

I 次の英文を読み、下記の設問に答えよ。(配点 25)

Environmentalist Brent Walls is helping to bring drone technology into the fight against pollution. He works for the Waterkeeper Alliance, a worldwide network of clean water groups. Walls teaches activists across the United States to pilot drones.

Drones permit activists to discover areas that would otherwise be difficult to travel to or may be costly to find. The unmanned aircraft are especially useful for searching for polluted areas surrounded by private land. Images captured by drones permit environmentalists to build legal cases against polluters through ¹⁾ the U.S. Clean Water Act. This law aims to protect the nation's water from numerous forms of pollution. The Clean Water Act permits individuals — not just federal officials — to enforce the law. But even though drones can be very useful in searching out polluted areas, they are rarely used in this way. Walls hopes to change that. To use drones to collect evidence, activists must have a federally issued pilot's certificate. They must also learn to work within state and local laws.

Walls is part of a group called “Riverkeepers.” It is a non-profit organization that watches over and protects river systems across the United States. Walls himself is the Riverkeeper for the upper Potomac River in the northeastern United States. The Riverkeepers have used drones to collect evidence for legal cases in the past. Walls says images from drones helped push a coal mining organization in West Virginia to clean up their operations.

Cara Schildtknecht is the Riverkeeper for the Waccamaw River, which flows through North Carolina and South Carolina. She recently completed her training course and received a pilot's certificate. Schildtknecht told the *Associated Press* that using a drone will help her see areas in her watershed that ²⁾ (1) by (2) reach (3) are (4) to (5) boat (6) hard). The aircraft will also help her record floods and find polluters. The view from above, she said, “is a gamechanger,” one that in the past required paying a pilot for a manned flight. “We have certain areas that we know could be of concern that we want to check out,” Schildtknecht said.

Drone technology has been developing very quickly. New drones are easier to fly and capture better images compared to older models. The drones used by Walls' students are paid for with a . They cost around \$2,000 each. In 2019, Walls presented drone images and other evidence to Specialty Granules, a mining company. As a result of the action, the company agreed to put a filtration system on one of its water systems that reduced pollution levels. Matthew McClure is the vice president of operations at Specialty Granules. He said in a statement that the company uses its own drones in its business operations. He added that the company does not generally welcome surprise inspections from drones piloted by activists.

Anastasia Telesetsky is an environmental law professor at California Polytechnic State University. She told the *Associated Press* she thinks drones are a useful tool for finding pollution that has remained . She said, “There's a lot of groups that know there is a problem but

have been limited in the tools they can use to compel regulators to do their jobs.”

Martin Lively is the Grand Riverkeeper in northeastern Oklahoma. The area is home to a former mining site listed on the U.S. Superfund list. Superfund sites are polluted areas in the United States identified as requiring long-term measures to clean up hazardous pollution. “It is extremely polluted with *lead, zinc, arsenic, cadmium, manganese,” Lively said of the site. “And all of that flows into my watershed.” Because of the pollution, the river water is often. But a drone can go a step further. It can help see, for example, whether cleaned up properties might be re-polluted during floods. Lively says a drone is a storytelling tool that can capture powerful images. “That is a tool never to be underestimated in *litigation,” he said.

注 *lead, zinc, arsenic, cadmium, manganese 鉛, 亜鉛, ヒ素, カドミウム, マンガン
*litigation 訴訟

(Enviros train drone pilots to find and pursue pollution by Michael Phillis, Julio Cortez, from AP News, July 1, 2022)

(1) ドローンが汚染対策に有用な理由として本文で述べられているものを次の中から1つ選び、その番号をマークせよ。

- ① 機体の費用が安い
- ② 長距離の移動ができる
- ③ 人が行きにくい場所を撮影できる
- ④ 汚染物質を取り除くことができる

(2) 下線部 1) the U.S. Clean Water Act について最も適切なものを次の中から1つ選び、その番号をマークせよ。

- ① 水質保全にドローンを活用するために作られた法律である。
- ② 連邦政府職員以外でも執行することのできる法律である。
- ③ 環境保護団体が行っているゴミ拾いの活動である。
- ④ Waterkeeper Alliance が水質保全のために行っている活動である。

