２０２３年度一般選抜Ｂ試験問題

英語

【注意事項】

1. この問題冊子には答案用紙が挟み込まれています。試験開始の合図があるまで問題冊子を開いてはいけません。
2. 試験開始後，問題冊子と答案用紙の受験番号欄に受験番号を記入しなさい。
3. 問題冊子には**計 4 問**の問題が**英 1～英 7 ページ**に記載されています。落丁，乱丁および印刷不鮮明な箇所があれば，手をあげて監督者に知らせなさい。
4. 答案には，必ず鉛筆（黒，「HB」「B」程度）またはシャープペンシル（黒，「HB」「B」程度）を使用しなさい。
5. 解答は答案用紙の指定された場所に記入しなさい。ただし，解答に関係のないことを書いた場合は無効にすることがあります。
6. 問題冊子の余白は下書きに利用しても構いません。
7. 問題冊子および答案用紙はどのページも切り離してはいけません。
8. 問題冊子を持ち帰ってはいけません。

一般選抜Ｂ 受験番号	

〔問 1〕次の英文の意味が通るように、空所(ア)～(コ)に入る最も適当なものを①～⑩から 1 つ選び、数字で答えなさい。但し、文頭に来る単語も小文字で示してある。なお、同じものを２度使うことはない。

If you pride yourself on bypassing the chocolate and nibbling on nuts or hummus in between meals, I have bad news for you. The chances are—if the nuts are salted and the hummus shop-bought—your chosen snack may be rather less healthy than you realized, all because of one, admittedly delicious, ingredient: salt. We are a nation of saltaholics. (ア) average, we eat a third more salt than is recommended—8g a day according to Public Health England, rather than the suggested 6g (a little more than a teaspoon). And (イ) our national intake had been dropping steadily each year, progress has stalled (ウ) 2011, according to research published last year in the *Journal of Epidemiology and Community Health.* "Salt pushes up blood pressure, and high blood pressure is a major cause of strokes, heart failure and heart attacks," says Graham MacGregor, professor of cardiovascular medicine at the Wolfson Institute of Preventive Medicine in London. "Raised blood pressure is the biggest killer in the world, yet many people are still unaware (エ) how dangerous it is." (オ) if your blood pressure is in the normal range now, your salt intake could still have an effect (カ) the long run. "Salt seems to be the major factor that puts up blood pressure with age," MacGregor says. "If you look at traditional communities that eat hardly any salt, they get no blood pressure rise at all with age."

New research suggests that salty diets have many other consequences, too. They can weaken certain immune cells, reducing our ability to fight (キ) bacterial infections, according to a German study published in March. "The effects of salt, other than on blood pressure, are surprisingly large," says MacGregor, who co-authored a review of the evidence, also published in March, which found that there is "(ク) evidence" high salt intake is associated with conditions including kidney disease, kidney stones and stomach cancer. "There is also emerging evidence for an association with dementia," the paper noted. Salt appears to raise the risk of osteoporosis—where bones become thinner, weaker and prone (ケ) fractures. "Salt dramatically increases the amount of calcium excreted in urine," MacGregor says. This means you have to absorb more calcium from the gut from food, which the body is not very efficient (コ) doing, "so you also mobilize calcium from the bone". Losing calcium like this means weaker bones. While there aren't any direct studies showing that reducing salt intake can improve bone strength, "it seems from the physiology of it, if we all reduced our salt intake, it would have quite a dramatic effect on osteoporosis rates," MacGregor says.

出典: Jennie Agg, "Salt: it's more dangerous than you think." *The Times*, May 19, 2020.

① at	② clear	③ even	④ in	⑤ of
⑥ off	⑦ on	⑧ since	⑨ to	⑩ while

〔問 2〕 次の英文を読んで、あとの設問に答えなさい。

No doctor has ever prescribed a shirt to save a patient's life. But on a family summer vacation in 2017, Rob Leibowitz wore a T-shirt while walking around Disney World that bore the phrase: "In Need of Kidney, O Positive." After a picture was posted on Facebook, the story went viral, and a few months later, Leibowitz, who had been on the transplant list for several years, underwent a successful surgery to implant a kidney donated by a complete stranger. Although this story might be an anomaly, it made me wonder: can medicine and fashion intersect in other ways?

(1)They might seem like as odd a combination as polka dots and plaid. Yet fashion, broadly defined, is already being considered in health care settings. For example, the effect of hospital gowns on patients has been studied, and (2)it should come as no surprise that many patients report feeling a loss of privacy, individuality and autonomy when putting on a gown. Furthermore, the hospital gown prompted patients to internalize the idea that they were unwell. In one of these studies, a patient said, "I would say that, when the gown comes out, there is something that psychologically goes 'this is serious, I'm ill.'"

As a result of such criticism, designers ranging from students at Parsons School of Design to Diane von Furstenberg have rethought what a patient gown could look like. Such redesigns have not been widely adopted by hospitals yet, perhaps because the gowns have to be cheap, easy to manufacture and easily washable. However, even if they're only available to people who will be spending considerable time in the hospital, gowns in different sizes and colors might help give these patients a feeling of control and agency—especially when so much is (3) their control.

