

英 語 (リーディング)

各大問の英文や図表を読み、解答番号 ~ にあてはまるものとして最も適当な選択肢を選びなさい。

第 1 問 (配点 10)

A You are studying in the US and your class is going hiking. You are reading a flyer from your teacher.

Welcome to the Falmont Hiking Trails!



There are two hiking trails from Falmont Village. To find the trails, cross the Jaybird Bridge at the end of Main Street and go through the gate. From here, the path divides into two.

Take the left-hand path to enjoy the **Lowland Trail** through the woods, home to many birds and small animals. Return to the beginning of the trail through some farmland. You will see cattle there eating the grass. Don't worry. They are used to hikers and they aren't dangerous!

The right-hand path is the **Hilltop Trail** and takes you to the top of Slate Hill. As you climb, you might catch sight of deer on the slopes. The views from the top are superb on a clear day. If you are lucky, you might observe bald eagles flying overhead! From there, a narrow path takes you back to the village.

問 1 What is included in the flyer?

- ① Advice on which trail is the quickest
- ② Directions to the start of the trails
- ③ Information on the length of the trails
- ④ Warnings about dangers on the trails

問 2 Hikers on both trails may have the chance to .

- ① admire scenery from the summit
- ② encounter the farmer's cows
- ③ enjoy the shade of the forest
- ④ spot wild animals and birds

B You are studying in the US and are interested in volunteering during your stay. You find this advertisement on your school website.

Volunteers Wanted!

Join the Animal Support Mission!

Do you love animals? While you are a student in Marston, how about volunteering to care for animals in our town? The Animal Support Mission, opened in 2020, needs student-volunteers to assist our full-time staff. No previous experience with animals is needed, but you must be at least 18 years old to join. Once you start, the project leaders will train you to take care of the animals. Working on a project, you may begin to feel fond of the animals and many volunteers become pet owners. The projects are briefly introduced below.

The Dog House Project

Service dogs work very hard helping people who have difficulties seeing or hearing. The Dog House is a place for retired service dogs, where they can relax and enjoy the rest of their lives. Volunteers play with the dogs and help exercise them.

The Cat Home Project

The Cat Home gives a temporary home to cats with no owner. Volunteers help feed and care for the cats. Information on the cats is collected and put on the Cat Home website. People can search for a cat to adopt and give it a “forever home.”

The Children’s Zoo Project

The Marston Children’s Zoo is a place where young children can come to meet sheep, goats, and other small animals. Volunteers wash the animals and help keep them safe when the children come to visit.

問 1 According to the advertisement, a volunteer

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- ① might develop affection for the animals
- ② must live and work in the Marston area
- ③ needs to have owned a pet before
- ④ should be over 20 years of age

問 2 What is true about the Cat Home Project?

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- ① It is the cats' permanent home in Marston.
- ② Owners can register cats through the website.
- ③ People can look for a pet cat online.
- ④ Volunteers may live in the Cat Home.

問 3 What is true about the Animal Support Mission?

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- ① Staff should find owners for all of the animals.
- ② Student-volunteers sometimes adopt animals.
- ③ The animals were abandoned by their owners.
- ④ Volunteers will receive training before joining.

第2問 (配点 20)

A You are studying at Plainburg Community College in the US. You go to college by bicycle and find this advertisement on campus from a local bicycle shop.

Maintain your bicycle at Super Cycle

Store Location: on the corner of Maple Street and 4th Avenue
(across the street from the campus main gate)

In Plainburg, we are always being encouraged to exercise more and drive less—a great option for this rural area is a bicycle. You can enjoy daily exercise while reducing your environmental impact on our town.



Do you have any concerns about your bicycle?



Does it need upgraded gears or long-lasting tires?



Do you want to avoid mechanical problems miles from home?

A well-maintained bicycle will support your cycling life!



Maintenance Plans and Customer Comments

Silver (\$ 30/year)

Maintenance twice a year:

- Oil the chain
- Adjust the brake cables
- Check the pressure of the tires

Customer A: *I have no worries now. My bicycle can be kept in good condition and I can enjoy my weekend rides.*

Gold (\$ 50/year)

Maintenance four times a year

Silver level, plus:

- Every part checked thoroughly
- 10% discount on selected replacement parts

Customer B: *I cycle to college every day, which takes only 15 minutes. This plan is the most cost-effective for commuters!*

Diamond (\$ 75/year)

Maintenance once a month

Gold level, plus:

- Free brake cables whenever required
- Additional 20% off on selected replacement parts

Customer C: *Thanks to this plan, my bicycle stays in great shape. The shop staff are so helpful, knowledgeable, and super friendly.*

Customer D: *Though it seems expensive, the service is worth the price for long-distance riders like myself.*

問 1 The shop suggests that .