(3) 下線部 2)の①～⑥を並べかえて英文を完成させ、4番目にくるものの番号をマークせよ。

(4) 空所 ～ に入る最も適切なものを次の中からそれぞれ1つ選び、その番号をマークせよ。

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|--------------------------------|-----------|----------|------------|----------|
| <input type="text" value="4"/> | ① grant | ② grain | ③ grade | ④ grace |
| <input type="text" value="5"/> | ① stable | ② active | ③ faithful | ④ hidden |
| <input type="text" value="6"/> | ① testing | ② tested | ③ tests | ④ test |

(5) Brent Walls 氏について本文の内容に合わないものを次の中から1つ選び、その番号をマークせよ。

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- ① ドローン操縦の指導を行なっている。
- ② 非営利団体に所属している。
- ③ ドローンに関する法律を立案している。
- ④ 鉱業会社の水質汚染に対して異議を唱えている。

Ⅱ 次の会話を読み、下記の設問に答えよ。(配点 30)

Mother: How was your exam?

Son: My friends said it was hard, but I thought it was a piece of cake. I finished it with ten minutes to spare.

(1) What did the son think about the exam? Choose the best answer and mark the number on the answer sheet.

- ① It was difficult.
- ② It was easy.
- ③ It was delicious.
- ④ It was unpleasant.

Sara: How are you doing?

Chris: I'm struggling. This job's difficult. Can you lend me a hand?

Sara: Sure thing.

(2) What does Chris want Sara to do? Choose the best answer and mark the number on the answer sheet.

- ① He wants her to give him something.
- ② He wants her to take him somewhere.
- ③ He wants her to help him with something.
- ④ He wants her to make something for him.

Jack: You seem angry with me. What's the matter?

Jill: I'm sorry, but I don't want to talk to you. You let me down. I thought you would keep your word.

(3) Why is Jill angry? Choose the best answer and mark the number on the answer sheet.

- ① Jack broke a promise he made.
- ② Jack said something bad to her.
- ③ Jack let her do something.
- ④ Jack made her listen to his opinion.

Adam: You've travelled to so many places. How do they compare?

Eve: I loved the lifestyle of California, but you can't beat Italy for food. And everyone was so laid back and friendly in Brazil, but having said that, I made the best friends in Sydney.

(4) Which of the following agrees with Eve's opinion? Choose the best answer and mark the number on the answer sheet.

- ① I don't rate the food in California as highly as that in Italy.
- ② My best friends are from Brazil.
- ③ I think Italy has the best food and the friendliest people in the world.
- ④ I think California is just the best place to live. The food there is just as good as the food in my own country, Italy, if not better.

Jo: How did your presentation go yesterday?

John: It was a disaster. I completely froze and forgot what I was talking about.

Jo: Oh no. I'm sorry to hear that. But I'm sure it wasn't as bad as you thought.

(5) Which is the best sentence to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① It was such a memorable experience.
- ② It was such a blessing.
- ③ It was so empowering.
- ④ It was so embarrassing.

Mary: This dessert is delightful. Did you make it yourself?

Peter: Yes, I did. Thanks. Would you like some more?

Mary: My heart says yes but not my stomach, I'm afraid.

Peter: Not even a little bit?

Mary: Oh, go on, then. Just a little.

(6) Which is the best sentence to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① It really is my pleasure.
- ② I'm absolutely full.
- ③ It's down to me.
- ④ You're more than welcome.

Jay: I feel so tired these days. I don't want to do anything.

Peg: You have been working really hard lately.

Jay: Good idea. I think I will.

(7) Which is the best question to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Why do you work so hard?
- ② When will you take your next holiday?
- ③ How will you fit in a vacation?
- ④ Why don't you take a few days off?

Viv: What do you do?

Luke:

Viv: That sounds interesting.

(8) Which is the best response to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① I'm playing golf this afternoon.
- ② Fine thanks, and you?
- ③ I work in a flower shop.
- ④ I went to see a movie in town.

