

(第1時限：80分)

2020年度 ② 英語問題 (全20ページ)

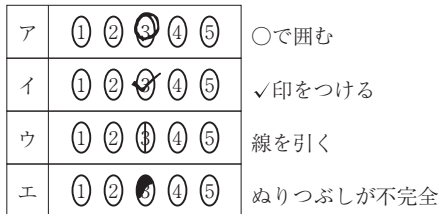
注意事項

1. 試験開始の合図があるまで、この問題冊子の中を見てはいけません。
2. 解答はすべて別紙の解答用紙に記入しなさい。
3. マークに際してはマークした部分を機械が直接読み取って採点するので、下記の注意事項を読み、間違いのないようにしなさい。

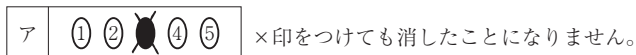
1. マークする時は、HBの黒鉛筆(シャープペンシルはHBの0.5ミリ以上の芯)を使用しなさい。
2. 例えば、③と解答したい場合、次のとおり③のだ円を完全に黒くぬりつぶしなさい。
(ぬりつぶしがうすい場合は、解答が正しく読み取れないことがあります。)



3. マークする場合の悪い例 (次のようなマークは正解と判定されません。)



4. 一度マークした解答を訂正する場合は、消しゴムで完全に消してからマークし直しなさい。



5. 解答用紙は折り曲げたり、汚したりしないようにしなさい。

4. 試験終了後、問題冊子は持ち帰りなさい。

I 次の文を読んで、問いに答えなさい。

The average Canadian commuter¹ spends almost 100 hours per year in major traffic congestion². In Toronto alone, the wasted time represents as much as \$11 billion in lost productivity and other costs. Commuting is linked to anxiety, stress, loneliness, obesity³, and divorce. Car exhaust has polluted major roadways, which, according to one study, raises the risk of leukemia⁴ for children living nearby.

Making a highway wider isn't a solution as traffic volume merely expands to fill the available space. When Los Angeles tried to reduce traffic on the 405, the most congested stretch of highway in the United States, it chose a five-year, \$1.1 billion project that added a new carpool lane⁵. The result was that rush-hour commutes are now, on average, a full minute longer. Building more roads simply creates more reasons for people to drive.

The truth is, we can't help ourselves. Our cities were built for cars, and so were we, to a degree, as can be seen from the following example. Italian researchers gave a group of research participants a number of coins that they could spend on two methods of transportation: car or subway. Each came with a cost. But while the cost of riding the subway was fixed, the cost of driving a car changed according to random variables: weather, accidents, and road work. Even when the average cost of using a car was 50 percent more than the alternative, test participants chose it by a two-to-one proportion.

In the long term, however, seemingly small innovations—such as building more cycling paths—could bring localized relief⁶ from traffic congestion by encouraging people to leave their cars at home. A year after bike lanes were installed, which provide a physical barrier between cars and bikes in five US cities, cycling volume increased by 71 percent. When

Toronto introduced separated bike lanes on two major east-west streets, usage more than quadrupled⁷. According to a US Department of Transportation study, separating cyclists and motorists is key to increasing the number of people who ride a bike.

One argument against expanding cycling infrastructure⁸ in Canada though is that the country is simply too cold for bikes to be part of any congestion-reduction strategy. But Copenhagen, considered the gold standard of cycling cities, is hardly tropical. More than 50 percent of the city's commuters cycle to work on 400 kilometres of separated bike lanes. There are other factors involved in this Danish revolution, such as very high gas and vehicle taxes, but the lesson generally holds that when it comes to bikes, infrastructure matters.

If even one percent of car-driving commuters switched to bikes, the effect could be substantial. A study in Boston predicted that such a shift during peak periods would produce an 18 percent drop in commuting time for drivers. And yet, drivers still refuse to give up their cars. "People want change," said Eric Miller, director of the University of Toronto's Transportation Research Institute, "but not badly enough to change their behaviour yet."

