

I. 次の英文を読み、設問に答えなさい。

The difference between sleeping and being awake seems simple enough. You (1) people are sleeping because their eyes are closed, they are lying down and inactive, they don't answer your questions, and they might be snoring. People who are awake, on the other hand, have open eyes, can (2) things done, are responsive to questions and generally don't snore. If you were to look at a group of animals, you could probably (3) which were asleep and which were awake.

But a new study suggests sleeping may be more complicated and less obvious than that. When researchers kept animals up late, those animals seemed to be wide awake, even though tests showed parts of their brains were sleeping.

In the experiment, scientists studied brain activity in rats that were deprived of sleep. (ア) The animals were kept up when they normally would have been sleeping. During that time, the rats' eyes (4) open. But their brains were not fully functioning: some brain cells, called neurons, were working, while others dozed. When an animal is awake, neurons send messages to each other in the form of tiny electrical pulses. While an animal sleeps, these pulses change: neurons cycle on and off.

After the rats had been kept awake for hours, they played and did tasks. But some neurons in the waking rats' brains shut off as though the animals were sleeping. The tired rats also had trouble completing difficult tasks, such as reaching through a hole in a wall for a sugar cube. The researchers (5) a connection between a rat's success and which brain cells fell asleep. If the sleeping neurons were in a part of the brain that the rat needed for getting the sugar, the animal (6) difficulty with this task.

Scientists study rats and other animals (イ). If the brains of tired people behave like the brains of tired rats, sleep-deprived people also may run into trouble—saying the wrong thing, making mistakes while driving or making bad decisions.

(ウ) Scientists used to believe that one part of the brain was in charge of sleeping and being awake. But in the past 20 years, a number of studies suggest that sleep may not be so simple. Many researchers now suspect that sleep starts in single cells and then spreads throughout the brain. That means not all cells sleep at the same time, and recognizing the difference between being awake and being asleep can prove challenging.

Source: Stephen Ornes, Science News Explores, May 18, 2011. Used with permission.

問1. 空所 (1) ~ (6) に入れるのに最も適切な語を1つずつ選びなさい。

- | | | | |
|----------------|------------|------------|---------------|
| (1) a. dream | b. hear | c. know | d. mean |
| (2) a. get | b. learn | c. see | d. understand |
| (3) a. have | b. make | c. take | d. tell |
| (4) a. sat | b. saw | c. stayed | d. stopped |
| (5) a. doubted | b. found | c. guessed | d. thought |
| (6) a. did | b. enjoyed | c. had | d. played |

問2. 下線部 (ア) の和訳として最も適切なものを1つ選びなさい。

- a. 動物たちは、ふつうなら眠っていたらう時間に起こされていた。
- b. 動物たちは、通常眠っている時間に体調管理をされた。
- c. 動物たちは、ふつうに眠っている時には安静を保っていた。
- d. 動物たちは、通常どれほどの睡眠時間を取るのか記憶されていた。

問3. 空所 (イ) に入れるのに最も適切なものを1つ選びなさい。

- a. although their brains are more complicated than humans'
- b. because their brains are similar to humans'
- c. since their brains are different from humans'
- d. though their brains are superior to humans'

問4. 下線部 (ウ) の和訳として最も適切なものを1つ選びなさい。

- a. かつて科学者たちは、眠っている時と目覚めているときには脳の一部に負担がかかると信じていた。
- b. 科学者たちは、脳の一部分が眠りと目覚めを管理していると信じるのに慣れていた。
- c. かつて科学者たちは、脳の一部分が睡眠と覚醒をつかさどっていると信じていた。
- d. 科学者たちには、睡眠と覚醒には脳の一部分が関わっていると信じる習慣があった。

問5. 本文の内容と一致するものをa~hより3つ選びなさい。

- a. It doesn't seem difficult for us to judge if someone is sleeping or awake.
- b. Someone whose eyes are closed would not answer your questions.
- c. A new study shows sleeping may be much simpler than what it seems to be.
- d. Some animals seem to be wide awake though parts of their brains are sleeping.
- e. Scientists felt sorry that they had to keep rats awake for hours in the experiment.
- f. Neurons are important because they send messages to other animals.
- g. People may make mistakes like sleep-deprived rats if they are deprived of sleep.
- h. Many scientists guess that sleep starts as soon as single cells stop working.

