



英語

(医学部)

— 2月9日 —

解答はすべて解答用紙に記入して提出しなさい。

次の英文を読み、問1～問3、問6、問10は文を完成させ、問4、問5、問7～問9、問11は問いに答えなさい。
答えは最も適切なものを、それぞれア～エの中から一つ選びなさい。問12は指示に従ってTかFを選びなさい。

Most people have experienced the nasty feeling of accidentally walking through a spiderweb. That uncomfortable sensation we have likely stems from our fear of spiders, rather than of spiderwebs themselves. In early human evolution, the ability to detect spiderwebs before a deadly spider could bite was a natural survival mechanism. There is no dearth of fictional characters interacting with spiders. These include the ancient Greek weaver ^(A)Arachne, who had the horrifying experience of being turned into a spider. Likewise, Little Miss Muffet from a nursery rhyme was frightened away by a spider. In more recent times, old spiderwebs have been used to produce mysterious, dark atmospheres in literature and films.

Spiderwebs, despite their frightening associations, have fascinated people since ancient times. Regardless of how they have been portrayed throughout history and popular culture, they are among the most versatile creations in nature. Looking more objectively at spiderwebs has allowed us to take advantage of their unique physical and biological properties. For humans, there are a number of useful applications.

Spiderwebs have been studied and utilized for their design, strength, and healing qualities for hundreds of years. Surprisingly, although all spiders produce silk, most of the nearly 50,000 known spider species do not produce webs at all. While we tend to think of all spiderwebs as having a uniform wheel-like shape, there are, in fact, several distinct basic types of web. Two of these include funnel- and mesh-shaped webs found in Australia and North America, respectively. Documented examples from folklore around the world attribute the origin of various types of basket-weaving and net-making to human awareness of spiderwebs. [1], architects and designers have been inspired by the structural elements of spiderwebs to design everything from glass domes and suspension bridges to tents and furniture. Additionally, most people know that the “www” prefacing Internet addresses stands for World Wide Web. The association with spiderwebs is an apt one, given the organizational arrangement of the Internet.

The strength of spiderwebs has also long been recognized. For example, there is an Ethiopian proverb that states, “When spiderwebs unite, they can tie up a lion.” Since the 1960s, scientific researchers and entrepreneurs have been taking advantage of the strength, lightness, and flexibility of spider silk in manufacturing products. For example, several attempts have been made to develop a bullet-proof vest with fabric made from spider silk. However, while sample materials have been developed, there is still a long way to go before manufacturers will be able to produce the necessary amount of spider silk.

Additionally, the medical applications of spiderwebs are not new. In ancient Greece and Rome, they were used in the treatment of wounds and cuts. Medical professionals now know that they contain vitamin K, an effective agent in stopping bleeding. Equally important, spider silk inhibits the growth of bacteria. Due to this quality, as well as its strength and flexibility, spider silk can be used to help naturally repair bone damage in patients' knees. Moreover, it may be able to replace *cartilage in knee-replacement surgery.

Recent applications of spider silk require a great amount of the material to be produced. It is problematic to use spiders to produce silk in a laboratory setting because they tend to consume each other when they are in

groups. One way to produce spider-like silk is through the genetic modification of other animals. Another alternative is synthetic spider silk, a material produced by genetically-modified bacteria that retains the same powerful and antibacterial properties, but can be produced more easily and in much larger quantities.

Spiderwebs are now being looked at in a different light than in the past. Rather than being seen as ominous or mysterious, researchers are viewing them with opportunity in mind. Their design, strength, and medicinal qualities are lending themselves to far-reaching purposes.

*cartilage: 軟骨

問1 In the first paragraph, dearth is closest in meaning to _____.

- ア. lack
- イ. amount
- ウ. truth
- エ. falsehood

問2 According to the first paragraph, humans avoid spiderwebs because they _____.

- ア. can be mysterious in films
- イ. are poisonous or even fatal
- ウ. are featured in various traditions
- エ. can indicate a spider's presence

問3 The purpose of the first paragraph is to _____.

- ア. explain some reasons for the survival of spiders
- イ. illustrate the negative associations with spiderwebs
- ウ. describe how to create a moody setting in literature
- エ. show that attitudes about spiderwebs have changed

問4 According to the third paragraph, which statement is NOT true about spiderwebs?

