

2025 年 度

英 語

注 意

1. 監督者の合図があるまでは問題冊子と解答用紙を開かないでください。
2. 別紙の解答用紙は、マーク用解答用紙(1)と記述用解答用紙(2)とに分かれています。指定された解答欄をまちがえないように注意してください。
3. 解答用紙(1)は直接コンピューターにかけますので、折りまげたり、よごしたりしないでください。また、枠で囲まれた部分以外には記入しないでください。
4. 解答用紙(1)にマークするときは該当する○にはっきりとマークしてください。

マークのしかた (良い例) ●
(悪い例) ⊗ ⊗ ⊗ ⊗

(万年筆、ボールペンなどは使用してはいけません)

5. 解答用紙(1)に誤ってマークした場合には、消しゴムで跡が残らないようにていねいに消し、消しかすをきれいに払ってください。
6. 試験開始後、解答用紙(1)には、氏名、受験番号を記入し、さらにその受験番号をマークしてください。なお、受験番号を記入するときには解答用紙(1)の〔**受験番号記入上の注意**〕をよく読んで、まちがいのないようにしてください。
解答用紙(2)には、氏名、受験番号を記入してください。
7. 試験問題はこの冊子の1～9ページに記載されています。
問題冊子の余白部分は、メモとして利用して構いません。
各問題はほぼ同じ配点になっています。それを念頭に時間配分してください。
8. 試験終了後、この問題冊子は持ち帰ってください。

- 1 次の文章を読み、設問(a)～(e)にもっとも適切なものを1～4の中から1つ選びなさい。

Although tiny plastic pieces, called “nanoplastics,” have been difficult for scientists to study, researchers have recently developed a new method to identify them. And when used on bottled water, the method detected more plastic than ever before.

Researchers at Columbia University, Beizhan Yan and Wei Min, used powerful lasers with their team to examine bottled water. Different plastics have different chemical bonds, and each will vibrate* at different levels of energy. Their team’s laser can identify the plastics based on these vibrations. The team then created a machine-learning algorithm*. This new method was able to identify seven types of common plastics from the vibrational data.

The researchers found hundreds of thousands of nanoplastics per liter of water in all three brands of bottled water they tested. This amount is 10 to 100 times more than had turned up in earlier studies. “It is because most of the particles we found were in the nano size,” says Naixin Qian. She is a graduate student and physical chemist on the Columbia team. She adds, “The conventional ways to find microplastics just were not able to detect these smaller pieces.”

The new tool identified tiny pieces of PET plastic. It is the same plastic used to make the bottles. The team suspects that filters at the bottling plant were the source, but most of the tiny pieces found were different from the seven plastics that their tool could identify. The researchers do not know what the pieces are or where they came from.

However, not all scientists are convinced by the results. Among them is Dušan Materić, an analytical scientist at the Helmholtz Centre for Environmental Research in Germany. Materić is working to create standard methods to test for nanoplastics. Materić says that “such new methods will

have to be scientifically sound. Without that, there is no way to truly know how many particles are in the water.” He adds, “it is easy to contaminate* samples. When this happens, there is no telling where the polluting bits and pieces might have come from. Were they already in the water? Did they come from a researcher’s lab?”

Machine learning is a type of artificial intelligence. Using it to identify the tiny pieces, as the Columbia team did, can be another source of error. According to Materić, “the new algorithm may be more likely to produce false positives — where other things are mistaken for plastic.” This would exaggerate how many plastic pieces were present.

Whether the water holds 10 pieces of nanoplastics or 100,000, one thing is certain — they are in the water everywhere. And one big question remains: What are their health impacts? Past research placed nanoplastic pieces directly onto cells to study their impacts. That created some toxicity* and cancer-causing changes. But scientists do not yet know what happens when the exposure is to the whole body. The fact that we are exposed to so many plastic particles from different sources is the reality we are facing right now. We can limit this pollution by reducing, reusing, and recycling plastics. We can also look for alternatives to plastics.

Adapted from: Allen, L. (2024, March 6). Bottled water hosts many thousands of nano-sized plastic bits. *Science News Explorers*. Retrieved from <https://www.snexplores.org/article/bottled-water-hosts-nanoplastics>

〔注〕 vibrate 振動する algorithm アルゴリズム
contaminate 汚染する toxicity 毒性

- (a) What is the main topic of the passage?
- 1 . Different ways to reduce plastic use.
 - 2 . Effects of nanoplastics on cancer.
 - 3 . Environmental impacts of nanoplastics.
 - 4 . New methods of detecting nanoplastics.
- (b) According to the passage, the Columbia team _____.
- 1 . compared microplastics and nanoplastics in bottled water
 - 2 . created a tool that can detect smaller pieces of plastics
 - 3 . studied hundreds of brands of bottled water samples
 - 4 . used powerful lasers to make the plastic bottles
- (c) Which of the following statements is true about the Columbia team's findings?
- 1 . Nanoplastics have a negative impact on human health.
 - 2 . Plastics in the water come from filters in the bottling plants.
 - 3 . There were far more pieces of plastics in the water than previously thought.
 - 4 . Traditional ways for finding microplastics can also be used for nanoplastics.
- (d) Dušan Materić doubts the results of the new study because the _____.
- 1 . new tool may identify plastics as other materials
 - 2 . samples could have already been contaminated
 - 3 . team at Columbia did not use artificial intelligence to detect plastics
 - 4 . team at Columbia has not examined the environmental impacts

(e) Which of the following was NOT stated by the author?

