2018年度

Ｔ 英 語 問 題

注 意

1. 試験開始の指示があるまでこの問題冊子を開いてはいけません。
2. 解答用紙はすべてＨＢの黒鉛筆またはＨＢの黒のシャープペンシルで記入すること
になっています。ＨＢの黒鉛筆・消しゴムを忘れた人は監督に申し出てください。
(万年筆・ボールペン・サインペンなどを使用してはいけません。)
3. この問題冊子は16ページまでとなっています。試験開始後，ただちにページ数を確
認してください。なお，問題番号はⅠ～Ⅴとなっています。
4. 解答用紙にはすでに受験番号が記入されていますので，出席票の受験番号が，あな
たの受験票の番号であるかどうかを確認し，出席票の氏名欄に**氏名**のみを記入して
ください。なお，出席票は切り離さないでください。
5. 解答は解答用紙の指定された解答欄に記入し，その他の部分には何も書いてはいけ
ません。
6. 解答用紙を折り曲げたり，破ったり，傷つけたりしないように注意してください。
7. この問題冊子は持ち帰ってください。

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マーク・センス法についての注意

マーク・センス法とは，鉛筆でマークした部分を機械が直接よみとって採点
する方法です。
1. マークは，下記の記入例のようにＨＢの黒鉛筆で枠の中をぬり残さず
濃くぬりつぶしてください。
2. 1つのマーク欄には1つしかマークしてはいけません。
3. 訂正する場合は消しゴムでよく消し，消しくずはきれいに取り除いて
ください。

マーク記入例：　A　〇〇〇●〇 （3と解答する場合）

Close your eyes and imagine being a passport officer at Heathrow airport in London. There is a long line of tired, irritated, and often impatient passengers aching to get to the end of their journeys. One by one they come to your counter and hand over passports with rather outdated photographs, looking at you for approval to reach their final destination. Different hair, glasses, and a bit of weight gain or loss —the list goes on. It should be simple, though, to tell whether the ID and ID-holder match. You have them both in front of you, the person and the image. Easy, right?

Well, not so much. Studies show that people are poor at recognizing unfamiliar faces (ones we encounter for the first time, or have seen only briefly). This is true not only when we have to memorize the faces of new people, but also when the task is to compare images presented at the same time (such as matching a passport photo with a driver's license photo). People also struggle to <u>sort</u> photographs by identity: For example, when shown forty photographs depicting only two different people, participants tend to think that the images show, on average, seven different people. Studies of a fairly simple "matching" task, where participants must decide whether two photographs show the same person or two different people, tell us that under ideal conditions people make mistakes on at least 10% of the trials. The <u>situation</u> is further complicated by the fact that photos in identity documents are often valid for ten years, during which one's appearance can change substantially. Look at your driver's license, work badge, and passport. Do they all resemble the person you see in the mirror?

One reason why lay people are not good at face matching might be that they don't have to do this task on a day to day basis. Following this logic, those who do it frequently as a part of their job should be much better at deciding whether a document and its holder match or not. Surprisingly, research suggests otherwise. A study conducted in 2014 by David White and colleagues in Australia showed that in a staged border control scenario, passport officers accepted 14% of fake documents, the same amount as untrained students who acted as a control group. Moreover, how well officers performed was unrelated to the length of their occupational

experience. Put simply, twenty years of matching people and documents does not make one good at it. These findings are consistent with other studies investigating perceptual expertise. Portrait artists, who are presumably well in tune with the fine details of human faces, are not better at face recognition tasks than the general population. In the same vein, a Swiss group of researchers reported that memory champions for name-face associations are also not superior to control participants on standardized face recognition tasks, so becoming a super-memorizer does not equal being a face super-recognizer, either.

So what does all that tell us about how face recognition works? Studies with twins have consistently shown that face recognition is highly inheritable and independent from other abilities such as general intelligence. The range of ability is remarkable: Super-recognizers are able to recognize someone in the street that they met once, some years earlier, at a party. These people are also much better than average at matching unfamiliar faces.