- ① cycling offers a superb opportunity for regular exercise
- ② public transportation should be environmentally sustainable
- ③ the college should help maintain bicycles
- ④ upgraded gears are safe, long-lasting, and eco-friendly

問 2 All the plans refer to .

- ① free replacement parts
- ② frequency of the service
- ③ rates of discount
- ④ reliability of the products

問 3 Which of the following matches one customer's opinion?

- ① Customer A goes on weekday rides.
- ② Customer B spends a quarter of an hour commuting to college.
- ③ Customer C believes the staff could be more informative.
- ④ Customer D values the top-level plan.

問 4 According to the comments, one customer

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 .

- ① checked other shops' prices
- ② has experience repairing bicycles
- ③ rides to faraway destinations
- ④ wants to upgrade the maintenance plan

問 5 According to the advertisement, the shop

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 .

- ① gives lessons to first-time cyclists
- ② improves driver safety
- ③ promotes second-hand parts
- ④ targets local residents

B While planning your six-month study programme in an English city called Twiggsbury, you find this online article about a unique transport project written by a member of the local promotion committee.

Emma Crossland
10 December 2023

Get Points for Travel

Wouldn't it be great to benefit from the miles you travel? Well, in Twiggsbury, you can! 'Point-to-Point,' or 'P-to-P' as it is known, gives you one point for every mile you travel on a train, bus, or even taxi within the local area. Your travel will be rewarded!

I only recently signed up for P-to-P but have already received so many benefits. An electronic travel card records my journeys and I receive a weekly email summary.

How about the benefits? Exchanging 100 points gives you a £3 coupon for future travel, and for 1,000 points you'll get a two-day unlimited pass for local travel! I took a trip to a castle and also visited other ancient buildings and monuments. I would never have done that without the unlimited pass. You can also use points to buy things at local supermarkets. All these benefits make life a little nicer.

I think the greatest benefit comes if you convert 5,000 points (which takes about a year to save) into an Elite Pass. With that, you can use the Elite Lounge at Twiggsbury Station any time! You also receive unlimited Wi-Fi access on all local transport.

The Twiggsbury government said as more people join, their saved points can be used in other places such as restaurants and cinemas. Last year, over 25,000 passengers registered for P-to-P and the government hopes to double that this year. Registration takes just a few minutes ([click here](#)), so sign up and start collecting points today!

問 1 Travelling locally for free on any successive Saturday and Sunday requires

points.

- ① 100
- ② 1,000
- ③ 5,000
- ④ 25,000

問 2 Emma implies that .

- ① modern buildings and monuments are attractive
- ② she dislikes the service of the Elite Lounge
- ③ she feels reluctant to expand the P-to-P project
- ④ the distance she travels has merit

問 3 According to the article, which is true?

- ① Every user can freely access the Elite Lounge.
- ② Points are used at restaurants and cinemas.
- ③ Registration does not take much time.
- ④ The email summary is delivered twice a month.

問 4 According to the article, one opinion of the Twiggsbury government is that .

- ① the local economy is stimulated by the P-to-P project
- ② the P-to-P project should be expanded
- ③ the use of public transportation should be discouraged
- ④ travel diaries are beneficial for local cinemas

問 5 Which is the best combination that describes the P-to-P project?

15

A : It's better to add more people to your P-to-P account.

B : Miles travelled can be converted into groceries.

C : People receive information about their travel history.

D : People should wait until next year to register.

E : The amount of Wi-Fi data usage can be exchanged for points.

① **A and D**

② **A and E**

③ **B and C**

④ **B and D**

⑤ **B and E**

⑥ **C and E**

第3問 (配点 15)

A You are staying by yourself in Sydney, Australia, and thinking of eating out. You are searching for tips and find a blog.

Solo Dining

As someone who frequently travels abroad alone, one thing I enjoy is dinner in an elegant restaurant, but sometimes I feel uncomfortable. In many English-speaking countries, eating out by yourself, “solo dining,” is not common. So, what do you do if it’s just you? Finding a “table for one” to enjoy dinner can be a big task.

Interestingly, on a recent trip alone to Australia I discovered that solo diners are increasing. I ate dinner at The Weir, a riverside restaurant in Adelaide. Before I went in, I could see diners eating alone on the terrace, while checking their phones. When I entered, in the lounge there were only couples and groups of guests. I was warmly welcomed, taken to the terrace, and enjoyed a delicious meal.

