

# 英語

1

英文を読み問題に答えなさい。(指示がある場合以外は日本語で答えること)

The automakers and high-tech companies spending billions of dollars ( 1 ) developing self-driving cars promote the idea that autonomous vehicles (AVs) will help create a safer, cleaner, and more mobile society.

While developers collect data on the sensors and algorithms that allow cars to drive ( 2 ), there is ( 3 ) research on the social, economic, and environmental effects of AVs. Truly autonomous driving is still decades away, ( 4 ) to most transportation experts. And because it's hard to study something that doesn't yet exist, the gaps have been filled by speculation—and clearly contrasting visions of the future. “The current conversation ... falls into ( 5 ) I call the utopian and dystopian views,” says Susan Shaheen, co-director of the Transportation Sustainability Research Center at the University of California, Berkeley.

In the (A)utopian view, she says, AVs are cheap and more accessible, and people can easily call one for a ride by tapping on a screen. This makes AVs available to everyone. Once AVs are common, traffic accidents become a thing of the past, and new laws and regulations mean there are fewer traffic jams and parking problems, and less urban sprawl.\* Fleets of electric-powered AVs shrink fossil fuel consumption and reduce air pollution. Traveling to work and back, or commuting, becomes stress-free and more productive, as former drivers can now work, read, or knit while on their way to their destinations.

In the dystopian view, driverless cars add to many of the world's troubles. Freed from driving, people rely more heavily on cars—increasing traffic jams, energy consumption, and pollution. (B)A more productive commute induces people to move farther from their jobs, worsening urban sprawl. At the same time, software unexpectedly makes errors, which leads to repeated recalls, triggering massive travel disruptions. Wealthier consumers buy their own AVs, avoiding public transportation that often includes annoying passengers, dirty seats, and scheduling difficulties. A new type of inequality emerges as the world is divided into AV haves and have-nots.

A few scientists are examining these predictions. It's too soon to definitively address some questions, such as the environmental impact of AVs, which will depend not just on the type of cars on the road, but also on how people will use them.

An important first step in examining the predictions is to define what AVs are. For engineers, an AV is a car that takes you where you want to go, at any time and under any drivable condition, without humans actually driving them.



◇M2(807—10)

That powerful capability is at (c)the top of a six-point scale of automation devised by the Society of Automotive Engineers and adopted by the U.S. National Highway Traffic Safety Administration in Washington, D.C. Technically, anything below level five is not an AV. (Level-zero cars are what your parents drove, and most cars on the road today operate at level one.)

“Any level of automated driving gets described by the media as driverless,” says Steven Shladover, a transportation engineer at the California Partners for Advanced Transportation Technology program in Richmond. “Companies have gotten very good at creating statements [about automation technologies] that will be presented in the most positive light,” he says.

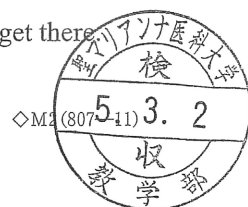
(d)As a result, it’s easy for the public to overemphasize the capabilities of existing technology.

There was a fatal crash involving a Tesla Model S and a large truck several years ago. The driver was using the car’s “autopilot” features—essentially an advanced cruise control system. This function can automatically adjust the car’s speed to keep time with other vehicles and keep the car within its lane. This capability fits the definition of a level-two vehicle, which means the driver is still in charge. But he wasn’t able to react in time when the car failed to detect the truck.

The six levels of autonomy were intended to tell the public where things now stand and where the technology is headed. But such a classification system implies that companies will make step-by-step and steady progress in reaching higher levels: initially producing cars at level three, then a few years later at level four, and finally at level five.

But (e)progress will likely be anything but steady. Level three, for example, signifies that the car can drive itself under some conditions and will notify drivers when a potential problem arises in enough time, say 15 seconds, to allow the human to regain control. But many engineers believe that such a smooth transfer is all but impossible because of many real-life scenarios, and because humans aren’t very good at refocusing quickly once their minds are elsewhere. So many companies say they plan to skip level three and go directly to level four—vehicles that operate without human drivers.

Even a level-four car, however, will operate autonomously only under certain conditions, say in good weather during the day, or on a road with controlled access. The technology for that capability already exists and “is really easy,” notes Gill Pratt, CEO of the Toyota Research Institute in Palo Alto, California. The real challenge, says Pratt, is developing a vehicle that can drive in “very difficult domains,” such as rainy weather or crowded roads. That’s level five, and Shladover, for one, says he wouldn’t be surprised if it’s 2075 before we get there.