- ア. Their diverse benefits have been understood for centuries.
- イ. Their structures have been mimicked in creating everyday items.
- ウ. Their organization has inspired a term that describes the Internet.
- エ. Their unique designs are all based on round patterns.

問5 Which of the following best replaces [1] in the third paragraph?

- ア. Instead
- イ. In short
- ウ. More recently
- エ. Otherwise

問6 According to the fourth paragraph, the problem with using spider silk fabric for bullet-proof vests is that it _____.

- ア. weighs too little to create a workable fabric
- イ. breaks too easily when stretched
- ウ. cannot be produced in the amounts required
- エ. is not strong enough to stop a bullet

問7 Which statement best summarizes the content of the fifth paragraph?

- ア. Long ago, Greeks and Romans were using spider silk for health purposes.
- イ. Spider silk is a versatile material with a variety of medical applications.
- ウ. The antibacterial quality of spider silk has promising uses in future surgeries.
- エ. Scientists and doctors have developed artificial bones made from spider silk.

問8 According to the sixth paragraph, why is it difficult to produce spider silk in a laboratory?

- ア. Spiders have a tendency to steal the silk of other spiders.
- イ. Spiders can only make the material in a natural setting.
- ウ. Spiders that are grouped together sometimes eat one another.
- エ. Spiders are unable to produce antibacterial silk indoors.

問9 According to the sixth paragraph, what is NOT true about future silk production?

- ア. Animals could be modified to produce silk.
- イ. Silk could be produced artificially by bacteria.
- ウ. Producing synthetic silk is more difficult.
- エ. Antibacterial properties of silk could be exploited.

問10 The final paragraph suggests that researchers are _____.

- ア. still wary about the many dangers of spiderwebs
- イ. studying how spiderwebs were used historically
- ウ. unaware of the possible value of using spiderwebs
- エ. interested in the diverse applications of spiderwebs

問11 Which would be the best title for the passage?

- ア. The Mythology of Spiderwebs
- イ. The Various Healing Properties of Spiderwebs
- ウ. Spiderwebs and their Benefits
- エ. Spiderwebs and their Commercial Production

問12 According to the passage, mark "T" if the statement is true and mark "F" if the statement is false.

1. Little Miss Muffet was turned into a spider by another spider.
2. Most spider species do not produce silk.
3. Each individual spider produces a different type of web.
4. An Ethiopian proverb suggests that spider silk has beneficial qualities.

2

次の1～10の英文の空所に入る最も適切な語(句)を、それぞれア～エの中から一つ選びなさい。

1. The question () at today's meeting is whether we should postpone the project until next month.
ア. is discussing イ. to be discussed ウ. is discussed エ. to be discussing
2. If I helped you with your science assignment, what () you do for me in return?
ア. would イ. will ウ. do エ. did
3. John continues to behave () is a normal way, but he seems different from his former self.
ア. most people would agree in what イ. in what most people would agree
ウ. what people in most would agree エ. what would in most people agree
4. I have never had such a great time on a trip! I would rather () here much longer than a week.
ア. to stay イ. stay ウ. had stayed エ. staying
5. Ms. Staab did not choose any of the three coats because she found () of them satisfactory.
ア. both イ. either ウ. neither エ. none
6. The governor's attitude () his job is based on his belief in hard work.
ア. along イ. from ウ. by エ. toward
7. The health organization intends to request () special legislation be passed allocating disaster relief funds to the people in the area.
ア. which イ. what ウ. that エ. though
8. John MacQueen, who plays the role of a pirate in *King of the Sea*, must be () older than he looks.
ア. much イ. more ウ. very エ. such
9. Linda does not practice dancing much now, but I know she () to belong to a dance studio.
ア. was using イ. used ウ. is used エ. uses
10. I often feel cramped sharing a room with Tom; I'd rather have a room of my own. () small it might be.
ア. further イ. moreover ウ. besides エ. however