In fact, creative solutions to patient gowns have already been shown to have positive effects in clinical settings. At Weill Cornell, young patients undergoing MRI scans were given an "MRI-am-a-Hero" kit to explain the procedure and make the experience feel like part of a superhero adventure. Among other activities, patients could choose shorts and a T-shirt with superhero emblems to wear inside the machine. When studying the program, researchers found that the kit decreased the percentage of pediatric MRI cases that needed sedation (4) more than five percentage points—showing the potentially transformative nature of hospital attire.

The association of garments with illness could be one of the reasons why, in many Western countries, few people wore face masks before the pandemic to protect themselves from respiratory illnesses such as the H1N1 influenza. Just as a patient gown has been associated with being ill, wearing a face mask in public was associated with being diseased and even dangerous.

Today, (5), they're increasingly seen as a fashion accessory—and while that might seem like an attempt by retailers to profit from the COVID crisis, there are potential benefits to this perspective. In an interview with NPR, for example, fashion historian Valerie Steele said that "fashionizing masks is a good way to normalize them and to say that you don't need to be scared." That view is supported by research in the *Journal of Hospital Infection,* which points out that "Interestingly, young Korean pop singers made the wearing of face masks fashionable," which might help explain why the incidence of COVID-19 has been so low in South Korea.

Fashion is also addressing the needs of the differently abled in the form of so-called "adaptive fashion," designed to allow a person to easily dress him/herself stylishly. The beauty of adaptive fashion lies not only in its functionality but also in the effect it can have on the wearer's self-esteem. The lack of appropriate clothing has discouraged people with mobility impairments (6) going to events such as school dances, job interviews and funerals.

Along with companies like Target and Zappos, one of the most successful brands to create an adaptive line has been Tommy Hilfiger, whose distinctive prints and colors now appear on clothing with features like one-handed zippers and magnetic buttons for people who have dexterity impairments; tagless and flat seams for people who have sensory sensitivity; and

pants with higher backs and easy closures for people who use wheelchairs (try putting on or taking off a pair of jeans while sitting and you'll realize how difficult this is).

The research is persuasive, but my own experience also has shown me the value of thinking about how important fashion can be in settings where it has traditionally been ignored. A few years ago, I was working on a clinical study that aimed to understand how patients could (7)(　　)(　　)(　*　)(　　)(　　) social networks. Inspired by the "Disney Dad," one of the first things we did when we met the study participants was to hand them a T-shirt with the transplant center's phone number on it. I later found out several of them had already created their own custom shirts. As I got to know the people in the study, I remember asking one woman about her shirt, which was pale pink with "Help Me Find a Kidney" on the front and a picture of her and her family printed on the back. "Every time I put it on," she explained, "I am reminded that there is still hope."

出典: Marin Langlieb, "Dressing for (Health) Success."
Scientific American, December 20, 2020.

(1) 下線部(1)の指す内容を日本語で説明しなさい。

(2) 下線部(2)を和訳しなさい。

(3) 空所(　3　)に入る最も適切なものを1つ選び、数字で答えなさい。
① close to　② in full　③ out of　④ under

(4) 空所(　4　)に入る最も適切なものを1つ選び、数字で答えなさい。
① by　② if　③ on　④ till

(5) 空所(　5　)に入る最も適切なものを1つ選び、数字で答えなさい。
① by contrast　② consequently　③ moreover　④ similarly

(6) 空所(　6　)に入る最も適切なものを1つ選び、数字で答えなさい。
① as　② from　③ in　④ too

(7) 下線部(7)に入るように語群にある語句を最も適当な順に並べ替えて、意味の通る英文を完成させなさい。ただし、解答欄には下線部にある(　*　)に入る箇所のみ、数字で答えなさい。

語群:　① donors　② find　③ kidney　④ potential　⑤ through

〔問3〕次の英文を読んで、あとの設問に答えなさい。

Your fingerprints. Your voice. The irises of your eyes. It seems that these days any part of your body can be used for biometric authentication—the process by which your physical characteristics are used to prove your identity, allowing you access to your cell phone, your bank account or your front door.

Now, you can add your heartbeat to (1)the list. Researchers at the State University of New York-Binghamton have developed a way to use patients' heartbeat patterns to protect their electronic medical records, opening the door to a new method of biometric authentication.

As wearable health devices that monitor everything from blood pressure to respiratory rate become more popular, there's an increasing need to transmit health data electronically to doctor's offices, explains Zhanpeng Jin, a professor in the department of electrical and computer engineering at Binghamton who is working with fellow professor Linke Guo and his student Pei Huang. "During this process, the data transmission is vulnerable to cyber attacks or data breach, which may expose sensitive user's [electronic health] data," Jin says.

Since mobile health devices would have already collected a patient's electrocardiogram (ECG)—a measurement of the heart's electrical activity—the heartbeat data can simply be reused for security purposes. This has an advantage over many existing encryption techniques, Jin says, because it's far less computing-intensive and uses less energy, which is important when working with energy-limited devices like small wearable health monitors. Since the data has already been collected, it adds little extra cost to the process as well.