\*urban sprawl: the spreading of urban developments (such as houses and shopping centers) on undeveloped land near a city

〔 1 〕 空欄(1)―(5)に入る最も適切なものを選び、記号で答えなさい。

- (1) (a) to                      (b) on                      (c) at                      (d) about  
(2) (a) themselves          (b) correct                (c) them                    (d) safety  
(3) (a) little                    (b) a few                    (c) small                    (d) a number of  
(4) (a) indicated              (b) contributing          (c) attracted              (d) according  
(5) (a) when                    (b) which                    (c) what                    (d) how

〔 2 〕 下線部(A)の語と入れかえられるものを選び、記号で答えなさい。

- (a) hope                      (b) pessimistic            (c) automatic  
(d) better                      (e) optimistic            (f) negative

〔 3 〕 下線部(B)は、どのようなことと説明されているか答えなさい。

〔 4 〕 下線部(C)の車は、技術者にとってどのようなものか説明しなさい。

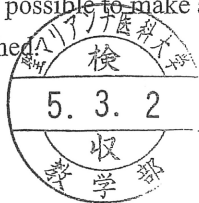
〔 5 〕 下線部(D)によって引き起こされた出来事を 120-130 字で答えなさい。

〔 6 〕 下線部(E)の文と入れかえられるものを選び、記号で答えなさい。

- (a) any progress will likely go in the step-by-step manner  
(b) anything but steady will be processed  
(c) the way to go up to higher levels may not be smooth  
(d) it may proceed steadily without any problems

〔 7 〕 最終段落の内容と合致するものを選び、記号で答えなさい。

- (a) Roads need to be improved and conditions need to be eased in order to develop a level-five car by 2075.  
(b) The technology to build a level-four car has been already established. All that remains is to develop a level-five car.  
(c) It will take decades to reach the technological level to make a perfect AV that can run under various conditions.  
(d) It is technically possible to make a level-four car under any conditions, but laws are not yet established.



2

Read the following passage and answer the questions.

Have you ever felt your phone buzz, then checked to find there was no message? Have you heard someone calling your name when no one was there? ( 1 ) The figure hovered and didn't seem to have a face. Was the figure a ghost?

To sense things that aren't there is called a hallucination. It sometimes happens when we are under sleep paralysis. This condition leaves someone feeling awake but paralyzed, or frozen in place. Sleep paralysis happens when the brain 2) messes up the process of falling asleep or waking. Sleep paralysis "is like dreaming with your eyes open," explains Baland Jalal, a neuroscientist at the University of Cambridge in England. "Our most vivid, lifelike dreams happen during a certain stage of sleep. It's called rapid eye movement, or REM, sleep. In this stage, your eyes ( 3-1 ) under their closed lids. Though your eyes move, the rest of your body can't. It's paralyzed." Most likely, that's to prevent people from acting out their dreams. Your brain usually ( 3-2 ) this paralysis in the process of waking up. But in sleep paralysis, you wake up while it's still happening.

You don't have to experience sleep paralysis to sense things that aren't there. David Smailes, a psychologist in England at Northumbria University, says misperceptions happen to just about everyone ( 4 )—but some may turn to ghosts as the explanation.

We're used to our senses giving us accurate information about the world. So when experiencing a hallucination, our ( 5 ) is usually to believe it. If you see or feel the presence of a loved one who died—and trust your perceptions—then "it has to be a ghost," says Smailes. That's easier to believe than the idea that your brain is lying to you.

The brain has a tough job. The eyes take in color. The ears take in sounds. The skin senses pressure. [A] The brain works to make sense of this mess. This is called bottom-up processing. [B] And the brain is very good at it. [C] It's so good that it sometimes finds meaning in meaningless things. [D] This is known as pareidolia (Pear-eye-DOH-lee-ah). You experience it whenever you stare at the moon or clouds and see rabbits, ships or faces.

The brain also does top-down processing. It adds information to your perception of the world. Most of the time, there is way too much stuff coming in through the senses. 7) Paying attention to all of it would overwhelm you. So your brain picks out the most important parts. And then it fills in the rest. "The vast majority of perception is the brain filling in the gaps," explains Smailes.





So if someone tells you a ghost story this Halloween, enjoy it. ( 9 ) Think about other possible explanations for what was described. Remember that your mind may fool you into experiencing spooky things.