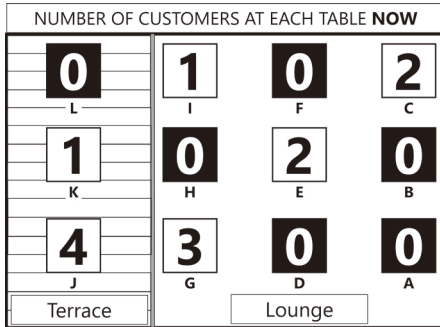
My experience in Adelaide was a turning point in my feelings towards solo dining. Later, I learnt that the rise of the smartphone and social media has led to changes in attitudes towards it for both restaurants and guests. On my next trip to Paris, I will try solo dining at one of the restaurants I have long wanted to go to.

問 1 Before the trip to Australia, the author of the blog 16.

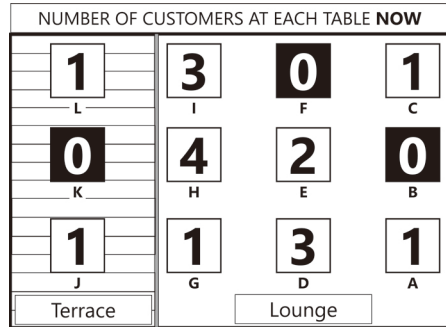
- ① had mixed feelings about solo dining and worried about finding a table just for himself
- ② had never experienced solo dining because he had always had someone to dine with
- ③ was negative about solo dining because his requests for a table to dine alone had been rejected
- ④ was positive about solo dining thanks to a good experience at his favourite restaurant in Paris

問 2 Choices ① to ⑥ show the state of each table. Which one best illustrates the situation when the author entered the restaurant? 17

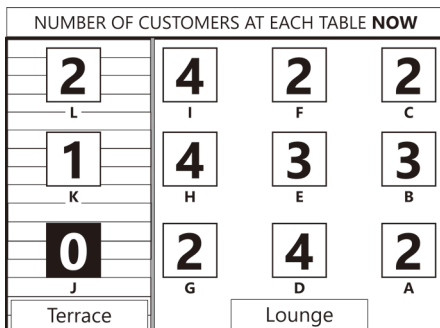
①



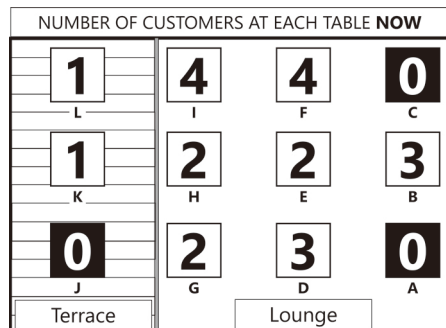
②



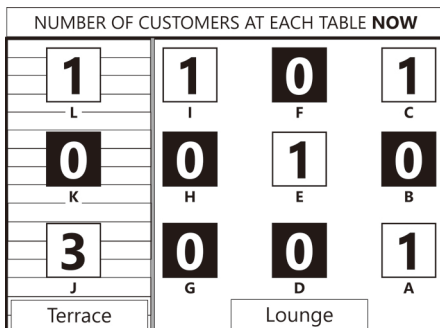
③



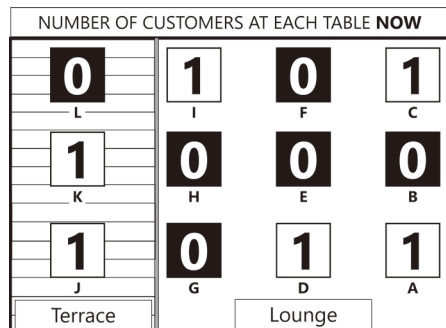
④



⑤



⑥



B You have been asked to keep an online diary available only to other students in the class, to follow at least one other student, and to respond to their posts. You chose to read Christina's diary because you are also thinking of moving into an apartment.

I'm so happy to be leaving the university dorm and moving into a quiet apartment 😊! Renting an apartment is expensive in Osaka! The day before yesterday, I finally received a money transfer from my mum and dad in Singapore and was able to pay the apartment agency. I'd wanted to move in this Wednesday, but they say the earliest I can move in is Thursday. But that's my birthday, and I have other more important things to do 😊, so I'll be getting my key on Friday the 24th at 9 am.

2023.03.19 Sun. 11:16

Because of the design of my new apartment, I've had to think carefully about the order I'm having stuff delivered. You have to walk through the kitchen/living room to get to the bedroom, and the only place I can put my second-hand washing machine is right next to the *genkan*. So my big wardrobe, a present from my mum and dad, is being delivered first, tomorrow, with the special permission of the agency. I decided to have the washing machine delivered the week after I move in and everything has settled down. The delivery of my fridge and kitchen table is scheduled for late afternoon on the day I move in.

2023.03.21 Tue. 22:24

I had my birthday party today 😊! Very busy—moving in tomorrow! Also very annoyed—my wardrobe wasn't delivered 😞. They've promised me it'll come next week, but I don't know if that'll be before or after the washing machine...

