

英 語

(医 学 部)

— 2 月 6 日 —

1

次の英文を読み、下の1～9の問いに答えなさい。

The process by which we store and recall information in our brains has been the focus of scientific research for many years. The brain is a highly complex organ that is not fully understood, and theories about how it works remain a topic of debate. ^(A) It is generally agreed, though, that one area of the brain known as the hippocampus — named after the Latin word for “seahorse” because of its curved shape — is important in the process of recalling information. When we experience something, the information is sent via our senses to the hippocampus, (1) it is processed.

Although the process of creating memories is only partially understood, it is thought to involve three main steps. Scientists believe that brain cells called neurons first transform the sensory stimuli*¹ we experience into images in our immediate memory. (2), these images are sent to the hippocampus and stored temporarily in short-term memory. In the hippocampus, information is organized, and it is during this process ^(B) that parts of the image of our experience fade away. Finally, certain information is then transferred to long-term memory in a section in the frontal lobe*² of the brain known as the cerebral cortex.*³ Scientists think this process may happen while we are sleeping, but exactly how the information is transferred from one area of the brain to another is a mystery.

Although memory function is difficult to understand, memory loss is something that many people experience and worry about as they get older. In the past, scientists believed that age-related memory loss was associated with the total number of brain cells. The theory was that the brain contained ^(I) a limited number of cells, and as we got older, we used up our stock of available cells. More recent research suggests that this ^(C) may not be so and that brain growth may take place throughout a lifetime. Also there is now evidence that damage to the hippocampus may play an important role in memory loss. Studies conducted on patients who have suffered damage to this area of the brain show that while they can still recall memories stored before the brain was damaged, they are unable to remember new facts. In addition, diseases associated with old age, such as Alzheimer’s, and other problems involving short and long-term memory loss, are now being traced to possible damage to the hippocampus.

Research suggests that the ability to recall information can be influenced by food and sleep. Vitamin E, (3), is able to break down chemicals that damage brain cells. Studies suggest that eating foods containing vitamin E, such as green vegetables, is one way of reducing age-related memory loss. Though there is no proof, there are others who believe that herbs, such as ginseng,*⁴ help to improve both concentration and memory. Research on short-term memory indicates that getting a good night’s sleep can also help one to recollect ⁽²⁾ things more clearly.

Although the exact process by which memories are stored and recalled remains a mystery, there is no doubt that eating the right foods and getting sufficient amounts of sleep can help us make the best use of our brains’ remarkable ability to store and recall information.

*¹ sensory stimuli 感覚刺激 *² frontal lobe 前頭葉 *³ cerebral cortex 大脳皮質
*⁴ ginseng 高麗人参

1. 文中の空所1～3の中に入る語(句)として最も適切なものはどれですか。答えはそれぞれイ～ニの中から一つ選びなさい。

- | | | | |
|----------------|----------------|---------|------------|
| 1. イ. which | ロ. what | ハ. who | ニ. where |
| 2. イ. Likewise | ロ. Before | ハ. Then | ニ. However |
| 3. イ. however | ロ. for example | ハ. then | ニ. that is |

2. 下線部 (1) と (2) の意味として最も適切なものはどれですか。答えはそれぞれイ～ニの中から一つ選びなさい。

- (1) イ. invested ロ. used ハ. held ニ. brought
(2) イ. remember ロ. reverse ハ. refine ニ. restart

3. 下線部 (A) ～ (C) の意味・内容に最も近いものはどれですか。答えはそれぞれイ～ニの中から一つ選びなさい。

- (A) イ. Scientists know enough about the brain, so this is not an issue now.
 ロ. Scientists have been discussing the brain in a simple way.
 ハ. The brain is difficult to study, so scientists have stopped studying it.
 ニ. The brain is so complicated that scientists differ in their opinions on how it works.
- (B) イ. the process in which information is transferred to the long-term memory
 ロ. the process in which information is organized in the hippocampus
 ハ. the process in which images are sent to the immediate memory
 ニ. the process in which neurons transform the sensory stimuli into images in the immediate memory
- (C) イ. Brain cells decrease when people age.
 ロ. The number of brain cells is constant throughout a lifetime.
 ハ. The hippocampus plays an important role in memory loss.
 ニ. Information can be moved from one area of the brain to another.