On the telephone

Caller: Hello. Can I speak to Mike Spence, please?

Receptionist: I'm sorry, but he's with a customer at the moment. Would you like to hold, or should I ask him to call you back?

Caller: This is Helen Smith from DVP Company.

Receptionist: OK. I'll give him the message.

(9) Which is the best response to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Yes, I would.
- ② Can you leave me a message?
- ③ Could you have him call me?
- ④ Thanks for calling.

Customer: Hi, I'm looking for a pair of pants.

Clerk:

Customer: Maybe some jeans.

(10) Which is the best question to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① What's your size?
- ② What do you have in mind?
- ③ What do you think?
- ④ What do you say about it?

Ⅲ 次の会話を読み、下記の設問に答えよ。(配点 20)

Two classmates are talking at the beginning of the school year.

Jim: Hi Joe. Long time no see. What have you been doing recently?

Joe: I went to study abroad in Thailand on a half-year language program. I just got back last week.

Jim: That must have been a lot of fun.

Joe: It was fantastic. Thailand is such a beautiful country.

Jim: Do you speak their language?

Joe: Now, I do. I took a Thai class before I went to learn some basic everyday language. But I was there to study and I spoke Thai as much as possible. I improved a lot.

Jim:

Joe: Yes, I did an intensive six-month program at the university. I just spoke Thai the whole time.

Jim: Sounds difficult. Was it?

Joe: Yes, it was. We studied Monday through Friday for four hours a day.

Jim: That sounds rough. I'm not sure I want to go to Thailand. I heard the food is very spicy.

Joe: Actually, it was delicious. Before I went, I was worried about it. But, after a while, I really began to like it.

Jim: What was your favorite ?

Joe: That's a difficult question. There were so many I liked. I guess my favorite was *pad thai*. It's not spicy.

Jim: Maybe, I'll try going to my local Thai restaurant and see if they have it.

Joe: Sorry for talking too much about me. What have you been doing?

Jim: Actually, I have some interesting news as well, but I'll tell you later. It looks like class is about to begin.

(1) Which is the best question to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Why did you come back?
- ② What was the place you liked?
- ③ How did you like it there?
- ④ Which place did you prefer?

(2) Which is the best question to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Were you teaching English there?
- ② Did you watch TV there?
- ③ Was the weather beautiful there?
- ④ Did you take a language class there?

(3) Which is the best word to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① dish
- ② place
- ③ experience
- ④ highlight

(4) Which is the best sentence to complete the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Let's call it a day.
- ② It's up to you.
- ③ You must listen to my news.
- ④ That's enough about me.

(5) What was the main reason Joe went to Thailand? Choose the best answer and mark the number on the answer sheet.

- ① To sample the food.
- ② To experience the culture.
- ③ To learn the language.
- ④ To see the sights.

(6) Which of the following is correct according to the conversation? Choose the best answer and mark the number on the answer sheet.

- ① Joe studied Thai in Thailand for a year.
- ② While in Thailand, Joe studied Thai every weekday.
- ③ Jim likes to argue about food.
- ④ Jim's favorite Thai food is *pad thai*.

Ⅳ 次の英文を読み、下記の設問に答えよ。(配点 25)

Scientists who make artificial intelligence (AI) systems say they have no problem designing ones that make good predictions for business decisions. But they are finding that the AI may need to explain itself through another algorithm to make such tools effective for the people who use ¹⁾them.

AI is an area of computer science which aims to give machines abilities that seem like human intelligence. “Explainable AI,” or ²⁾XAI, is a new field that has received a lot of investment. Small, new companies and large technology companies are competing to make complex software more understandable. Government officials in the United States and European Union (EU) also want to make sure that machines’ decision-making is fair and understandable.

Experts say that AI technology can sometimes increase unfair opinions about race, gender and culture in society. Some AI scientists think explanations are an important way to deal with that. Over the last two years, U.S. government agencies including the Federal Trade Commission have warned that AI, which is not explainable, could be investigated. The EU could also pass the Artificial Intelligence Act next year. That law would require explanations of AI results.