A much more promising transportation revolution is under way: self-driving cars. The modern vision of autonomous vehicles (AVs)⁹—as they are formally known—took shape in 2004, with a first-of-its-kind race sponsored by the US Department of Defense. Fifteen modified vehicles competed in the Mojave Desert. There was only one rule: no human help. Once out of the gate, the cars had to use their own computer technology to navigate a rocky route filled with steep slopes and other obstacles. None finished the 230 kilometre route; no vehicle got any farther than 11.78 kilometres before crashing, having engine trouble or simply becoming unable to navigate. The \$1 million prize went unclaimed.

The following year, in 2005, the prize was doubled. This time, five vehicles successfully completed the race. The top prize was won by a team from Stanford University, whose entry, “Stanley,” finished with a time of six hours and fifty-three minutes. A large company hired the team and began developing its own AV. And by 2010, the company had a working model.

The technology is expected to reshape urban life. A 2015 report commissioned by the City of Toronto’s Transportation Services Division concluded that large-scale AV adoption there would bring about a 90 percent reduction in death and injury rates. The vehicles—which are expected to be common by the late 2020s, according to the report—will reduce congestion by moving at the most appropriate speeds and by determining the best route. If AVs are introduced on a large scale in Toronto, the gains for the city—thanks to reduced major traffic congestion, fewer accidents, and lower insurance costs—are estimated to be about \$6 billion annually.

Meanwhile, the existing world of traffic and transportation is poorly funded and not functioning well. Until driverless cars can provide a remedy, real change will have to come from drivers’ own behavioural shifts, a willingness to accept higher gas taxes and charges, more cycling and walking, and an increase in telecommuting¹⁰. These solutions are hardly romantic or transformative, but they might be all we have available until the robots take over our transportation system.

(Adapted from a work by Don Gillmor)

(注)

- | | |
|----------------------------|----------------------------|
| 1. commuter | 通勤者, 通学者 |
| 2. congestion | 渋滞 |
| 3. obesity | 肥満 |
| 4. leukemia | 白血病 |
| 5. carpool lane | 相乗り車優先車線 |
| 6. localized relief | 局地的な緩和, 軽減 |
| 7. quadruple | 4倍になる |
| 8. infrastructure | (道路, ダム, 堤防などの) 基盤設備, インフラ |
| 9. autonomous vehicle (AV) | 自動運転の乗物 |
| 10. telecommuting | (インターネット通信などを利用する) 在宅勤務 |

[1] 本文の意味, 内容にかかわる問い(A)~(D)それぞれの答えとして, 本文にしたがってもっとも適当なものを(1)~(4)から一つ選び, その番号を解答欄にマークしなさい。

- (A) What happened in Los Angeles after Highway 405 was widened?
- (1) The road became less congested.
 - (2) The number of drivers increased.
 - (3) The city managed to save \$1.1 billion.
 - (4) Most drivers chose to use the new lane.
- (B) What is one innovation that is helping to ease traffic problems?
- (1) Cyclists can use special lanes reserved for bikes.
 - (2) Drivers have been encouraged not to use their cars.
 - (3) Barriers have been installed to make roads safer for drivers.
 - (4) Commuters are provided financial benefits to use bikes instead of cars.

- (C) What was one result of the first race for self-driving cars?
- (1) The rules were too strict and the event was canceled.
 - (2) No car completed the course, so nobody received the prize.
 - (3) The event was held again and most of the cars reached the goal safely.
 - (4) The event was postponed because the technology was not good enough.
- (D) What point related to the future use of AVs in Toronto is NOT mentioned in the text?
- (1) AVs would take the best routes.
 - (2) People who use AVs would get a tax refund.
 - (3) The use of AVs would reduce serious accidents.
 - (4) The city of Toronto would pay less for insurance.

[2] 次の(1)～(5)の文の中で、本文の内容と一致するものには1の番号を、一致しないものには2の番号を、また本文の内容からだけではどちらとも判断しかねるものには3の番号を解答欄にマークしなさい。

- (1) Expanding cycling infrastructure is not helpful in reducing traffic congestion in cold weather.
- (2) Italian researchers found that most of their research subjects would use the subway if it was cheaper than driving.
- (3) In one city, it was suggested that if a small proportion of people stopped driving, a lot more people would benefit.
- (4) By the year 2030, cars will be AVs.
- (5) For the time being, we cannot rely on AVs to provide a solution to traffic congestion.