3

次の1～10の英文を読み、下線部の意味に最も近い語(句)を、それぞれア～エの中から一つ選びなさい。

1. The feeding habits of sharks can vary tremendously from species to species.
ア. quickly イ. greatly ウ. unusually エ. occasionally
2. It seems that no matter how much I try, my mother finds fault with everything I do.
ア. criticizes イ. misunderstands ウ. examines エ. describes
3. In the spring, cherry blossoms flower alongside the brook.
ア. coast イ. stream ウ. lake エ. pond
4. After getting off the phone, Lee resumed watching the replay of the soccer match.
ア. enjoyed イ. tried ウ. continued エ. increased
5. The burden of balancing work and family life was stressful for Dr. Wong.
ア. weight イ. fate ウ. attempt エ. matter
6. Mina found it peculiar that her left foot was slightly larger than her right.
ア. odd イ. embarrassing ウ. helpful エ. unfair
7. Ren realized that he would have to do his summer homework sooner or later.
ア. steadily イ. collaboratively ウ. thoughtfully エ. eventually
8. Blackbeard was an infamous pirate who sailed the Caribbean Sea for two years.
ア. a fictional イ. a notorious ウ. a popular エ. a handsome
9. We ran out of milk, so my father had to drink his coffee black this morning.
ア. combined the イ. threw out the ウ. spoiled the エ. used up the
10. The instructions for assembling the model were elaborate, and Itsuki couldn't follow them.
ア. strange イ. vague ウ. complicated エ. faint

4

次の2つの会話文を読み、1～3、5、7は意味・内容に合うように文を完成させ、4、6、8は問いに答えなさい。答えは最も適切なものを、それぞれア～エの中から一つ選びなさい。

Fiona: I'm really pleased with the discount I'm getting on this tree, Dan.

Dan: You're lucky. The guy working here said it was the last one.

Fiona: I can see how people might not want to buy it. Some of the leaves seem a little yellow, and it looks like some of them might have fallen off.

Dan: I see what you mean. Let's ask him about it... There he is. Hi! We have some questions about the care of this tree.

Employee: I see, yes. This is a five-year-old olive tree. It doesn't seem to be in the best shape; that's why the price has been cut.

Fiona: Is the soil too dry?

Employee: Actually, quite the opposite. Olive trees are native to drier climates in places like Greece and Turkey. Someone must have been watering this one almost every day.

Fiona: Oh. What about insects? Maybe the tree was infested with bugs?

Employee: That's unlikely, since we spray all our plants for insects. I do have one question, though: are you planning on keeping this tree inside or outside?

Dan: We're not really sure yet. If olive trees like hot, dry places, it might be best on our patio in the backyard.

Employee: As long as it gets good sunshine sometime during the day.

Fiona: Yeah, there's a lot of light there. Before we go, I have one last question.

Employee: That's what I'm here for. Fire away!

Fiona: Can we expect to get any olives from the tree?

Employee: Most olive trees begin to produce fruit after three or four years and continue to produce until they die. This variety produces a fair amount of olives after it flowers in the spring. Keep in mind that trees that do not get any direct sunlight will probably not produce fruit. The roots of the tree should also have plenty of space to grow in a pot with good drainage.

Fiona: I think a bigger pot is a great idea.

Dan: I'm not sure that my back likes that idea!

Fiona: Oh, stop overreacting! Now maybe we could have a look at those concrete planters over there.

1. According to the dialogue, the tree is in poor condition because it _____.

ア. did not get enough water

イ. has been watered too much

ウ. has been affected by insects

エ. was damaged by chemicals

2. When the employee says "Fire away," he most likely means _____.
- ア. "I need to leave right now."
 - イ. "Feel free to ask a question."
 - ウ. "I'm going to lose my job."
 - エ. "Listen to me more carefully."
3. According to the dialogue, olives will most likely NOT appear on a tree that _____.
- ア. is over three or four years old
 - イ. produces flowers in the spring
 - ウ. has lots of space for the roots
 - エ. is kept outside in the shade
4. What is most likely Dan's concern at the end of the dialogue?
- ア. They should choose a cheaper tree.
 - イ. The employee is not sure about the age of the tree.
 - ウ. The pot will be too heavy to carry.
 - エ. They should look for a tree that is in better condition.

Andrew: Good morning. Can I speak with Sergeant Steadman?