II. 次の対話において、(1) ~ (8) の空所に入れるのに最も適切なものを1つずつ選びなさい。

1. A : Who's going to write the group report?

B : [(1)]

A : Perfect! I'll handle the presentation part.

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|-----------------------------|----------------------------|
| a. I can do that. | b. I prefer not to write. |
| c. I'm not good at writing. | d. Let's ask someone else. |

2. A : [(2)]

B : I think it's at 8:00.

A : We should get ready soon.

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| a. OK, I am ready. |
| b. When does the bus leave for the trip? |
| c. How are we getting there? |
| d. I'm hungry. |

3. A : What do you want to do this weekend?

B : [(3)] I am thinking of going to the new game center.

A : That sounds like a lot of fun!

- | |
|-------------------------------------|
| a. You need to rewrite your essay. |
| b. Let's go fishing. |
| c. I don't have any plans yet. |
| d. I'm staying home with my family. |

4. A : [(4)]

B : I'm thinking about packing a sandwich.

- | |
|---|
| a. Do you want to skip lunch today? |
| b. Should we throw away the lunchbox? |
| c. What are you putting in my lunchbox? |
| d. I don't feel like eating anything. |

5. A : [(5)] Please sign it at the bottom.

B : Sure, I'll do it right now.

- | | |
|--------------------------------|-------------------------------|
| a. Here's your application. | b. I forgot to sign the form. |
| c. The teacher has it already. | d. Did you submit it? |

6. A : Do you want to go to the mall this weekend?

B : I'd love to! We could shop and get some food.

A : [(6)]

- | | |
|----------------------------|-----------------------------------|
| a. I don't like shopping. | b. I prefer staying home. |
| c. I don't have any money. | d. That sounds like a great plan. |

7. A : [(7)]

B : Sure, just make sure to leave the room quietly.

- | |
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| a. Can we leave the class if we finish the test early? |
| b. I don't feel like taking the test. |
| c. Is the test going to be hard? |
| d. Can I borrow a pen? |

8. A : A car ran over my bicycle.

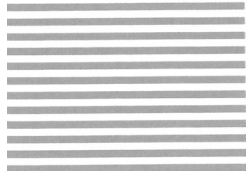
B : I'm sorry to hear that. You should take it to the bicycle shop.

A : [(8)]

- | | |
|---------------------------------|------------------------|
| a. I'll wait until later. | b. That's a good idea. |
| c. I don't need to go shopping. | d. I don't think so. |

Ⅲ. 次のさまざまな模様についての説明を読み、その内容と合っているものをa～jより3つ選びなさい。

1. Stripes

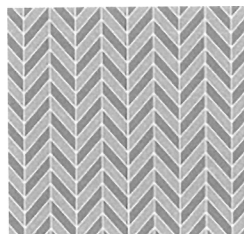


During medieval times (5th to 15th century), prisoners, clowns and all things evil in Europe were forced to wear stripes so that they stood out from the crowd.

By the 15th century, however, the image of stripes was getting better, and stripes started being used for uniforms, both civil and military. In the 18th century, the American revolution and French revolution took place. Both used flags with stripes that were waved in battle, and suddenly stripes became a symbol of revolution and romanticism.

Today, stripes go in and out of fashion but are often used in interior design and fashion.

2. Herringbone

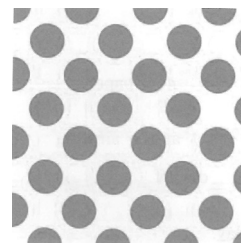


Herringbone describes a distinctive V-shaped weaving pattern, which looks like a broken zigzag at a glance. Herringbone-patterned fabric is usually wool, and is one of the most popular cloths used for suits and outerwear. For example, tweed cloth is often woven with this pattern.