A key question for researchers is whether such enhanced abilities are purely innate, or whether they can be taught. In the absence of an army of face experts to guard national frontiers, scientists have made <u>concerted</u> efforts to improve the performance of typical perceivers on these applied tasks. Some studies have shown that continuous feedback, in this case telling participants after every trial whether they were correct or not, can slow the decline in face matching accuracy when it must be done over long periods, such as in airport-like scenarios, but does not improve face matching. Others have shown that feedback can indeed aid accuracy. Arguably, this strategy is not possible beyond laboratory settings, because the truth is always unknown on the street—who would provide feedback in real world situations when the only one who knows the truth is the ID-holder? Another commonly used face classification strategy is encouraging people to decide whether two faces are the same or different based on their shape, but this was also found ineffective when tested in a laboratory setting.

Other interventions have shown more promise. Incentives such as chocolate lead to improvements in accuracy on mismatched trials, suggesting it would be a workable strategy for detecting fake IDs, though one can see problems with employing this for passport controllers. Working in pairs and being free to

communicate also appears to have a benefit for both partners. Instructing inexperienced participants to pay attention to specific features and evaluate them in terms of similarity to another image also leads to better performance. Finally, when the task is difficult, hiding external features such as hair, ears, and face shape offers some help and leads to improvements in discriminability.

An alternative solution is to be more selective in personnel assignment. Studies have shown that super-recognizers are a long way ahead of the general population at face matching accuracy. They appear to use something called "holistic processing" where faces are perceived as a whole rather than a sum of their parts. It requires paying attention to the internal features of the faces (the eyes, the nose, and the mouth) and accurate assessment of the relative distances between these features, which is one possible explanation for how super-recognizers do it. Holistic processing has been repeatedly shown to be positively associated with face processing ability in the general population, but it is yet unclear whether training people to perceive faces more holistically would improve face matching.

Despite adopting a completely different strategy, forensic examiners, people who compare face images and later provide expert evidence in police investigations and court cases, have also been found to be extremely accurate at face matching. They rely heavily on feature-by-feature comparison to make their decisions, so they process faces less holistically. It is possible that factors other than pure face recognition ability, such as attention and motivation, play a part. Indeed, the advantage of forensic examiners becomes apparent when the time allowed to examine images is long, but not at shorter intervals.

The take-home message remains: Unfamiliar face recognition is an extremely difficult task that only a few get right. And this brings us back to the original question: Can we improve national security with science? The answer is yes, in many ways. Firstly, we could do away with facial photo identification and use some other form of *biometric. Secondly, when faces are used as the main biometric, human decision makers should be aware of their own limitations and apply the laboratory findings in their duty to keep us safe, for example working in pairs and receiving specific instructions. Finally, there is clear potential in national security agencies to use super-recognizers to keep dangerous criminals off the streets and away from our borders.

*biometric：生物測定法

1．The main purpose of the first paragraph is to remind the reader that

イ．passport officers have a difficult job.

ロ．the experience of travel may have an effect on our appearance.

ハ．we normally assume that matching pictures with faces is easy.

ニ．passengers need to be more considerate of passport officials.

2．The underlined word "sort" (paragraph 2) is closest in meaning to

イ．classify.

ロ．describe.

ハ．remember.

ニ．take.

3．The underlined word "situation" (paragraph 2) refers to

イ．the social context of research on face recognition.

ロ．the current state of affairs regarding face recognition.

ハ．the age and background of participants in the experiment.

ニ．regulations concerning the validity of passport documents.

4．One idea of paragraph 3 is that

イ．passport officers are inadequately trained for their position.

ロ．results from lab experiments do not always apply to the real world.

ハ．a good memory is essential to the ability to recognize faces.

ニ．experience with face recognition does not make one better at it.

5．The passage suggests that super-recognizers

イ．seem to be born with their special ability.

ロ．have many years of training in face recognition.

ハ．lead active social lives and see lots of faces.

ニ．are highly intelligent.

6．The underlined word "concerted" (paragraph 5) is closest in meaning to

イ．advanced.

ロ．determined.

ハ．political.

ニ．secret.

7．The passage mentions all of the following ways to improve face recognition ability EXCEPT

イ．focusing on specific facial features.

ロ．working in groups.

ハ．paying attention to emotional expression.

ニ．covering up external features such as hair.

8．The holistic processing of faces

イ．is related to better face recognition among ordinary people.

ロ．emphasizes external as well as internal facial features.

ハ．is difficult to do in the case of photo identification.

ニ．takes a shorter period of time than does less holistic processing.

9．The author would most likely agree that, in order to improve the security of passport operations, we should

イ．encourage passport officers to trust their intuition.

ロ．rely more on computer software to identity faces.