4. 本文の内容と一致しているのはどれですか。答えはイ～ニの中から一つ選びなさい。

- イ. The hippocampus is named for its straight form.
ロ. There could be some ways to reduce memory loss.
ハ. Three steps about memory loss are explained.
ニ. Few people worry about memory problems as they age.

5. 記憶における情報の処理の正しい順序はどれですか。答えはイ～ニの中から一つ選びなさい。

- イ. short-term memory → immediate memory → long-term memory
ロ. immediate memory → long-term memory → short-term memory
ハ. long^{-term} memory → immediate memory → short-term memory
ニ. immediate memory → short-term memory → long-term memory

6. この本文によると、long-term memory はどこに保存されていますか。答えはイ～ニの中から一つ選びなさい。

- イ. the cerebral cortex ロ. neurons
ハ. sensory stimuli ニ. the hippocampus

7. hippocampus に損傷を負った人について、本文の内容と最も一致しているものはどれですか。答えはイ～ニの中から一つ選びなさい。

- イ. They can't recall memories stored before damaging the hippocampus.
- ロ. They can't speak in a logical manner, even if they try to.
- ハ. They can't remember new information.
- ニ. They can't associate words with sounds.

8. memory loss の対処法として最も適切でないものはどれですか。答えはイ～ニの中から一つ選びなさい。

- イ. taking vitamin E ロ. sleeping well
- ハ. increasing harmful chemicals ニ. eating proper foods

9. この本文のタイトルとして最も適切なものはどれですか。答えはイ～ニの中から一つ選びなさい。

- イ. The Hippocampus ロ. The Mystery of Memory
- ハ. Brain Cells ニ. Age-related Memory Loss

2

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

1. I () this art book fascinating.
イ. notice ロ. see ハ. seem ニ. find
2. The movie was () interesting that I wanted to see it again.
イ. such ロ. too ハ. so ニ. much
3. () of her work has been done.
イ. Not ロ. None ハ. No ニ. Neither
4. David offered () help he could give.
イ. whatever ロ. whenever ハ. however ニ. wherever
5. () of what I heard was not true.
イ. Much ロ. Many ハ. A few ニ. Few
6. Not () where to go in Paris, I asked a friend of mine where I should go.
イ. know ロ. known ハ. being known ニ. knowing
7. A store will not exchange the shirts you bought () you bring a receipt.
イ. despite ロ. because of ハ. unless ニ. regardless of
8. The court requested that he () a fine.
イ. was paying ロ. pay ハ. paid ニ. had paid
9. I hurried to the bank () find it closed.
イ. only to ロ. so to ハ. as to ニ. much to
10. Mr. Moore () for meetings.
イ. late is sometimes ロ. sometimes late is ハ. is sometimes late ニ. late sometimes is

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、それぞれイ～ニの中から一つ選びなさい。

1. Sarah tried to carry on a conversation with the new girl in her class.

イ. win ロ. hear ハ. continue ニ. stop

2. The delivery will arrive before long.

イ. late ロ. now ハ. earlier ニ. soon

3. He couldn't account for the decrease in sales.

イ. learn ロ. explain ハ. approve ニ. trust

4. I couldn't work out why he was late.

イ. try ロ. exercise ハ. understand ニ. draw

5. Environmental organizations called for volunteers to clean the beach.

イ. requested ロ. canceled ハ. planned ニ. chose

6. Most of the tasks were carried out carefully.

イ. given ロ. held ハ. discussed ニ. completed

7. The company went through a difficult time.

イ. stopped ロ. experienced ハ. examined ニ. heard

8. It is necessary for him to get over his trauma.

イ. overcome ロ. analyze ハ. obtain ニ. consult

9. The other mayors were talked into reducing air pollution.

イ. asked ロ. permitted ハ. persuaded ニ. called

10. The discussion led to several major changes in the company.

イ. resulted in ロ. looked for ハ. put off ニ. disagreed with

4

次の1～3の会話文の空所に入る最も適切な表現を、それぞれイ～ホの中から一つずつ選びなさい。ただし、それぞれの選択肢は一度しか使えません。

1. Mark: We are going to see a special art collection, aren't we? How can we get to the art museum?

Helen: (①)

Mark: That's a good idea. Do you know how often it leaves?

Helen: (②)

Mark: That's good. There is no need to hurry.

- イ. Yes, we can.
- ロ. Why don't we take a train?
- ハ. I don't want to go.
- ニ. It leaves at 10 o'clock.
- ホ. Every 10 minutes.

2. Irene: What's wrong? You look awful.

John: (①)

Irene: That's too bad. You should take some medicine and rest.