The reason why this pattern is called "herringbone" is that it resembles the shape of the bones of a fish, such as a herring.

Now, the herringbone pattern is also used for floor tiles and road pavement.

3. Polka Dots

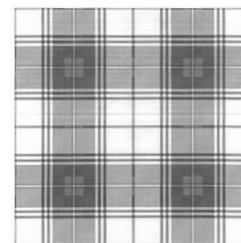


In Medieval Europe, due to the lack of machines, regular dotted patterns were very hard to make. Furthermore, irregular dots made people think of diseases such as small pox, so they didn't have a good image.

The industrial revolution in the 19th century brought in machines, and dotted fabrics start to appear more frequently.

Polka dancing also became popular in Europe and the United States at that time. As polka dancing became so fashionable, people started adding "polka" (which means "Polish lady" in Czech) to various items. The "polka" dot is one of them.

4. Tartan



The English word "tartan" is derived from the French *tiretain*, "woven cloth." Today tartan is a pattern consisting of criss-crossed horizontal and vertical bands in multiple colors, though originally a tartan did not always have a pattern at all.

As Scottish kilts almost always have tartan patterns, tartan is particularly associated with Scotland. However, the earliest evidence of tartan is found in the Hallstatt culture of Central Europe, where ancient Celts lived between the 8th and 6th centuries BC, produced tartan-like textiles. Some of them were recently discovered, remarkably preserved, in Salzburg, Austria.

- a. Stripes were used for doing evil in medieval times.
- b. Both the American and the French revolutions changed the image of stripes.
- c. They often weave tweed cloth with patterns of stripes.
- d. "Herringbone" is named after the shape of the letter "V."
- e. Herringbone patterns are composed of a lot of regular dots.
- f. It was difficult for Medieval European people to get regular-dotted cloth.
- g. Polka dancers always wore dotted-pattern clothes when they danced.
- h. A tartan had a horizontal and vertical pattern from the beginning.
- i. The tartan pattern was invented in Scotland in medieval times.
- j. Among these four patterns, only polka dots do not have lines.

IV. 各文の空所に入れるのに最も適切なものを1つずつ選びなさい。

- (1) When we want to look up a word, we need a ().
a. diary b. dictionary c. map d. newspaper
- (2) Takashi is going to Australia. We will see him () at the airport.
a. at b. for c. of d. off
- (3) My mother is much () than she was yesterday.
a. best b. better c. good d. well
- (4) Bill wanted Japanese manga books, and he found () at the store.
a. any b. it c. no d. some
- (5) The ears of a rabbit are longer than () of a cat.
a. its b. that c. theirs d. those
- (6) He () for twelve hours now. Let's wake him up.
a. has been sleeping b. is sleeping
c. sleeps d. was sleeping
- (7) Monday is the day () comes after Sunday.
a. as b. what c. when d. which
- (8) Amy will come home () an hour.
a. at b. by c. in d. on
- (9) I try to exercise at least once () day for my health.
a. a b. any c. in d. such
- (10) It is easy to read the book, () it is rather difficult to write a report about it.
a. another b. but c. or d. unless

V. 次の各文の [] 中の単語を並べ換えて日本語の意味に相当する英文を完成させるとき、[] 内で3番目と5番目にくるものを、それぞれ選びなさい。

- (1) 私たちは夏の暑い日にアイスクリームを食べるのを楽しんだ。
We [a. cream b. eating c. enjoyed d. hot e. ice
f. on g. summer] days.
- (2) 彼女は有名なピアニストからピアノの弾き方を習った。
She [a. from b. how c. learned d. piano e. play
f. the g. to] a famous pianist.
- (3) 彼女は病気の娘の世話をするために家にいた。
She [a. care b. her c. home d. of e. stayed
f. take g. to] sick daughter.
- (4) 私たちが夕食をとったそのレストランは本当に素晴らしかった。
The [a. dinner b. had c. restaurant d. truly e. was
f. we g. where] excellent.
- (5) 私は来年の夏にシカゴを訪れる予定だ。
I [a. am b. Chicago c. next d. planning e. summer
f. to g. visit].