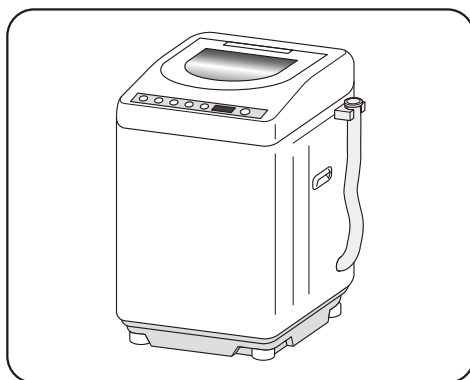
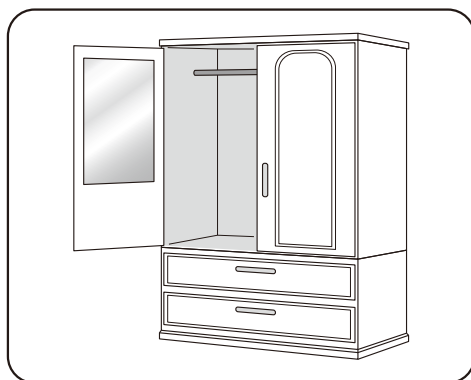
2023.03.23 Thur. 23:08

Almost done 😊. Bought some dishes and a rug at a discount store this afternoon. It's great to be out of the dorm and have some privacy.

2023.03.25 Sat. 18:46

Both the wardrobe and the washing machine came today (see photos). Luckily, they came in the right order 😊. Got to start studying again, I've done very little at all for more than a week now...

2023.03.29 Wed. 14:20



問 1 The following events are described in Christina's online diary:

- ① Christina buys a rug and dishes.
- ② Christina has her birthday party.
- ③ Christina moves into her apartment.
- ④ Christina's fridge comes.
- ⑤ Christina's parents send her money.
- ⑥ Christina's wardrobe is delivered.
- ⑦ Christina's washing machine arrives.

Which of ①, ③ and ④ happened first?

Which of ②, ③ and ⑤ happened first?

Which of ①, ② and ⑥ happened last?

Which of ④, ⑥ and ⑦ happened last?

(You must have all of ~ correct to get points.)

問 2 You are checking all the student responses to Christina's 2023.03.23. post. Which response appears to be a misunderstanding? 22

①

Calm down!
Try not to get so angry!
Tomorrow is another day!

②

Do you need any help moving in? I'd really love to give you a hand.

③

Good to hear your wardrobe will come tomorrow!
Best of luck!

④

Which delivery company are you using? I don't want to use them...

問 3 Which of these is not true about Christina? 23

- ① Her birthday is important to her.
- ② She frequently gets very lonely.
- ③ She is a very organised person.
- ④ She is quite careful with money.

第4問 (配点 16)

You are a volunteer for a family event at a community center. You get the following handout and write a memo with other members to prepare for the final meeting.

Hello volunteers! There are four new activities this year, so check the descriptions on the back side of this handout. Please read the table and the information below to prepare for the final planning meeting at 9:30 a.m. on September 14.

◆ “Fun Day” Activities and Locations, September 21

| Activities | Locations | |
|---------------------------|---------------------------------------|---------------------------|
| | SC = Sports Center, CP = Central Park | |
| #1 Three-legged Race | SC | behind main building |
| #2 Limbo Dance (M) | | inside gymnasium |
| #3 Spoon Race | | next to playground swings |
| Refreshment I | | entrance |
| #4 Flying Disc Throwing | CP | start at big central tree |
| #5 Musical Hula Hoops (M) | | at running track |
| #6 Sponge Pass | | in front of picnic tables |
| Refreshment II | | main gate |

(M) = Uses music

◆ Information

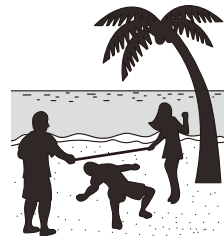
- Set-up: 9:00 a.m. Registration: 9:30 a.m. Start: 10:00 a.m.
- 6 groups (A to F) with 10 people each
- Groups move from one activity to the next in order until all are completed
- Starting points: Group A → #1, Group B → #2, and so on
- Volunteers' Tasks:
 - Make schedules for each activity. Check the number of volunteers carefully. We need two volunteers for each of the refreshments and each activity except #1 and #3.
 - Explain activities and check participants' understanding (see back for details).
 - Make a list of needed materials. SC has enough cones, table tennis balls, ropes, spoons, tape measures, and a children's pool. Also, remember that SC only has two portable music players.

◆ **New Activities**

(Activities #1 & #3 are the same as last year. Ask the coordinators for details.)