[3] 本文の内容を最もよく表しているものを(1)～(5)から一つ選び、その番号を
解答欄にマークしなさい。

- (1) Providing cycle paths for dedicated bike riders
- (2) Potential solutions to the problem of traffic congestion
- (3) How traffic problems were reduced in four different countries
- (4) How self-driving cars can solve traffic problems in large cities
- (5) Why North Americans choose to drive despite the benefits of cycling

II 次の文を読んで、問いに答えなさい。

Think back to your earliest memory. Perhaps images of a birthday party or scenes from a family vacation come to mind. Now think about your age when that event occurred. Chances are that your earliest recollection extends no further back than your third birthday. In fact, most adults can probably come up with no more than a handful of memories from between the ages of 3 and 7—although family photo albums or other things may trigger more—and most likely none before that. Psychologists refer to this inability of most adults to remember events from early life, including their birth, as childhood amnesia¹.

For a long time, the theory behind childhood amnesia rested on the assumption that the memory-making parts of babies' brains were undeveloped, and that around age 3, children's memory capabilities rapidly developed to adult levels. (A), psychologists have recently discovered that children as young as 3 months old and 6 months old can form long-term memories. The difference lies in which memories stay with us. For instance, it appears that babies are born with more implicit², or unconscious, memories. At the same time, the explicit³ memory that records specific events does not carry information over that three-year gap, explaining why people do not remember their births. But why does this happen and what changes take place in those first years? And if we can form memories as babies, why don't we retain them into adulthood? Let's look at some of the research.

Recent studies have largely (B) the long-held thinking that babies cannot encode⁴ information that forms the foundation of memories. For instance, in one experiment involving 2- and 3-month-old infants, the babies' legs were attached by a ribbon to a mobile, a toy that hung above the baby's bed. By kicking their legs, the babies learned that the motion

caused the mobile to move. Later, placed under the same mobile without the ribbon, the infants remembered to kick their legs. When the same experiment ^⑤ was performed with 6-month-olds, they picked up the kicking relationship much more quickly, indicating that their encoding ability must develop (C) instead of in one significant burst around 3 years old.

This memory encoding could relate to a baby's development of the prefrontal cortex ⁵ at the forehead. This area, which is active during the encoding and retrieval ⁶ of explicit memories, is not fully functional at birth. However, by 24 months, the number of synapses ⁷ in the prefrontal cortex has reached adult levels. Also, the size of the hippocampus ⁸ at the base of the brain steadily grows until your second or third year. This ^② is important because the hippocampus determines what sensory ⁹ information to transfer into long-term storage.

But what about implicit memory? It is essential for newborns, allowing them to associate feelings of warmth and safety with the sound of their mother's voice, and to instinctively know how to feed. Confirming this early presence, studies have revealed few developmental changes in unconscious memory as we age. Even in many adult amnesia cases, implicit skills such as riding a bicycle or playing a piano often survive the brain damage. Now we know that babies have a strong implicit memory and can encode explicit ones as well, which indicates that childhood amnesia may stem from faulty explicit memory retrieval. However, unless we're thinking specifically about a past event, it takes something to (D) an explicit memory in all age groups.

Our earliest memories may remain blocked from our consciousness because we had no (E) at that time. A 2004 study traced the verbal development in 27- and 39-month-old boys and girls as a measure of how well they could recall a past event. The researchers found that if the children didn't know the words to describe the event when it happened,

they couldn't (F) it later after learning the appropriate words.

Expressing our personal memories of events in words contributes to our autobiographical memories¹⁰. Memories of these types help to define our sense of self and our relationship to people around us. Closely linked to this ^⑤ is the ability to recognize yourself. Some researchers have proposed that children do not develop self-recognition skills and a personal identity until 16 or 24 months. In addition, we develop knowledge of our personal past when we begin to organize memories into (G) of time and place. Many preschool-age children can explain the different parts of an event in sequence, such as what happened when they went to a circus. But it isn't until their fifth year that they can understand the ideas of time and the past, and are able to place that trip to the circus on a mental time line.

Parents play a central role in developing children's autobiographical memory as well. Research has shown that the way parents verbally recall memories with their small children influences their style for retelling memories later in life. (H), children whose parents tell them about past events in detail, such as birthday parties or trips to the zoo, will be more likely to vividly describe their own memories when they grow up.