- 1 . People are surrounded by plastic particles everywhere.
- 2 . People should consider using something to replace plastics.
- 3 . Researchers are concerned about the effects of nanoplastics on our health.
- 4 . Researchers should use artificial intelligence to start creating nanoplastics.

- 2 次の対話文を読み、設問(a)～(e)にもっとも適切なものを1～4の中から1つ選びなさい。

A conversation between two students after class.

Rachel: Today's lecture about languages that are in danger of disappearing was fascinating, don't you think?

Greg: Yeah, I never realized how important it was to save minor languages.

Rachel: Exactly! It's amazing how languages shape us and the way we think. I always imagined it would be easier for people to communicate with each other if there were fewer languages, but I didn't realize how much we could all lose.

Greg: Right. I also thought that if we spoke just English, Spanish, or Swahili, there would be fewer problems, but I was wrong. Language is so important for how people view themselves. Imagine what it would be like if we were forced to speak a different language and were punished for using our own language.

Rachel: Absolutely, Greg! Taking a language away from people would not only mean taking away traditions, beliefs, and values that they learn from their family members, but it would also affect their well-being.

Greg: That makes sense. I was particularly interested in how smaller communities benefit when their members can communicate in their own language.

Rachel: Me, too. And I had no idea that drinking, suicide, and violence were lower in such communities.

Greg: That's because a common language holds a community together. A community offers support and care. You are less likely to be unhappy.

Rachel: I see your point. I'd like to find out more about what we can do to

save languages that are at risk of disappearing.

Greg: That's a great idea. Let's start with the library.

(a) What is the topic of this conversation?

- 1 . Benefits of preserving endangered languages.
- 2 . Drinking, suicide, and crime among young people.
- 3 . History of world languages.
- 4 . Problems with Swahili speakers' identities.

(b) According to the conversation, which of the following is true?

- 1 . It is important to be fluent in English in our globalized world.
- 2 . Languages affect the way we see the world.
- 3 . The number of languages we speak determines how mentally stable we are.
- 4 . Young people tend to drink less alcohol when they study foreign languages.

(c) Which of the following best represents what the two students realized after the lecture?

- 1 . Communicating in your own language offers few benefits.
- 2 . Everyone should study English, Spanish, and Swahili.
- 3 . Family traditions and values are not important.
- 4 . Fewer languages do not mean fewer problems.

(d) According to the students, which of the following may happen when a group of people use their own language?

- 1 . People will generally feel happier.
- 2 . People will spend more money on drinking.
- 3 . People's mental health may be affected negatively.
- 4 . People's stories and customs passed down from earlier generations will disappear.

(e) What are the students likely to do next?

- 1 . Ask their professor to extend their assignment deadline.
- 2 . Find out why the librarian is interested in this topic.
- 3 . Read articles and books about endangered languages.
- 4 . Talk to people in their community about the problem.

- 3 色彩心理学について以下の文章はどのように説明しているか、150～180字の日本語でまとめなさい。解答には(1)色彩が人に与える影響の具体例、(2)色彩心理学の研究内容、(3)今後必要とされる研究の内容の3点を必ず含めること。

Do you feel energized when you see red? Does blue make you feel calm and relaxed? Artists and interior designers have long believed that color can dramatically affect moods, feelings, and emotions. “Colors, like features, follow the changes of the emotions,” Pablo Picasso once remarked.

Color can play an important role in conveying information, creating certain moods, and even influencing the decisions people make. Color preferences also have an influence on the things people choose to purchase, the clothes they wear, and the way they decorate their surroundings.

Color psychology is the study of how different colors affect human mood and behavior. It explores how colors can influence emotional responses, as well as how responses to color are affected by factors such as age and cultural background. For example, while white is used in many Western countries to represent purity and innocence, it is seen as a symbol of grief in some Eastern countries such as China.

Interest in color psychology is growing, but there remain several unanswered questions. While color can influence how we feel and act, these effects depend on personal and situational factors. More scientific research is needed to gain a better understanding of the mental and physical effects of color. Some universal feelings about color may exist, but other factors, including personal preferences and individual experiences, also play an important role in our emotional and behavioral response.

Adapted from: Cherry, K. (2024, February 20). *Color psychology: Does it affect how you feel? How color impacts moods, feelings, and behaviors.* Verywell Mind. Retrieved from <https://www.verywellmind.com/color-psychology-2795824>

- 4 次のテーマで100～150語程度のエッセーを，具体例を挙げながら英語で書きなさい。

What is a good habit you have had for a long time and how has it affected your life?