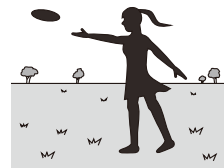
#2 Limbo Dance

A pole is held at about chest height. The players take turns dancing under it, bending their knees and arching their backs while music is playing. The pole height is gradually lowered until no one can pass under.



#4 Flying Disc Throwing

Place a large cone at the starting point and another at the goal about 100 meters away between a hula hoop and a children's pool full of water. Each player throws their own disc toward the goal-cone at the same time. The objective is to land the disc inside the hoop, avoiding the pool. After each throw, players go to their disc and throw it again. The fewer throws, the better. If the disc ends up in the pool, you are out!



#5 Musical Hula Hoops

Put nine hula hoops on the ground in a circle. Play music, turning it off at random, while players walk around the circle. When the music stops, players must quickly jump into a hoop. If two players are in the same hoop, do *jancken* to decide who stays. Remove one hoop each time until one player and one hoop remain.

#6 Sponge Pass

Make two lines of five people. Place a bucket of water with a sponge at the front of each line and an empty bucket at the back. The players pass the wet sponges over their heads to the last person in line, who squeezes the remaining water into the other bucket. Then return the sponge to the front. Repeat this until the time is up. See how full the back buckets get. Watch out! Things can get wet!

Your memo for the meeting:

Schedule:

We won't have enough time to set up! Can we start half an hour earlier at 24 ?

Volunteers:

| Activities | Locations SC = Sports Center CP = Central Park | Volunteer 1 (Coordinator) | Volunteer 2 (if necessary) |
|----------------|--|------------------------------|-------------------------------|
| #1 | SC | Masa | |
| #2 | | Rika | |
| #3 | | Maria | |
| Refreshment I | | Shion | |
| #4 | CP | Kohei | Tetsuya |
| #5 | | Kenta | |
| #6 | | Kei | Erika |
| Refreshment II | | Hiromi | |

Find at least 25 more volunteers because we're short of them.

Additional Materials for New Activities:

26

- A. 1 pole
- B. 2 buckets
- C. 2 sponges
- D. 10 discs
- E. 10 hula hoops

Problems at Central Park:

- How can we get water?
- We got into trouble for playing music there last year. It's prohibited!

Activity Locations & Layout:

- Because 27, let's switch activities 28.
- Here is the layout for Flying Disc Throwing:



問 1 Which is the best option for

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| 24 |
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 ?

- ① 8:00 a.m.
- ② 8:30 a.m.
- ③ 9:00 a.m.
- ④ 9:30 a.m.

問 2 Which is the best option for

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 ?

- ① 4
- ② 5
- ③ 6
- ④ 7

問 3 There is an error in the Additional Materials for New Activities. Which do you need to change?

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| 26 |
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- ① A
- ② B
- ③ C
- ④ D
- ⑤ E

問 4 Choose the best options for 27 and 28.

27

- ① the big tree is hard for players to find
- ② the park forbids playing music in public
- ③ the swings are broken
- ④ the tables might interfere with the activity

28

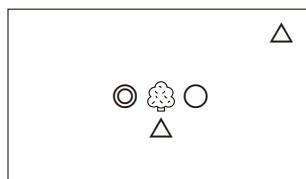
- ① #1 and #5
- ② #2 and #4
- ③ #3 and #4
- ④ #4 and #5

問 5 Choose the best option for 29.

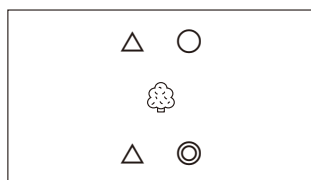
①



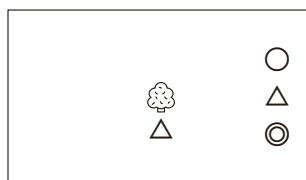
②



③



④



= tree

 = children's pool

 = cone

 = hoop

第5問 (配点 15)

In your English class, you have been assigned to read a personal essay written by a graduate of your university. You will give a presentation about it using notes.

Everlasting Journey

Sugiyama Keita

I was restless throughout the seven-hour flight. Soon after turning 20 years old, I had decided to travel to a foreign country for the first time. Next to me was my good friend Shinji, eagerly gazing out the window. I had asked him to be my travel companion because he was always willing to listen to others and consider their ideas. He had agreed with me that we would not arrange detailed travel plans before leaving Japan, but rather experience the thrill of choosing what to do each day while we were in the country. I was sure that this experience would help me grow as a person, and my heart felt like it might burst with anticipation!

At the exit of the airport terminal, we had no idea how to get transportation into the city. Then, a Japanese traveler spoke to us. He told us the best way to get there and gave us a lot of useful travel advice. We thanked him. "Instead of just thanking me, be kind to other travelers," he said. Nodding, we acknowledged his request and said goodbye.