ハ．focus more on faces as the basis of personal recognition.

ニ．rely more on people with a natural talent for face recognition.

10．The most appropriate title for this passage is

イ．How to Remember Faces.

ロ．National Security and the Challenge of Face Recognition.

ハ．The Ability to Recognize Faces: Is Software the Future?

ニ．Passport Control and the Advantages of Facial Photo Recognition.

It's the Saturday before Easter weekend at Petland in Fairfax, Virginia. Sixteen baby bunnies sit in three open pens, all for sale. Two teenage girls reach into a pen, scoop one up, and squeal over its cuteness: "I need it!"

The rabbits are all very young. No adult rabbits are for sale here. "What happens to the babies who grow up before they're sold?" I ask a salesman. "The breeder picks them up," he says. "What does he do with them?" I ask again. "I don't know," he answers.

Rabbits are the third most popular pet in America, after cats and dogs, according to the Humane Society of the United States—and the third most abandoned. Most Americans have a sense of how long cats and dogs live, the kind of care they need, their behaviors. But rabbits? I asked several of my colleagues how long they think domestic rabbits live. "One to two years?" "Maybe three?" In fact, with proper care, rabbits live 10 to 12 years. People's understanding of them seems to be out of step with their commonplace ubiquity.

This disconnect appears to drive impulsive pet rabbit purchases, says Anne Martin, executive director of the House Rabbit Society, the largest rabbit rescue organization in the U.S. Because many people think they're short-lived, low maintenance, cage-bound animals, rabbits are seen as "starter pets," similar to hamsters or goldfish, perfect for kids. This misconception may help drive a boom of baby bunny sales ahead of Easter—and a subsequent rise in rabbit abandonments.

Jennifer McGee, co-manager of the Georgia chapter of House Rabbit Society, says they normally receive one to two calls a week about abandoned rabbits. But in the six weeks after Easter, the shelter gets three to four calls a day. House Rabbit Society chapters in Idaho and Illinois report a more noticeable rise in summer, as "Easter bunnies" reach maturity and reality sets in for owners.

And here's the reality: Although rabbits can make delightful companions, they're not easy-care pets. Animal hospitals and insurance companies consider them exotic pets, so medical care can be more expensive than for a cat or dog. Rabbits need a lot of exercise and shouldn't simply be pent up in a cage. This means they need to be trained to use a *litterbox, which takes patience, just as it

does for cats. They're also hunted animals, and we're, well, hunters. They generally don't like to be picked up by humans; they prefer to be in control, their feet on the ground. "It takes a patient person to become friends with these silent and subtle animals," says Margo DeMello, president of the House Rabbit Society.

Rabbits' complexity means they often face a harsh fate when purchased <u>on a whim</u>. Seemingly cute and cuddly, once baby bunnies mature, at between three and six months old, they can become aggressive and even destructive. Proper exercise and litterbox training help most rabbits, but many new owners assume that the undesirable behaviors are the sign of a problem rabbit and get rid of it. Others may do a little research and balk at the time and money it takes to change bunny behavior. McGee says she's often met with shock and frustration from parents: "What do you mean I have to spend $200 to fix a $30 rabbit?"

It's unclear how many rabbits are abandoned in the U.S.—and how many are Easter bunnies. There isn't a central organization collecting data, DeMello says. Most individual shelters keep track on how many dogs and cats are found or adopted, but they typically group rabbits with birds, reptiles, and small mammals in the "other" category.

Rescuers in local rabbit shelters from California's Bay Area to rural Georgia to suburban Connecticut all say that although abandonments peak in the weeks and months after Easter, they're a big problem year-round. According to Martin, about two-thirds of rabbits rescued in Northern California are abandoned ones. In some cities, Las Vegas and Spokane for example, public parks and empty lots have become dumping grounds overrun with hundreds of unfixed, unwanted rabbits. People abandon many rabbits outdoors, likely unaware that this is a death sentence. Domestic rabbits lack the survival instincts of their wild cousins, Martin says, and are unable to fight infection, build safe shelters, or adapt to heat and cold.

Shelters struggle to keep up. The Georgia House Rabbit Society gets more than 500 requests a year from owners looking to get rid of their rabbits—far more than they have the <u>resources</u> to save. Edie Sayeg, a rescuer with the group, believes thousands of rabbits are simply ditched outdoors in Georgia.