Steadman: That's me. What can I do for you?

Andrew: My bicycle was stolen, and I was told at the front desk to come to the Property Crimes Division and ask for you.

Steadman: Okay. To start, I need your full name, address, and phone number.

Andrew: Andrew Tobias Miller, 5490 Templeton Avenue, 405-555-9871

Steadman: I know that neighborhood. I live two blocks over on Wilson Drive. Are you neighbors with the Thompsons? Bill Thompson is a detective here on the homicide squad.

Andrew: Oh, right! I saw an interview with him on the local news last night. He used to be a high school teacher.

Steadman: That's right.

Andrew: I haven't met him; my family just moved to the area two weeks ago.

Steadman: I see. Okay, let's get back to business. Can you give me some specifics about your bike?

Andrew: Well, it's a green Starcaster 650 mountain bike.

Steadman: My nephew has one of those. He bought it at Super Cycles. Did you?

Andrew: No. Mine is custom-built; I ordered it directly from the Starcaster factory. It has a 19-inch frame and sits on 29-inch wheels; they're best for off-road riding. I compete with it in off-road races, too. I have one at Taser Mountain this July.

Steadman: Okay. Can you give me the details of when and where your bike was stolen?

Andrew: Well, I rode down to Town Center Mall this morning and locked my bike to the bike rack outside the sportswear store. When I came out, the bike was there, and I sat down on a bench in front of the store to text my friends. Not even five minutes later I looked up and my bike was gone! It had been stolen from under my nose!

5. According to the dialogue, Bill Thompson _____.

- ア. has moved from one career to another
- イ. rides in off-road mountain bike races
- ウ. works at the Town Center Mall
- エ. custom-builds Starcaster 650 bikes

6. According to the dialogue, what does Andrew plan to do this summer?

- ア. move to a new part of the city
- イ. participate in a competition
- ウ. work as a store clerk
- エ. buy a new bike lock

7. When Andrew says "from under my nose," he most likely means _____.

- ア. during the local news
- イ. without leaving any smell
- ウ. during the daytime
- エ. right in front of me

8. According to the dialogue, what is **NOT** true about the stolen bike?

- ア. It was specially made.
- イ. It was locked outside a store.
- ウ. It was used in races.
- エ. It was bought at Super Cycles.

5

次の問1～問3の英文を読み、話の流れに沿って意味が通るように並べ替えた場合、最も適切なものはどれか。それぞれア～エの中から一つ選びなさい。

- 問1 1. In contrast, non-fungible goods are unique and many are thought to be especially valuable and collectible.
 2. In other words, fungible assets, for example dollar bills, are considered to be equal in value, so any one can be substituted for another.
 3. Diamonds fall into this category; they come in all different weights, cuts, and qualities.
 4. When one asset or commodity is exactly equivalent to another, economists say that the two are "fungible."

ア. 4 → 2 → 1 → 3 イ. 4 → 3 → 1 → 2
 ウ. 4 → 2 → 3 → 1 エ. 4 → 3 → 2 → 1

- 問2 1. Studies show, for example, that electrical signals in the nervous system lead some people to adopt the mannerisms, facial expressions, and even the emotions of others.
 2. However, there are only a few such studies, and further investigation is needed.
 3. An empath is a person who is so highly aware of other people's feelings that those feelings unconsciously become the empath's own.
 4. Whether true empaths exist is a matter of debate, but there is some evidence to suggest that they do.