The next day, we visited some places. I left everything up to Shinji. Thanks to him, we had little trouble getting to our destinations. We enjoyed the morning, visiting some fascinating museums. In the afternoon, though, trouble struck. I realized I had left my travel pouch somewhere, and I was in a panic. Shinji, however, calmly urged me to think carefully about what we had done and we decided to go back to the restaurant where we had lunch. There, the staff was waiting for us with my pouch! I was impressed by how Shinji took the initiative to resolve the situation. Our last destination was a temple, which was famous for its statue of a mysterious Buddha. The Buddha looked angry from one angle, but seemed to be laughing from another. I felt uneasy because I could not understand the emotions it was supposed to show.

The following day, we decided to go to a waterfall. After a 30-minute walk from the nearest station, we were almost there, but the map was hard to understand and we were confused. Although we had to ask for directions, I enjoyed interacting with the locals. Shinji, on the contrary, spoke less and less. Before the trip, I did not think Shinji could be irritable. I had no idea how to handle the suddenly annoyed Shinji and tried to make myself believe that time would improve the situation. Coming back to the guest house, Shinji suggested that we spend the next day apart. I felt a little hurt but accepted it.

The next day, I visited the ruins of an ancient kingdom outside the city. I managed to take the bus there. While I was waiting for the bus to go back, I saw another traveler asking locals about which bus he should take. He seemed frustrated that he could not communicate with them. After some hesitation, I asked him if I could help and we figured it out together. “You were very kind to help me,” he said. “Not really,” I replied, and then I told him the story about the traveler that had assisted Shinji and me. After my story, he said, “But, it was you who decided to help me. Sometimes when we find ourselves in challenging circumstances, we can discover a part of ourselves we didn’t know existed.”

That night, over dinner, Shinji told me he had visited six places. It made me feel a little down because I was only able to visit two places; I had really poor planning skills. I felt better, however, after Shinji, sensing my disappointment, showed his empathy and said, “I was only able to stay at each place for a short time because I felt bored being alone. I would’ve had more fun with a friend.”

A few hours before our departure for Japan, I stopped in a souvenir shop to get something for myself. After looking through a variety of goods, I found myself buying a little figure of the Buddha I had seen on the second day. Its face did not bother me that much; in fact, I thought it symbolized my trip.

Looking back on this trip one year later, I can say that I did not experience the great personal changes I thought would happen. But this trip did cause one change: my friendship with Shinji has become stronger even though we sometimes have disagreements. This is because I learned to look at Shinji the same way I looked at the figure of the Buddha. Thus, if I continue to find lessons from my traveling experiences, and apply them to my life, I will someday become closer to being the kind of person I want to be. My journey is just beginning.

Your notes:

Everlasting Journey

1. Story setting
Keita reflects on going to a foreign country with his friend, Shinji.

2. Keita's character
He , but .

3. How Keita describes Shinji throughout the story

↓

4. Interesting scenes

◇ Scene 1: Keita helped a traveler. This shows that he .

◇ Scene 2: Keita bought the figure for himself. This implies that he .

5. What Keita learns after his trip

問 1 Choose the best options for and . (The order does not matter.)

- ① can be at a loss in difficult situations
- ② likes to plan and act individually
- ③ refuses to talk with other people
- ④ welcomes adventurous experiences
- ⑤ willingly helps local people

問 2 Choose **four** out of the five descriptions (①~⑤) and put them in the correct order. → → →

- ① Displays his negative emotions
- ② Gets angry at what others say to him
- ③ Is reliable and shows leadership
- ④ Relates to the feelings of others to cheer them up
- ⑤ Respects the opinions of people around him

問 3 Choose the best option for .

- ① had improved at reading maps
- ② remembered the promise he had made
- ③ tried to change his bad memory into a good one
- ④ wanted to communicate with foreign people

問 4 Choose the best option for .

- ① tried to change his relationship with his friend
- ② wanted to remember what he did in the temple
- ③ was starting to accept different sides of a person
- ④ was thinking of visiting the country again

問 5 Choose the best option for .

- ① Imagining our ideal self is helpful for traveling.
- ② It is important to find a good travel companion.
- ③ Personal development can happen through travel.
- ④ Traveling can help us become better at planning.

第6問 (配点 24)

- A Your English teacher has assigned this article to you. You need to prepare notes to give a short talk.

Belief Perseverance

There may be some out-of-date rules at your school. If you ask your teachers to update these rules, your ideas may be rejected. Of course, most of their objections will be reasonable, but some may be caused by **belief perseverance**, the psychological characteristic of maintaining an existing belief despite any new information. Although this tendency itself is neither good nor bad, it may cause conflicts ranging from personal problems to social phenomena.

