前 期 日 程

2024 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。

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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)

Whether or not you're picky*, know that tools for the hands are tools for the brain. Handwritten notes are a powerful tool for encrypting* embodied* cognition and in turn supporting the brain's capacity for retrieval* of information. And secondly, when you take notes by hand, your hands create a robust* external memory storage: your notebook.

Taking notes by hand is a win-win, and belongs in every student's cognitive tool kit. Learning how to take notes by hand effectively, and how to ingrain* note-taking as a key learning and study tool, can begin as early as grades 3 or 4, but it's (　あ　) too late to begin.

We live in a digital age where (　い　). Automaticity in keyboarding is an important skill too, and the tools and applications for digital communication will continue to evolve and have their place. But keyboarding does not provide the tactile* feedback to the brain that contact between pencil or pen and paper does — the key to creating the neurocircuitry* in (1)the hand-brain complex.

While your laptop might seem faster and more efficient, there are good reasons for having a paper-bound notebook and pen — any kind you prefer — at the ready.

(2)Researchers have found that note-taking associated with keyboarding involves taking notes verbatim* in a way that does not involve processing information, and so have called this "non-generative" note-taking. By contrast, taking notes by hand involves cognitive engagement in summarizing, paraphrasing, organizing, concept and vocabulary mapping — in short, manipulating and transforming information that leads to deeper understanding.

Note-taking becomes note-making: an active involvement in making sense and meaning for later reflection, study or sharing of notes to compare understanding with lab partners or classmates. This becomes a potent study strategy, as one's own processing can be further consolidated through talk.

There are templates and formats that teach more effective ways of taking hand-written notes. A popular one is the Cornell style developed by education professor Walter Pauk. You can also explore other ways that can be adapted for different study needs, such as compare/contrast charts or webs.

Taking good notes depends on fluency of hand, which means legibility* and speed combined. This is best achieved with a clean, uncluttered* and connected script, meaning cursive writing*, that young learners can begin to learn in Grade 2. Fluency of hand comes from instruction and practice in the early years of school, and sustained opportunities for authentic*, purposeful literacy engagements in turn allocating* working memory space to the cognitive demands of note-taking.

The move from grades 3 to 4 is a big leap for young learners. Content curriculum in science, social studies, English language arts and mathematics makes accelerated demands on children to shift into academic modes of literacy.

Leonardo da Vinci wrote: "...the more minutely you describe, the more you will confuse the mind of the reader and the more you will remove him from knowledge of the thing described. (う), it is necessary to make a drawing ... as well as to describe ...."

The artist's notebooks reveal a creative, inquiring, inventive mind and man of science and art unparalleled, centuries ahead of his time. Fergus Craik and Robert Lockhart, pioneers in cognitive neuroscience research, noted three levels of

information processing: their theory lays bare the neuroscience behind da Vinci's insights centuries ago. (　え　): as a result, some cognitive researchers advocate teaching different ways of representing knowledge from an early age.

Florence Nightingale is remembered for her contributions in reforming medicine through her detailed, meticulous observations, documentation, note-taking and writing. She is credited with creating the pie chart to represent this information.

I assign my own students, preparing to become teachers, the task of sketching the layout of the class where they are working in a field placement. They also take observational hand-written notes recorded in a Cornell template. This assignment is about interpreting what's going on in the classroom. This process of documenting provides a good scaffold* for later review or reflection and theorizing the work of classroom teachers.

When deep understanding and remembering, making personal connection and sparking creative thought are important, hand-written notes matter and endure over time.

For serious students, note-taking is an indispensable cognitive tool and study technique. Creating neurocircuitry for memory and meaning through the hand-brain complex is the key to understanding the value of hand-written notes. Think twice before relying solely on your laptop this fall!

(出典：Hetty Roessingh, "Note-taking by hand," *The Conversation*, 31 Aug 2020より。一部省略，改変あり)

[注]　picky: liking only particular things
　　encrypt: to document pieces of information in a particular code

embody: to express an idea

retrieval: the process of finding information that is stored in a particular place

robust: strong

ingrain: to establish a habit or belief in a person

tactile: felt or received by touch

neurocircuitry: a system or controlled network of nerves

verbatim: word for word

legibility: (of written or printed words) the quality of being clear enough to read

uncluttered: neat

cursive writing: 筆記体

authentic: true or genuine

allocate: to assign

scaffold: aid or support

問1　空所（あ）に入る最も適切な語を下から選び，番号で答えよ。

① almost
② much
③ yet
④ never

問2　空所（い）に入る最も適切なものを下から選び，番号で答えよ。

① face-to-face communication is highly important
② smartphones and other digital devices are becoming smaller and smaller
③ daily functioning involves digital communication
④ automation is increasingly widespread

問3　下線部 (1) が表す内容を20字以内の日本語で簡潔に説明せよ。ただし，句読点も字数に含むこと。

問4　下線部 (2) を日本語に訳せ。

問5　空所（う）に入る最も適切な語句を下から選び，番号で答えよ。

① Therefore
② On the other hand
③ Nevertheless
④ Similarly

問6　空所（え）に入る最も適切な英文を下から一つ選び，番号で答えよ。

① When people visually represent knowledge, they can deepen their comprehension of concepts such as cycles and relationships

② When people use photographed information, they can deepen their understanding of ideas

③ When people utilize visual representation more often than information in a form of a text, they can memorize what is important

④ When people resort to graphic information, they can focus on what they are learning

問7　本文の内容と一致する英文を下から一つ選び，番号で答えよ。

① Typing letters with a keyboard does not interfere with information processing.