Elizabeth Kunzelman, a spokeswoman for Petland, a major national pet retailer that sells rabbits, says the spring months are "a perfect time for a child to

begin caring for a new pet and learning responsibility." But DeMello believes this mindset is problematic. "Children, honestly, want something cuddlier and more obviously attentive and are often frustrated when rabbits don't respond to them the way they expect." Other pet stores, including Petco and Petsmart, stopped selling rabbits several years ago because of concerns about abandonment. Kunzelman says Petland has a take-back policy for rabbits and other animals.

It's not just pet stores. Farm stores, amateur breeders and Facebook users across the country advertise baby bunnies ahead of the Easter season. Suzanne Holtz, director of Illinois-based Bunnies United Network, says these sellers can be even more problematic than pet stores because the rabbits often have a misplaced "halo of rescue" about them. Her shelter will get calls from people looking to surrender a bunny they "saved" from online sites where selling animals is supposedly banned.

It's a challenge to discourage people from buying rabbits as Easter gifts without discouraging responsible would-be owners from having them at all, Martin says, because for those who understand how to care for them, they make fantastic pets.

I know: I have two rescue rabbits of my own. Roger, a Blanc de Hotot (a French breed notable for black-rimmed eyes) was found abandoned in a small cage in a park. Rescued by D.C.-area group Friends of Rabbits, he's curious, fearless, and loving. Penelope, an English Angora, was found on the street as a baby. A Washington Humane Society rescue, she's bonded with Roger—they're companions who groom and play with each other—and is opinionated and stubborn. They're litter-trained, run around our apartment freely, and bring me and my husband joy every day.

*litterbox：ペット用トイレ

A．次の1〜8それぞれに続くものとして，本文の内容ともっともよく合致するものを，各イ〜ニから1つずつ選び，その記号を解答用紙の所定欄にマークせよ。

1．The author tells the story about two teenage girls in order to show
    イ．how people decide to buy a bunny.
    ロ．how cute bunnies are.
    ハ．how pet stores display bunnies.
    ニ．how bunnies are preferred to other pets.

2．The passage mentions all the following misconceptions people have about bunnies EXCEPT that they
    イ．live a short life.
    ロ．get along well with hamsters.
    ハ．are easy to take care of.
    ニ．like to live in cages.

3．The underlined word "reality" (paragraph 5) refers to
    イ．the sense of regret people feel about buying a rabbit.
    ロ．the problem of rabbit abandonment.
    ハ．the resistance of insurance companies to pay for rabbit care.
    ニ．the demands of taking care of a growing rabbit.

4．The passage suggests that rabbits don't like to be picked up by humans because they
    イ．are afraid of us by nature.
    ロ．like to be alone.
    ハ．prefer to be with other rabbits.
    ニ．like to keep moving as much as possible.

5．The underlined phrase "on a whim" (paragraph 7) is closest in meaning to

イ．carefully.

ロ．hastily.

ハ．individually.

ニ．occasionally.

6．The underlined phrase "resources" (paragraph 10) is closest in meaning to

イ．chances.

ロ．intentions.

ハ．means.

ニ．views.

7．The passage suggests that people like to buy bunnies from farm stores and amateur breeders because they believe that

イ．the bunnies are cheaper there.

ロ．they can avoid crowded pet stores.

ハ．the bunnies have better survival instincts.

ニ．they are rescuing the bunnies.

8．The most appropriate title for this passage is

イ．The Fascinating Lives of Bunnies.

ロ．How to Keep Rabbits as Pets.

ハ．Why Easter is Bad for Bunnies.

ニ．Animal Abandonment in the U.S.

B．最終段落の下線部 I know において，筆者はどんなことを知っていると主張しているのか，20字以内で説明せよ。ただし，句読点は合計字数に含まれる。

Ⅲ． 次の空所（1）〜（7）を補うのにもっとも適当なものを，それぞれ対応する各イ〜ニから
　　1つずつ選び，その記号を解答用紙の所定欄にマークせよ。

A．

　Greg:　Hello?　Scott, are you busy?

　Scott:　Hi, Greg.　I was just about to lock up the office, but I've got a minute.
　　　　　What's up?

　Greg:　（　1　）

　Scott:　Mr. Taylor's not in right now.

　Greg:　Ah, that's too bad.　Is he coming tomorrow?

　Scott:　No, he's gone all week.　But I'll let him know that you came by.