A study published in 1980 by Craig A. Anderson and his colleagues describes this human tendency. In the first stage of their experiment, the participants were presented with evidence that led them to conclude that firefighters who were willing to take risks performed their jobs better. Surprisingly, even after the participants were told that the evidence was false, they were reluctant to change their conclusions. Why is it difficult to change our beliefs? This is partly because we have **confirmation bias**, a psychological tendency to look for information consistent with our existing beliefs. Also, in some cases, the more others attempt to prove our beliefs wrong, the more firmly we stick to them, which is called the **backfire effect**.

The case of Ignaz Philip Semmelweis demonstrates belief perseverance in one group in society. He was a 19th-century physician who wondered why more women died from a fever after giving birth in one place than in another. His data apparently indicated that handwashing could reduce the number of occurrences of the deadly fever. However, at that time, handwashing was not common among doctors. His potentially life-saving idea was ignored by the

medical community, and many doctors rejected it and even harassed him. Semmelweis' claim was eventually accepted long after his death. This episode demonstrates how a group of people with belief perseverance can become aggressive towards innovators and ground-breaking ideas. This social reaction was named the **Semmelweis reflex** after this incident.

Understanding belief perseverance can give us insights into the ways people behave. Imagine that you want to study abroad, and your family strongly opposes it because they believe that the city you plan to live in is dangerous. Even after showing them data on the city's crime rate, you may find out that your efforts end up only adding fuel to the fire. If you encounter this backfire effect, an alternative approach might be needed. You could ask your teacher to speak with your family on your behalf, taking advantage of a related behavior that people tend to trust the opinions of an authority.

If someone presents you with hard-to-believe information, be careful not to reject it immediately. If your internal voice warns you not to act on that information, it is time to remind yourself of belief perseverance. To be stubborn may not be good for you. However, in many cases, the persistence of existing beliefs is desirable or even necessary these days. Remember that the Internet conveys not only accurate but also unreliable information. Belief perseverance can also protect you from potentially fake information. In other words, take time to find out more before accepting new information. After all, we humans have developed belief perseverance over time to ensure our survival. Understanding human nature is one of the keys to keeping your life balanced.

Your notes:

Belief Perseverance (BP)

BP:

- is a tendency to maintain an existing belief despite any new information.
- can be .

Outline by paragraph

1. Introduction to BP
2. Experiment and explanation
3.
4.
5. Final remarks

Stories mentioned in the article

- The firefighters story shows us that .
- The Semmelweis story tells us that even a truly innovative idea with sufficient evidence can be initially rejected.

Practical lessons from the article

Learning about the nature of human psychology helps us to .

問 1 Choose the best option for .

- ① a barrier which stops people from expressing their opinions
- ② a cause of positive or negative outcomes for anyone
- ③ a major disadvantage for people who are easily convinced
- ④ an obstacle preventing us from keeping our beliefs strong

問 2 Choose the best options for and .

- ① A story of a doctor who rejected handwashing
- ② An example of the social consequences of BP
- ③ An example showing the difficulty of understanding others
- ④ Application of BP knowledge when convincing others
- ⑤ Strategies for effectively countering new information
- ⑥ Tendency to search for advice from specialists

問 3 Choose the best option for .

- ① BP appears to have an influence on anyone, even in situations one wouldn't expect
- ② confirmation bias is found when people want to believe new information
- ③ the backfire effect often happens when a stubborn person's opinion is rejected
- ④ the Semmelweis reflex is often observed in occupations where risks are common

問 4 Choose the best option for .

- ① analyze historical discoveries from a scientific point of view
- ② make reasonable decisions when dealing with new information
- ③ recognize immediately whether given information is true or not
- ④ understand when it is appropriate or necessary to take risks

B You are preparing for a science fair presentation on a scientific discovery, using the following magazine article.

“Smart” Fabrics

Through the years, the fabrics we use have evolved to suit our changing lifestyles and needs. Linen, made from the fibers of a plant called flax, is one of the oldest textiles in the world. It naturally reflects away the sun and its intense heat, and allows better airflow than other types of fabric. Light and airy, linen has long been the ideal fabric for warm climates. With industrialization and population growth, however, cotton became more commonly used since it was suitable for mass production. Cloth made from cotton can be heavy and can trap body heat though, which may make people feel uncomfortable in very hot and humid weather.

Newer materials are always being developed as technology progresses, and “smart” fabrics are a recent scientific breakthrough in the textile industry. Weaving flexible synthetic fibers into cloth can provide additional functions for the fabric. For example, scientists at the Huazhong University of Science and Technology made a new fabric called “metafabric” that deflects heat to keep people cooler. Such fabric can be used to create clothes that ease the discomfort people suffer when the temperature rises. In their experiment, a participant wore a vest consisting of two halves—one half cotton and the other half metafabric—and was exposed to direct sunlight for an hour. Underneath the cotton, the skin temperature soared to 37°C. In contrast, underneath the metafabric, the temperature rose by just one degree, from 31°C to 32°C.