ア. 3 → 1 → 2 → 4 イ. 3 → 4 → 1 → 2
 ウ. 3 → 1 → 4 → 2 エ. 3 → 4 → 2 → 1

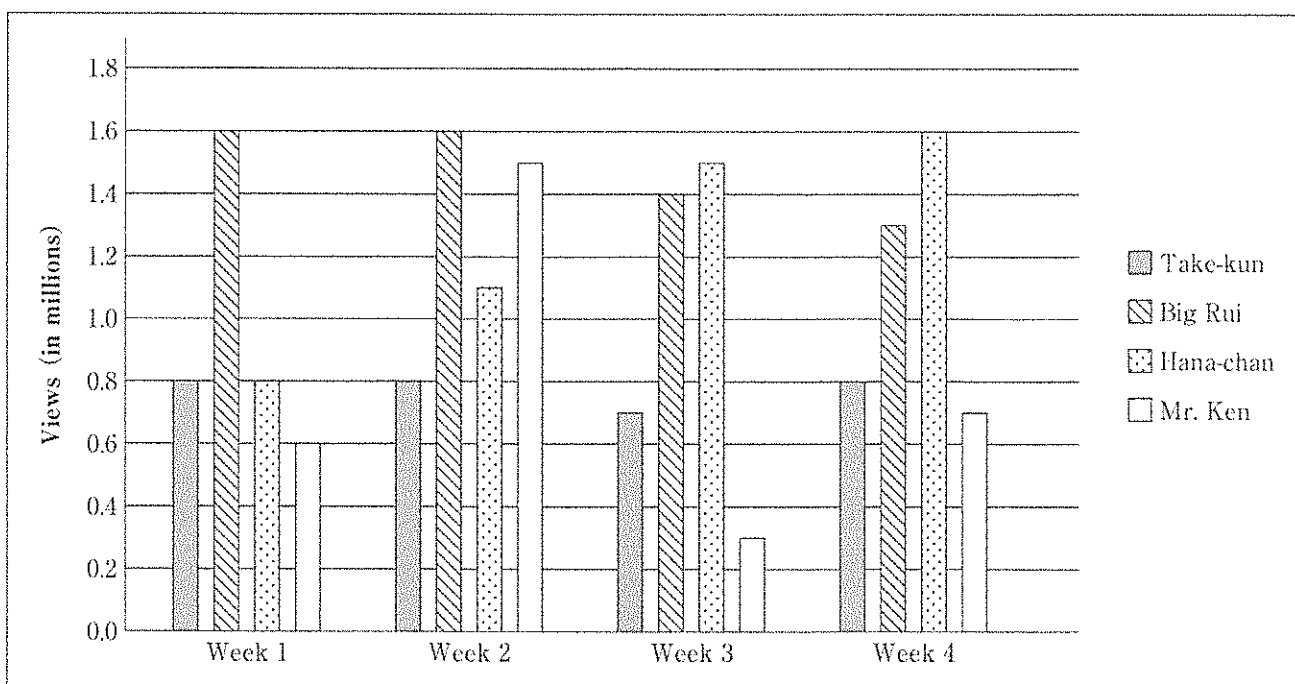
- 問3 1. Most importantly, by teaching farmers to plant peanuts, which repaired soil weakened by cotton crops, he helped them earn a living.
 2. Born a slave in 1864 in Missouri, U.S.A., Dr. George Washington Carver went on to become a scholar, artist, scientist, educator, and inventor.
 3. Among his many achievements was the invention of about 300 uses for the peanut, including as food, paper, soap, glue, medicine, and paint.
 4. When they were able to make a living, it proved the power of his belief that "education is the key to unlock the golden door of freedom."

ア. 2 → 3 → 1 → 4 イ. 2 → 4 → 1 → 3
 ウ. 2 → 3 → 4 → 1 エ. 2 → 4 → 3 → 1

6

次のグラフを見て、英文の空所(1)～(4)に入る最も適切なものを、それぞれア～エの中から一つ選びなさい。

Number of Video Views for Four Influencers (January, 2021)



Four social media influencers each post one video per week on a popular social networking platform. The bar graph above shows how many times each influencer's new video was viewed the week it was uploaded in January, 2021. The number of video views for (1) increased in Weeks, 2, 3, and 4. Take-kun had 800,000 viewers for (2) of the four weeks. Big Rui was number one in Week 1, with (3) the number of views that Take-kun had that week. The number of views for Mr. Ken's videos were inconsistent over the month. In his best week, he had the (4) number of views of any influencer that week.

- | | | | |
|------------------|-------------------|------------------|--------------|
| (1) ア. Take-kun | イ. Big Rui | ウ. Mr. Ken | エ. Hana-chan |
| (2) ア. one | イ. two | ウ. three | エ. all |
| (3) ア. one-third | イ. half | ウ. double | エ. triple |
| (4) ア. highest | イ. second-highest | ウ. second-lowest | エ. lowest |

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