　Greg:　Listen.　There was a misunderstanding.　I made a big mistake.　（　2　）．

　Scott:　Greg, I understand.　But you'll have to come back later.

　Greg:　Can you call him for me right now?

　Scott:　That's not a good idea.

　Greg:　（　3　）?

　Scott:　Because he's attending a meeting at the moment.

（1）　イ．They could be better.

　　　　ロ．I'm fine, thanks.

　　　　ハ．Do you know Mr. Taylor?

　　　　ニ．I need to see Mr. Taylor.

（2）　イ．I'm worried about him

　　　　ロ．I need to talk to him about it

　　　　ハ．Please forgive my absence

　　　　ニ．I want to offer my forgiveness

（3）　イ．Can I wait

　　　　ロ．Can you call me back

　　　　ハ．What shall I do

　　　　ニ．Why not

B.

Reiko: Ann, what's wrong? （　4　）?　You look down.

Ann:　　My family has to return to the States.

Reiko: Really?　（　5　）?

Ann:　　My dad got a promotion.　We have to leave next week.

Reiko: I'm going to （　6　）!

Ann:　　That makes it all the harder for me to leave.

Reiko: Our graduation ceremony is just six months away.　（　7　）

Ann:　　I wish I could!

（4）　イ．Are you angry with me

　　　　ロ．Did you get some bad news

　　　　ハ．Do you need a doctor

　　　　ニ．Have you lost something

（5）　イ．What happened

　　　　ロ．Who decided that

　　　　ハ．When did you find out

　　　　ニ．Where are you going to go

（6）　イ．see you in America

　　　　ロ．come with you

　　　　ハ．be late for that

　　　　ニ．miss you so much

（7）　イ．I can't believe it's so close.

　　　　ロ．Can't you stay until then?

　　　　ハ．I could go with you.

　　　　ニ．Aren't you excited?

Ⅳ. 次の1～8それぞれの空所を補うのにもっとも適当なものを，各イ～ニから1つずつ選び，その記号を解答用紙の所定欄にマークせよ。

1．Don't leave this room （ 1 ） you are asked to.
  イ．or   ロ．provided   ハ．unless   ニ．where

2．The manager gave a （ 2 ） explanation of the situation to the customers.
  イ．comprehended   ロ．comprehending
  ハ．comprehension   ニ．comprehensive

3．After the war, the family had to （ 3 ） back on a very small income.
  イ．drop   ロ．fall   ハ．lower   ニ．sink

4．There will be little, if （ 4 ）, trouble.
  イ．any   ロ．anymore   ハ．some   ニ．something

5．It is a （ 5 ） subject for students of the Faculty of Law.
  イ．demanded   ロ．ordered   ハ．requested   ニ．required

6．He insisted that he had nothing to （ 6 ） with the affair.
  イ．do   ロ．know   ハ．look   ニ．say

7．Whatever happens, I am committed to （ 7 ） out my duty.
  イ．bringing   ロ．carrying   ハ．showing   ニ．taking

8．They became desperate because the emergency door （ 8 ） open.
  イ．don't   ロ．needn't   ハ．shouldn't   ニ．wouldn't

V. 次の空所（1）〜（5）それぞれにもっとも適当な1語を補い，英文を完成せよ。解答は解答用紙の所定欄にしるせ。

Before a volcano erupts, magma rises from deep beneath the Earth, （ 1 ） the ground above to swell. It usually starts as a small movement on the side of a volcano or in its crater. It may be barely noticeable to the eye, but it can be seen from space.

Regular satellite data recording this change will be processed automatically and an alert is issued （ 2 ） scientists to follow up. This "red flag" does not mean an eruption is inevitable, but it ought to ensure those communities that live in the shadow of a volcano are not caught unawares （ 3 ） the situation gets worse.

"It's the volcanoes that are least monitored where this will have most impact. If people can be alerted ahead of time, it could （ 4 ） many lives," said Professor Andy Hooper.

COMET (Centre for Observation and Modelling of Earthquakes, Volcanoes and Tectonics) has conducted trials of the new satellite-monitoring system in Iceland and is now running it in prototype form across Europe and parts of Asia.

The plan next is to extend the automated detection of ground deformation to Africa and Central and South America. These regions have some very big explosive volcanoes that are covered only （ 5 ） limited ground surveys.

【以下余白】