John: (②)

Irene: Take good care of yourself.

John: Thank you.

- イ. I think I have the flu.
- ロ. Should I make soup?
- ハ. Yes, I'll do that.
- ニ. That's great. You might want to tell your friends.
- ホ. How long should I rest?

3. Ron: May I speak to Cindy?

Kathy: Oh, I'm sorry she is not in today, and she won't be back until tomorrow.

Ron: I see. OK. (①)

Kathy: Sure, go ahead. Let me get a pen.

Ron: Can you tell her that there is a computer problem in our factory?

Kathy: (②)

Ron: Thank you. I'd appreciate it. Bye.

- イ. How is she?
- ロ. I'll let her know as soon as she gets back.
- ハ. Can you give me a message?
- ニ. Could I leave a message for her?
- ホ. She may not go.

5

次の1～5の英文には間違いが一つずつあります。それぞれイ～ニの中から選びなさい。

1. The extent to which the problem lies in either lifestyles or heredity cannot proved.
2. The CD she gave me is as same as the one I listened to yesterday.
3. Because I have so many things to do, I can't go out with you on this weekend.
4. I asked the waitress bring me a cup of tea, but she brought me coffee.
5. The meeting taken a little longer, and by the time she arrived everyone had already left.

6

次の1～5の日本語とほぼ同じ意味の英文になるよう()内の語(句)を並べ替える場合、その順序として最も適切なものをそれぞれイ～ニの中から一つ選びなさい。ただし、文頭にくる語(句)も小文字にしてあります。

1. 彼女は今日のスケジュールをあわただしくならないように、注意深く計画しました。

(1. rushed 2. so 3. not 4. she 5. planned 6. as 7. to be
8. today's schedule)

イ. 4-1-7-8-6-3-5-2 ロ. 4-1-2-8-3-6-7-5
ハ. 4-5-8-2-6-3-7-1 ニ. 4-5-3-7-6-8-2-1

2. 私達はあるがままに物事を受け入れなければなりません。

(1. accept 2. they 3. we 4. are 5. have 6. things 7. as
8. to)

イ. 3-5-8-1-6-7-2-4 ロ. 3-5-6-7-2-4-8-1
ハ. 3-5-8-7-6-4-2-1 ニ. 3-5-8-1-7-2-4-6

3. 彼はこの映画をむしろ見たくありません。

(1. this 2. he 3. not 4. rather 5. see 6. movie 7. would)

イ. 2-7-3-4-5-1-6 ロ. 2-7-5-1-6-4-3
ハ. 2-7-3-5-4-1-6 ニ. 2-7-4-3-5-1-6

4. 理由は依然としてわかっていません。

(1. found 2. yet 3. to 4. the 5. has 6. reason 7. be)

イ. 2-4-6-5-1-3-7 ロ. 4-6-5-2-3-7-1
ハ. 6-5-2-1-3-7-4 ニ. 4-6-5-3-7-1-2

5. 環境の要因がいくつかの種を絶滅の危機におとし入れた。

(1. become 2. factors 3. endangered 4. to 5. environmental 6. caused
7. some species)

イ. 7-1-3-4-6-5-2 ロ. 5-2-1-4-6-7-3

ハ. 2-6-4-1-5-7-3 ニ. 5-2-6-7-4-1-3

7

次の英文を読み、下線部 (1) と (2) をそれぞれ日本語に訳しなさい。

In 1903, when he was 45, Milton Hershey, who later owned the Hershey Chocolate Company, traveled once again to Europe. When he returned to the U.S., he had an idea for his own personal utopia. That year, he purchased 485 hectares of land in Dauphine County, Pennsylvania, an area of dairy farms, a little more than a kilometer from where he had been born and raised.

Milton wanted to build nothing less than an industry-based village, a model American community that would have
(1) no poverty, no nuisances, and no social problems. This utopia would include all of the advances of modern society, like steam heat and electricity. It would be a place where leisure and education would be valued as much as hard
(2) work, and where big-city conveniences would be available to all. The town would be built around a factory that would produce milk chocolate.

8

次の (1) と (2) の日本文を読み、それぞれを英語に訳しなさい。

(1) この社会問題を解決するための第一歩は、それを扱っている研究論文を集めることです。

(2) 最近の新聞記事によると、人が受けるストレスの量は、その人の性格と生活様式との相互関係によっているようです。

メモ用紙