive testing effort to document the filtration efficiencies for an array of materials.

When improperly designed or worn, masks can have gaps around the nose or cheeks, allowing entry and exit points for potentially virus-laden* particles to flow—and closing these gaps is where origami truly shines.
（出典：MAYA WEI-HAAS. We need better face masks—and origami might help. *National Geographic*, JANUARY 21, 2021. 一部改変あり）

［注］ floppy: soft and not able to keep a firm shape or position

flap: to wave something, especially wings when or as if flying

alchemy: a type of chemistry, especially in the Middle Ages, that dealt with trying to find a way to change ordinary metals into gold

don: to put on a piece of clothing

ventilation: the movement of fresh air around a closed space, or the system that does this

inaugurate: to put someone into an official position with a ceremony

mainstay: the most important part of something, providing support for everything else

keep something at bay: to prevent something unpleasant from harming you

fend off: to prevent the effects of something

sieve: 篩（ふるい），ざる

polypropylene: ポリプロピレン（容器，成型品，絶縁体，包装材料，繊維などの素材）

particulate: 微粒子

fuse: to join together physically, or to join things together physically

sanitize: to make something completely clean and free from bacteria

laden: carrying or holding a lot of something

問1　下線部 (1) を日本語に訳せ。

問2　次の語を並び替え，空所［ア］に入る英文を完成し，その英文の2番目と7番目に来る語を番号で答えよ。

① all　② for　③ wear　④ a mask
⑤ Americans　⑥ to　⑦ is　⑧ calling

問3　空所［あ］［う］に入る最も適切な語または語句を下から選び，番号で答えよ。

［あ］

① Although　② Meanwhile　③ Instead
④ Afterwards　⑤ Despite

［う］

① Consequently　② As a result　③ Even worse
④ What's more　⑤ Otherwise

問4　空所［い］に入る最も適切な一語を本文中から抜き出して書け。

問5　空所［イ］に入る最も適切な文を下から選び，番号で答えよ。

① The filtration efficiencies matter so that you can have a good fit
② It doesn't matter how good the filter is if you don't have a good fit
③ It's necessary to choose the right material if you want to have a good filter
④ Masks need gaps around the nose or cheeks so that you can breathe easily
⑤ There's no relationship between filtration efficiencies and a good fit

問6　本文の内容と一致する英文を下から二つ選び，番号で答えよ。

① It was not until the COVID-19 pandemic happened that Gordon founded his company and worked as the CEO to produce a mask for his child.

② If there were not holes punched into the surface of the Airgami masks of Gordon's company, it would not be possible for users to breathe because the outer materials don't allow air to pass through.

③ Origami masks prevent viruses from entering human bodies thanks to a special chemical on the surface rather than because of their complicated folding structures.

④ Although Joe Biden preferred the need for political unity within the nation to a policy of preventing the spread of SARS-CoV-2, he required people to wear masks no matter where people were in the United States.

⑤ According to a poll, the percentage of people who will wear masks to protect themselves from influenza is slightly lower than that of those who will put on protective gear in the post-pandemic world.

⑥ Well-designed origami masks do not only protect users by a perfect covering of their noses and cheeks, but they could also resolve problems caused by other kinds of masks.

第３問は学部・学域等により異なる。

次により解答すること。

学部・学域等	該当ページ
・文学部 ・法学部 ・経済学部 ・商学部 ・獣医学部 ・医学部医学科 ・生活科学部	17ページ
・現代システム科学域 ・理学部 ・工学部 ・農学部 ・医学部リハビリテーション学科 ・看護学部	18ページ

＜対象学部・学域等＞
文学部・法学部・経済学部・商学部・獣医学部・医学部医学科・生活科学部

第3問　次の下線部 (1) (2) の内容を英語で表現せよ。　（20点）

それからわたしは一念発起，英語の猛レッスンを始めた。中学の英語の成績は2だったし，すでに20代も半ばを過ぎていた。

(1)「英語が話せるようにしてください！イギリスに住みたいんです！」
わたしは，すがるように英語の先生に頼み込んだ。

「任せて！行きたいときが行けるときなのよ。遅いことなんかまったくないの」

イギリスのバンド「808ステイト」が二回目に来日したとき，メンバーと知り合いになったこともわたしを強く刺激した。そして92年夏イギリスへ旅行し，そのメンバーに，マンチェスターの「ハシエンダ」という伝説のクラブへ連れて行ってもらった。

「イギリスとの距離が縮まった！」

(2)確かな感触を得た。これは自分さえ頑張れば叶(かな)わないことじゃない。何かが始まりそうな予感に胸がはずんだ。

（出典：赤塚りえ子.『バカボンのパパよりバカなパパ』. 幻冬舎文庫，2015年. 一部改変あり）

＜対象学部・学域等＞
現代システム科学域・理学部・工学部・農学部・医学部リハビリテーション学科・看護学部

第3問　次の下線部 (1) (2) の内容を英語で表現せよ。　（20点）

日本の英語教育においては，2020年度より実施される学習指導要領，およびその指針を議論する場において，「国際共通語としての英語」の理念が打ち出されました。(1)国際英語論はますます注目されることになるでしょう。伝統的な英語教育では，イギリスやアメリカの英語が「正しさ」の規範とされてきました。例えば，“discuss” は他動詞ですので，“discuss about” のような表現は「誤り」であり，訂正されるべきと考えられます。あるいは，「どう思いますか？」を英語で表現しようとすると，“How do you think” と表現する日本人が多いかもしれませんが，英米英語の規範にしたがえば “What do you think” となります。(2)国際英語論の考え方にもとづけば，英語はその普及された土地の言語文化の影響を受けて発展することを肯定的にとらえます。したがって，上記のような表現は，「誤り」とは言えなくなります。またいずれも，コミュニケーション上，大きな問題を産むことはありません。
（出典：仲潔.「国際語としての英語と国際英語」.『対抗する言語』. 三元社，2021年）