(Adapted from a work by Cristen Conger)

(注)

- | | |
|-----------------------------|---------------------|
| 1. amnesia | 記憶喪失 |
| 2. implicit | 潜在的な |
| 3. explicit | 顕在的な |
| 4. encode | 記号化する, 意味づけをする |
| 5. prefrontal cortex | 前頭前野 (額の内側にある脳の中枢部) |
| 6. retrieval | 取り戻すこと, 回復 |
| 7. synapse | シナプス (神経細胞の接続部) |
| 8. hippocampus | 海馬 (脳の記憶形成に関与する部位) |
| 9. sensory | 感覚の, 知覚の |
| 10. autobiographical memory | 自分についての記憶 |

[1] 本文の ~ それぞれに入れるのに最も適当なものを(1)~(4)から一つ選び, その番号を解答欄にマークしなさい。

- (A) (1) **Consequently** (2) **Evidently**
(3) **However** (4) **Moreover**
- (B) (1) **ignored** (2) **recognized**
(3) **rejected** (4) **supported**
- (C) (1) **as fast as possible** (2) **as soon as they are born**
(3) **before they are 3 months old** (4) **gradually with time**
- (D) (1) **block** (2) **eliminate**
(3) **form** (4) **trigger**
- (E) (1) **childhood experiences** (2) **ideas**
(3) **interest** (4) **language skills**

- (F) (1) explain (2) invent
 (3) plan (4) reject
- (G) (1) a context (2) a false identity
 (3) a skill (4) a study
- (H) (1) Besides (2) In other words
 (3) Nevertheless (4) On the other hand

[2] 下線部 ㉞ ～ ㉟ それぞれの意味または内容として、最も適当なものを (1) ～ (4) から一つ選び、その番号を解答欄にマークしなさい。

㉞ this inability

- (1) the inability to recall our first experiences
 (2) the inability to express memories in words
 (3) the inability to use photo albums to help with memory
 (4) the inability to remember special events throughout life

㉟ that three-year gap

- (1) the period starting at birth
 (2) the period starting at age 3
 (3) the period starting at age 7
 (4) the period starting at 3 months

㊱ the same experiment

- (1) testing whether babies can kick their legs when in bed
 (2) testing whether babies needed a ribbon to move a mobile
 (3) testing whether babies can pull a ribbon connected to a toy
 (4) testing whether babies can relate kicking with moving a mobile

㉘ This

- (1) The functioning of specific memories
- (2) The development of implicit memory
- (3) The number of synapses in the brain
- (4) The growth of a key part of the brain

㉙ this

- (1) making contact with people around us
- (2) teaching children appropriate vocabulary
- (3) identifying who we are in connection to others
- (4) defining our personal memories to describe past events

Ⅲ

[1] 次の会話の㉔～㉞それぞれの空所に入れるのに最も適当な表現を(1)～(10)から一つ選び、その番号を解答欄にマークしなさい。

In a city center

A: Are you enjoying your stay here in Oslo?

B: Yes, very much. (㉔)

A: Have you visited any of the art galleries?

B: No. But I'd like to. (㉕)

A: You must see the one dedicated to the works of the famous Norwegian artist Edvard Munch.

B: Is he the one who painted that picture of a person on a bridge?

A: That's right. It's called *The Scream*. (㉖)

B: Really? I found it kind of scary, myself.

A: I expect you'd like many of his other works though. If you like, I can show you around the gallery. I used to work there part-time.

B: Really? (㉗) Shall we go there now?

A: I've got a few things to do first. Can we meet here around 10 a.m.?

B: OK. See you in about 30 minutes, then.

- (1) How about you?
- (2) How many are there?
- (3) Are you an artist too?
- (4) It's my favorite painting.
- (5) Can you recommend one?
- (6) I hope to see her one day.
- (7) What kind of work do you do?
- (8) That must have been interesting.
- (9) I'd rather visit the history museum tomorrow.
- (10) But I seem to be running out of things to do.

[2] 次の会話の㉔～㉙それぞれの空所に入れるのに最も適当な表現を(1)～(10)から一つ選び、その番号を解答欄にマークしなさい。

At a volunteer center

A: May I help you?