Another interesting example is a fabric that can detect sounds. The human ear picks up sound pressures, and the inner organs convert sound waves into mechanical vibrations and then into electrical signals. Similarly, “piezoelectric materials,” which are typically used for microphones or speakers, produce an electrical signal when mechanically bent.

Using this knowledge, a team of researchers at the Massachusetts Institute of Technology and the Rhode Island School of Design came up with a so-called “acoustic fabric.” The researchers wove a piezoelectric fiber into fabric and conducted a series of experiments. One experiment examined the fabric’s sensitivity to sound directions. They sewed two pieces of acoustic fabric onto the back of a shirt. Then, they clapped their hands at various angles away from the shirt. The fiber converted the sound first into mechanical vibrations, then into electrical signals that were stored on a device. The fabric was successfully able to pinpoint the angle of the sounds. This could lead to a useful application for individuals with hearing aids to identify the direction of a specific sound even in noisy surroundings.

In addition to functioning as wearable hearing aids, acoustic fabric can be used for other purposes such as tracking respiratory (lung), pulse, and cardiac (heart) conditions. Another experiment tested whether clothes with acoustic fibers could act as fabric stethoscopes to monitor a person’s subtle cardiac features. The research group attached a single fiber over the chest region on a shirt and found it accurately detected the wearer’s heart signals. Furthermore, this result indicated the possibility of utilizing the fabric in maternity clothes to check an unborn baby’s heartbeat.

Researchers see applications of smart fabrics beyond clothing. A smart fabric with cooling performance can be applied to various products for different purposes, such as tents, car covers, curtains, and sunshade products. Acoustic fabrics can be integrated with spacecraft coatings to monitor cosmic debris, or be used to help detect cracks or strains in buildings. They can even be woven into a net to check on fish in the sea.

As these examples of textile innovation suggest, new fabrics can enhance our lives in many ways. You may not believe this, but the coolest things about these fabrics are that you can get “smart” while wearing them and some of them are machine-washable!

Your slides:

Science Fair: A Scientific Discovery


44


1

| Traditional Fabric | Smart Fabric |
|--------------------|-------------------|
| • Linen | • Metafabric |
| • Cotton | • Acoustic fabric |

2

Metafabric Experiment

60 minute exposure 

cotton  metafabric

Implication: 45

3

Acoustic Fabric Experiment 1

Procedure:

1. Acoustic fabric was woven into a shirt.
2. 46
3. Sound was converted into electrical signals.
4. 47

Results:

- The directions of the claps were identified.

4

Acoustic Fabric Experiment 2

Purpose:

- To see if the acoustic fiber works as a stethoscope

Results:

- The acoustic fiber heard the wearer's heartbeat.

Future benefits:

- 48
- Maternity clothing

5

Applications Beyond Clothing

49

- A. To find weak places in buildings
- B. To listen for debris in space
- C. To locate a crying baby
- D. To protect vehicles from the sun

6

問 1 Which is the best title for the presentation on Slide 1? 44

- ① Bio-Based Textile Innovation
- ② First Fabric That Addresses New Challenges
- ③ Great Advantages of Clever Textiles
- ④ The History of Fiber Design

問 2 What does the result of the experiment by the Huazhong University of Science and Technology imply on Slide 3? Choose the best option for 45.

- ① It is far easier to create an outfit that keeps you warm.
- ② Light-colored fabric is more suitable for reflecting the sunlight.
- ③ The newly invented fabrics can keep people comfortable in hot weather.
- ④ You should wear a shirt made of the metafabric over your other clothing.

問 3 You are summarizing the steps in conducting the acoustic study on the smart shirt on Slide 4. Choose the best options for 46 and 47.

- ① Mechanical vibrations were bent by the fabric.
- ② Sounds from various directions were made.
- ③ The acoustic fabric recorded the sounds.
- ④ The output from each fiber was saved.
- ⑤ The researchers moved a shirt to different places.
- ⑥ Various types of sounds were measured by a shirt.

問 4 What can be inferred as a possible benefit of wearing an acoustic fabric on Slide 5? Choose the best option for .

- ① A person with irregular cardiac activity can get help.
- ② Acoustic fabric can give a person directions on the street.
- ③ It can help a person breathe more deeply and easily.
- ④ It can reduce noise levels and answer phone calls.

問 5 You found an error on Slide 6. Which of the following should you remove?

- ① A
- ② B
- ③ C
- ④ D