Supporters of explainable AI say it has helped increase the effectiveness of AI’s use in fields like healthcare and sales. For example, Microsoft’s LinkedIn professional networking service earned eight percent more money after giving its sales team AI software. The software aims to predict the risk of a person canceling a subscription. But the software also provides an explanation of why it makes a prediction. The system was launched last July. It is expected to be described on LinkedIn’s website.

But critics say explanations of AI predictions are not trustworthy. They say the AI technology to explain the machines’ results is not good enough. Developers of explainable AI say that each step in the process should be improved. These steps include analyzing predictions, creating explanations, confirming them and making them helpful for users.

But after two years, LinkedIn said its technology has already created value. It said the proof is the eight-percent in money from subscription sales during the current financial year. Before the AI software, LinkedIn salespeople used their own abilities. Now, the AI quickly does research and analysis. Called CrystalCandle by LinkedIn, it identifies actions and helps salespeople sell subscriptions and other services. LinkedIn said the explanation-based service has extended to more than 5,000 sales employees. It includes finding new workers, advertising, marketing and educational offerings. “It has helped experienced salespeople by arming them with specific insights,” said Parvez Ahammad. He is LinkedIn’s director of machine learning and head of data science applied research.

But some AI experts question explanations are needed. They say explanations could even do harm, creating a false idea of security in AI. Researchers say they could also create design changes that are less useful. But LinkedIn said ³⁾an algorithm’s strength cannot be understood

without understanding its “thinking.” LinkedIn also said that tools like its CrystalCandle could help AI users in other fields. Doctors could learn why AI predicts that someone is more at risk of a disease. People could be told why AI recommended that they be denied a credit card.

Been Kim is an AI researcher at Google. She hopes that explanations show whether a system presents ideas and values people want to support. She said explanations can create a kind of discussion machines and humans. “If we truly want to enable human-machine collaboration, we need that,” Kim said.

(AI is explaining itself to humans. And it’s paying off by Paresh Dave, from Reuters, April 7, 2022. Reproduced with permission of Reuters News & Media Inc.)

(1) 下線部 1) them が指すものとして最も適切なものを次の中から1つ選び、その番号をマークせよ。

- ① scientists
- ② AI systems
- ③ good predictions
- ④ business decisions

(2) 下線部 2) XAI に関する記述として適切でないものを次の中から1つ選び、その番号をマークせよ。

- ① 説明可能な AI の略称である。
- ② これまで多くの投資を受けている新しい分野である。
- ③ 小規模の新興企業と大企業が共同開発を行なっている分野である。
- ④ 公正で理解可能な意思決定に役立つことが期待される。

(3) 空所 ~ に入る最も適切なものを次の中からそれぞれ1つ選び、その番号をマークせよ。

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|---------------------------------|------------|----------|------------|-----------|
| <input type="text" value="26"/> | ① increase | ② income | ③ decrease | ④ loss |
| <input type="text" value="27"/> | ① when | ② that | ③ whether | ④ whose |
| <input type="text" value="28"/> | ① along | ② to | ③ after | ④ between |

(4) 下線部 3) an algorithm’s strength cannot be understood without understanding its “thinking.” の言い換えとして最も適切なものを次の中から1つ選び、その番号をマークせよ。

- ① If you can understand an algorithm’s strength, you may not understand its “thinking.”
- ② If you cannot understand an algorithm’s strength, you will understand its “thinking.”
- ③ You will not be able to understand an algorithm’s strength if you understand its “thinking.”
- ④ You may be able to understand an algorithm’s strength if you understand its “thinking.”

(5) 本文の内容に合わないものを次の中から1つ選び，その番号をマークせよ。

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- ① 専門家によると，人工知能は人種やジェンダーなどに関する偏見を助長することがある。
- ② LinkedIn による人工知能のソフトウェアは，サブスクを解約するおそれを予見しようとするものである。
- ③ LinkedIn の販売員は，CrystalCandle の調査と分析を行なっている。
- ④ LinkedIn では，導入した人工知能のソフトウェアを 5,000 人以上の従業員が利用している。