While the peaks and valleys on people's ECGs may look identical to the untrained eye, they're actually anything (2). Though your heartbeat speeds up and slows down, your ECG has a signature, much like a fingerprint, based on the structure of the heart itself. "The existing studies on ECGs have proved that the ECGs are quite unique by nature among different individuals," says Jin.

There's only one problem: these unique patterns are also changeable. A person's ECG can change with physical activity, mental states (like stress), age and other factors. "We are still working on better algorithms to mitigate those influences and make the ECG-based encryption more robust and resistant to those variabilities," Jin says.

These issues would need to be overcome in order for ECGs to become a common biometric identifier like irises or fingerprints. But, Jin says, the technology is ready to be used as a secondary form of authentication. Since, by nature, an ECG only comes from a person who is alive, it could be used in tandem with another form of identification to both authenticate a person's identity and prove that they're living. Gruesome as it sounds, the scenario of a plucked-out eyeball or a severed finger being used to trick security scanners is something biometrics researchers must consider. An ECG as a secondary form of ID would remove that issue.

Jin's previous work has involved using a person's "brainprint"—the unique electrical activity of their brain—as a password, which also solves the "plucked-out eyeball" problem. In

Jin's research, volunteers' brains responded differently when presented with different words. The brainwaves reflecting those differences could be used as passwords. But (3) heartbeats, brainwaves are not recorded by a personal health monitor, which makes them less useful in the case of protecting electronic health records.

(4)As more and more doctors diagnose and treat patients remotely through telemedicine, Jin and his team hope their new technique can help secure vulnerable data. So one day soon, your heartbeat may join your fingerprints as yet another key in an ever-increasing number of locks.

出典: Emily Matchar, "Using Your Heartbeat as a Password."
SMITHSONIANMAG.COM, January 30, 2017.

(1) 下線部(1)の内容に含まれるものを日本語で説明しなさい。

(2) 空所(2)に入る最も適切なものを 1 つ選び、数字で答えなさい。

① but ② else ③ more ④ yet

(3) 空所(3)に入る最も適切なものを 1 つ選び、数字で答えなさい。

① coupled with ② equivalent to ③ on account of ④ unlike

(4) 下線部(4)を和訳しなさい。

〔問 4〕次の英文を読んで、あとの設問に答えなさい。

For more than two years, Dulcie Shoener of Milwaukee, Wisconsin, has done daily German lessons on her smartphone. To some, that might sound like self-imposed homework, but Shoener, a language lover and the copy chief for *Reader's Digest* and other publications, doesn't see it (1)that way. "I enjoy it so much," she says. "It's a delight to be able to read a short story in German."

To be able to read, write, or carry on a conversation in another language is a feat few Americans attempt, let alone achieve. Just 7 percent of our university students study a language other than English, and less than 1 percent of American adults are proficient in a foreign language they studied in school. Of her college German, Shoener says, "I remembered very little."

Yet the rewards for those who do learn a second (or third, or fourth...) language are profound: increased travel opportunities, of course, but also improved memory, focus, and ability to multitask. Bilingual brains are better (2)shielded against cognitive disorders such as Alzheimer's disease. And, according to a poll conducted by the language app Babbel, knowing multiple languages can make you seem more attractive.

So, why aren't more of us multilingual—or trying to be? There are dozens of decent answers to that question, but one common retort doesn't have much merit at all: the idea that adults, especially older ones, just can't learn languages as easily as children can.

Linguists have long debated how old is too old to acquire a language, but newer research is refuting the idea wholesale. "There is no magical point at which it becomes impossible to learn a new language," says Alison Gabriele, PhD, of the University of Kansas, who led a study published last year showing that adult learners—even as beginners—could process sentence structures in new languages much like native speakers. Separate research at Cambridge University recently found that language instruction affects adults and children the same way.

(3)While it's true that children tend to pick up new languages quickly and easily, this has more to do with how they learn than how old they are when they do. Kids absorb and infer lots of information about language simply by listening: to family, friends, teachers, and the media around them. It happens without much thought or effort on their part and, when they do put in effort, it's because they want to understand the story, joke, or game that's going on. By contrast, adults tend to learn in rigid academic settings where they have little say in what they study and where the stakes are also higher. What Shoener can recall from her German classes is the pressure to maintain her grade point average. "I was horrified of making mistakes," she says. "Now I'm not afraid, and I know I'm doing better than I did in college." If you dream of being bilingual, your age does not disqualify you. Make the process more fun—and, by extension, more successful.

出典: Emily Goodman, "Learn a Language as an Adult." *Reader's Digest*, September 2022. Pages 27-28.

(1) 下線部(1)の指す内容を日本語で説明しなさい。

(2) 下線部(2)と意味が最も近いものを１つ選び、数字で答えなさい。

① attacked　② exposed　③ mutated　④ protected

(3) 下線部(3)を和訳しなさい。

(4) 次の問いに対して英文で答えなさい。所定の解答欄の範囲内に収めること。

Read the last sentence. What are some good ways to make learning a new language fun for adults? Write one paragraph with at least two examples for support.