② A better grasp of meaning is achieved through handwriting involving cognitive processes.

③ Some ready-made note-taking systems should be made available for different purposes.

④ Sharing ideas verbally during class can promote note-taking.

第2問 次の英文を読んで，設問に答えよ。 (40点)

When it comes to humanity's collective effort to tackle the climate crisis, wind turbines and solar panels are big success stories. Their average cost has dropped significantly over the past decade, they're increasingly (1)ubiquitous, and they're undoubtedly powerful weapons as we work to build a zero carbon economy.

But there's one problem: (2)the technology itself is only part of the equation, and the much messier part involves people – their reactions, their feelings and their behaviours.

Take the case of solar panels – also known as photovoltaic (PV) panels. Despite their obvious benefits, how do people feel about solar farms when they are situated on green field sites and agricultural land, and can change local landscapes? Offshore wind turbines make good sense from a power generation standpoint, as we live on an island with an extensive coastline surrounded by shallow seas, but they do change the seascape, and onshore wind can be even more (3)contentious.

"We need to appreciate that it can be challenging for people adapting to new technologies and we must consider them as part of the solution as well as just the engineering solution itself," says Chris Sansom, professor of concentrating solar power at the University of Derby, whose research focuses on finding solutions for cleaner energy across the globe.

Sansom notes that zero carbon research is concerned with many different elements. The University of Derby has a range of leading experts exploring zero carbon in relation to decarbonising manufacturing and business processes, generating low-carbon renewable energy, transporting people by zero carbon means, as well as understanding natural processes for greenhouse gas removal.

"While these may provide the scientific solutions we need, a number of things can get in the way of that," he says – such as the challenges for local residents and other people who struggle to adapt.

A leader in his field, Sansom has experienced some of these challenges first-hand, including while working on a solar project in sub-Saharan Africa. Alongside researchers at the University of Derby, he has been exploring how expensive fossil fuel cookers can be replaced with lower-cost, low-carbon, efficient solar cookers. "I went to Kenya to visit and I've never seen so many coffee tables that looked remarkably like PV panels," he says. "The problem is that people couldn't fix them as they were high-cost and impossible to maintain. We hadn't thought through how people were going to use the technology and what they would do if it went wrong. That's why we are focused on developing innovative solutions, the kinds of technologies where they can be fixed (　あ　)."

Similarly, when trialling solar cookers in India, Sansom experienced how cultural expectations can have an effect on how new technologies are received. The project, based in Rajasthan, explored how solar cookers could be used as an alternative to wood stoves. He found that while they were effective from an environmental perspective, it made the women in the communities he worked with – who would traditionally be tasked with collecting firewood – (4)feel redundant and undervalued.

"Social and cultural norms shouldn't be underestimated when planning a route to a new net zero carbon* world. Many technologically (5)sound interventions in developing countries have failed for that reason," adds Sansom.

These kinds of challenges are instructive for anyone seeking to solve humanity's most pressing problems. Simply turning up with a clever new technology or a

scientific breakthrough is (い) enough; you also need to address people's behavioural blockers – their resistance, reluctance, or any practical difficulties they may face.

The increasing need to consider the interplay of technological advances and behavioural changes can [ア] – and pressing.

Indeed, in recent years, wider efforts to tackle the climate crisis have been caught up in the broader culture wars, with societies polarised and divided despite the urgent need to act (う). Opposition to net zero measures often comes from those who might face short-term financial pain from the transition to a low-carbon economy – for instance, individuals and businesses in areas that are economically reliant on the fossil fuel industry.

The University of Derby has launched several applied initiatives in wider society. For instance, in 2017, it established the De-Carbonise project to work with local businesses in Derby and beyond to help put them on the path to net zero. "For many businesses, there is a strong correlation between the need to decarbonise and their energy usage," says Prof. Warren Manning, provost*. "A lot of businesses recognise that. What they struggle with is knowing what to do next."

The challenge for many small-and medium-sized businesses is balancing the capital investment on zero carbon technologies and processes with more immediate financial pressures. But this is why Manning sees such value in De-Carbonise as a network that can help business owners make the necessary behavioural changes. "(え)," says Manning. "We help them talk about what behavioural steps they can take, and think about the way they organise what they do, and the capital investments they make. Chief executives see other chief executives taking measures, and it makes them competitive. They say: 'If that

business over there can do it, we can do it as well'."

Fostering this kind of constructive collective mentality is arguably incredibly powerful – after all, many behavioural and psychological blockers to change can stem from cognitive biases (or mental shortcuts) that can make people more tribal. These biases can reinforce people's resistance to initiatives or information that causes them short-term pain or that challenges their own perspectives.