B: A friend sent me an ad about your organization. I was very impressed by how you help so many people. I'd love to volunteer if I can.

A: That's wonderful. I'll be happy to explain all the details of our programs. (㉔) That way we can put your personal information into our database.

B: I'd be happy to.

A: Do you live here in Gainesville?

B: Well, not exactly. I've always lived just outside of town. (㉕)

A: For some of our programs with emergency services it might, but it's not an issue in most cases.

B: (㉖) I'm right by the new highway.

A: Great. Also, do you have any dependents like children, parents, grandparents?

B: Only my cat. She's pretty independent though. Why do you ask?

A: Well, we're looking for people who are available to help out at the last minute. (㉗) Most people need to know in advance because they have other responsibilities.

B: Then I might be perfect for your organization. After this weekend, I'll be looking for things to fill my schedule.

A: Wonderful. Next week there's a training program for new volunteers.

- (1) Oh, that's too bad.
- (2) I used to live in town.
- (3) I used to take the bus.
- (4) But, they're hard to find.
- (5) Does that make a difference?
- (6) Have you volunteered before?
- (7) Do you pay for transportation?
- (8) Can you answer a few questions first?
- (9) You said you're free most of the time, right?
- (10) It actually doesn't take that long to get here.

IV 次の(A)～(H)それぞれの文を完成させるのに、下線部の語法としてもっとも適当なものを(1)～(4)から一つ選び、その番号を解答欄にマークしなさい。

(A) When you buy a car, you should take fuel economy _____ consideration.

- (1) into (2) on
(3) out (4) with

(B) They _____ not to worry about this matter.

- (1) are better (2) may
(3) ought (4) should

(C) She ordered the model train, a picture of _____ she had seen in the catalog.

- (1) that (2) what
(3) which (4) whose

(D) The review made me _____ to go and see that movie.

- (1) to want (2) want
(3) wanted (4) wanting

(E) She _____ to have been one of the greatest scientists of the 20th century.

- (1) believes (2) has believed
(3) is being believed (4) is believed

(F) I know _____ very well, as they are my neighbors.

- (1) both (2) either
(3) one another (4) themselves

(G) You shouldn't avoid _____ the problem even though it may be very difficult to solve.

(1) being faced

(2) face

(3) facing

(4) to face

(H) If I had not lost my file, I _____ the job on time.

(1) had finished

(2) have finished

(3) finished

(4) would have finished

V

[1] 次の(A)～(E)それぞれの文を完成させるのに、下線部に入れる語として最も
適当なものを(1)～(4)から一つ選び、その番号を解答欄にマークしなさい。

(A) The beautiful mountains around the city _____ many visitors.

- (1) adopt (2) attract
(3) desire (4) detect

(B) The _____ for tomorrow's meeting is on the notice board.

- (1) abundance (2) accent
(3) ache (4) agenda

(C) What did I do to _____ this kind of treatment?

- (1) accompany (2) deserve
(3) groom (4) tease

(D) When you apply for a job, you need to list your _____.

- (1) dandelions (2) qualifications
(3) traitors (4) treaties

(E) In spite of her hard work, her examination result was _____.

- (1) mature (2) medieval
(3) transient (4) unsatisfactory

[2] 次の(A)～(E)の文において、下線部の語に最も近い意味になる語を(1)～(4)から一つ選び、その番号を解答欄にマークしなさい。

(A) We cannot accept this kind of behavior.

- | | |
|-------------|-----------|
| (1) abolish | (2) allow |
| (3) assume | (4) avoid |

(B) Many people thought the article was moderate in tone.

- | | |
|--------------|----------------|
| (1) abnormal | (2) academic |
| (3) mild | (4) motivating |

(C) He acquired more than he expected to while in California.

- | | |
|--------------|-----------------|
| (1) arranged | (2) distributed |
| (3) gained | (4) meditated |

(D) She intended to demolish the wall.

- | | |
|--------------|---------------|
| (1) decorate | (2) destroy |
| (3) mend | (4) transform |

(E) Her grief was easy to understand.

- | | |
|-------------|--------------|
| (1) analogy | (2) anguish |
| (3) dilemma | (4) metaphor |