In a similar vein, the team at the University of Derby has learned the importance of thinking about how to frame climate messages – and that doesn't necessarily mean starting with painting a picture of natural disasters, floods and the other miseries we can expect if we fail to reach our climate targets. "We need to balance that with an optimistic view of the future," says Fred Paterson, associate professor of sustainable business and clean growth at the University of Derby, whose research is focused on pro-environmental business. He advocates a more subtle approach: "You start with where they're at."

And this means that scientists and politicians should perhaps try to view the world through the mindset of what it's actually like being in business. "You don't start with, 'We need to be more (　お　) correct and save the planet', you start with what drives people," says Paterson. "Let's look at what reduces your expenses, let's help your bottom line."

(出典：James O'Malley, "Behavioural battlefronts," *The Guardian*, 16 Jun 2023より。一部省略，改変あり)

[注] net zero carbon: (simply *net zero*) removing from the atmosphere as much carbon dioxide and other greenhouse gases as the Earth and human activities produce

provost: the head of the university

問1　下線部 (1) (3) (4) (5) の語句の意味として最も適切なものを，それぞれの選択肢から選び，番号で答えよ。

(1)

① favourable　② practical　③ common　④ reasonable

(3)

① controversial　② powerful
③ questionable　④ influential

(4)

① feel lonely　② feel insulted
③ feel unnecessary　④ feel blamed

(5)

① simple　② helpful　③ innovative　④ reliable

問2　下線部 (2) の主旨として最も適切なものを下から一つ選び，番号で答えよ。

① People are the main obstacle in developing an engineering solution, as they tend to overreact.

② While engineering solutions to the climate crisis are important, tackling it also concerns complex human aspects.

③ Because the people involved in addressing the climate crisis are getting more diverse, their reactions, feelings and behaviours towards an engineering solution also vary.

問3　空所（あ）（い）（う）（お）に入る最も適切な語を下から選び，番号で答えよ。ただし，同じものを複数回使用できない。

① scientifically　② peacefully
③ locally　④ morally
⑤ manually　⑥ rarely
⑦ collectively

問4　次の語句を並べ替え，空所［ア］に入る英文を完成し，その英文の2番目と5番目に来る語句を番号で答えよ。

① tackle　② all the more
③ make efforts to　④ challenging
⑤ big global problems

問5　空所（え）に入る最も適切な英文を下から一つ選び，番号で答えよ。

① We make businesses invest in zero carbon technologies
② We let businesses spread the value of the network
③ We have businesses pay more attention to immediate profits
④ We get businesses to mentor each other

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 People's cultural backgrounds play a significant role in adopting eco-friendly innovations. Engaging with diverse communities, and understanding their unique perspectives are vital to achieve a zero-carbon economy.

② As eco-friendly initiatives require initial investments, businesses tend to be financially unprofitable in the medium run. This leads to discouraging businesses from engaging in net zero measures.

③ Businesses actively seeking collaboration with universities know what they should do next to create new environmentally friendly products and services.

④ A more effective psychological approach to building a zero-carbon economy might be to emphasise the importance of illustrating the changing climate as a threat.

⑤ A decarbonised economy requires a comprehensive approach that integrates technological solutions and a deeper understanding of human and business psychology.

（余　　白）

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。

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第3問　次の下線部 (1) (2) の内容を英語で表現せよ。　（20点）

⑴現代は人間側を「人工」と表し，それ以外の地球の営みを「自然」と区別しがちだが，人間も地球が育んだ生き物だ。海外のシロアリは巨大なアリ塚をつくる。極端な言い方をすれば，人間が建てた建造物もアリ塚と同じ「自然」の産物とみなせる。

人間と地球の関わり方を考えたとき，難題を抱えた現代は人間（人工）と自然の二項対立の議論では問題は解決しない。人間だけを自然から排除しても何も変わらない。

むしろ⑵人間が手を加えた地球環境は人間にしか元に戻せないのかもしれない。それは罪滅ぼしではなく，人間の知恵で地球を守るという意味だ。

二項対立を打開するために少なくとも人間がすべきなのは，自虐的でも思い上がるわけでもなく，自らの影響力を適度に自覚して行動していくことだ。

（出典：加藤　宏志　「人間が地球史に傷痕」，日本経済新聞，2023年8月20日，朝刊）

＜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）

家族関係の問題でわれわれ心理療法家のところに相談に来られる人がふえてきた。あるいは，(1)個人の相談のように見えても，その問題の解決のためには，その人を取りまく家族関係が変化することを必要とする場合が増加してきた。

このような問題が生じるのは，家族にどこか悪いところがあるとか，はずかしいことだとか，短絡的（たんらくてき）に考える人が多いが，そんなことはない。現代という時代はどのような家族でもなんらかの「問題」をもっているのではなかろうか。(2)大切なことは問題があるかないかではなく，どのようにそれに立ち向かっているか，ということであろう。

（出典：河合　隼雄　『対話する人間』，講談社，2001年）