- [ 1 ] Which choice fits gap ( 1 ) the best?
- (a) Has your leg kicked just as you were falling asleep?  
 (b) Have you ever woken up suddenly because of a loud noise?  
 (c) Have you felt a cold wind brush your face inside the house?  
 (d) Have you ever seen a figure in a dark shadow?
- [ 2 ] What does the underlined phrase 2) mean?
- (a) organizes            (b) mishandles            (c) pollutes            (d) combines
- [ 3 ] Choose the most appropriate pair for ( 3-1 ) and ( 3-2 ).
- (a) (3-1) move quickly            (3-2) powers up  
 (b) (3-1) roll back            (3-2) turns on  
 (c) (3-1) focus            (3-2) activates  
 (d) (3-1) dart around            (3-2) turns off  
 (e) (3-1) immobilize            (3-2) arouses
- [ 4 ] Which choice fits gap ( 4 ) the best?
- (a) and quite often they prevent us from sleeping  
 (b) and most of us just ignore them  
 (c) and we generally know that they are real  
 (d) and a few people think they are shadowy figures
- [ 5 ] Which choice CANNOT be used in gap ( 5 )?
- (a) learned behavior    (b) first instinct    (c) usual impulse    (d) natural tendency
- [ 6 ] Choose the best place [A], [B], [C] or [D] in the passage for the following sentence.
- Information from the world hits you as a mixed-up jumble of signals.
- [ 7 ] What does the underlined part 7) mean?
- (a) The capacity of our brains is sufficient to process everything we sense.  
 (b) We would not be able to function if we concentrated on everything.  
 (c) We tend to be overcome by all but the most insignificant perceptions.  
 (d) When we notice too much stuff, our brains must speed up to handle it



[ 8 ] Arrange the following sentences in the correct order to make a paragraph. One option has already been given in its right place.

- (a) It's a picture your brain painted for you based on signals captured by your eyes.
- (b) The same goes for your other senses—hearing or feeling figures or creatures.
- (c) But sometimes the brain adds things that aren't there.
- (d) What you see right now isn't what's actually out there in the world.
- (e) Most of the time, this picture is accurate.

( d )—(    )—(    )—(    )—(    )

[ 9 ] Which choice fits gap ( 9 ) the best?

- (a) Rely on your senses.
- (b) Play the believing game.
- (c) But remain doubtful.
- (d) Let yourself feel scared.

[ 10 ] Read the following statements and identify 2 true statements.

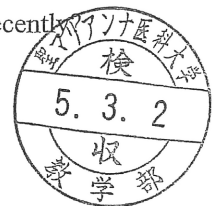
- (a) According to David Smailes, few people hallucinate at some time in their life.
- (b) If you see a rabbit making rice cakes when you look at the moon, then you are experiencing bottom-up processing.
- (c) The most realistic and colorful dreams occur during rapid eye movement.
- (d) Although sleep paralysis can happen throughout the sleep cycle, it usually happens right before we wake up.
- (e) What we see doesn't actually exist; it is something created by our brains and should not be trusted.

3

Choose the most appropriate expression for the given situation in terms of grammar, logic and context.

[ 1 ] You and your friends are making plans to go out this weekend but having a hard time deciding. Then, you come up with a new idea and ask everyone's opinion.

- (a) How do you think about visiting the brand-new amusement park which opened a month ago?
- (b) What will you feel about hanging out in the new amusement park that was opened one month before?
- (c) What do you say to going to that new amusement park that opened last month?
- (d) Why not trying to go to the amusement park which newly opened recently?



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- [ 2 ] You're in charge of the movie screening at the school festival. Now, you're writing a note on smartphone manners that is to be announced at the show. What do you write?
- Would you mind if you could turn down the power of your smartphones and other electrical machines with sound, now?
  - Please turn off your smartphones and other electronic devices during the screening.
  - If you want to use either your smartphone or any types of sound machines, please go out the theater.
  - Do not power on your smartphones or another equipment that comes off sound while the movie show.
- [ 3 ] Your friend is having a party at his house but seems really busy preparing for it because many people said they would come. What would you say to your friend?
- Can I share what you'll do for the party?
  - Can I do anything to make it easier for you?
  - Ask for things you want me to do anytime.
  - You can depend on me for your party.
- [ 4 ] It's lunchtime, and you are looking for a place to eat in your crowded school cafeteria. You find a seat, but someone is sitting next to that seat. What would you say to that person?
- May I ask if this seat is free?
  - Sorry for bothering you. Am I OK if I sit here?
  - Excuse me. Is this seat taken?
  - Pardon me. Did someone eat here?
- [ 5 ] You are supposed to submit an essay for your class by tomorrow. However, you won't be able to finish writing it by tomorrow. What would you say to your teacher?
- It's my fault that I pass the submission day. Please give me another chance.
  - I hope I need more days for the essay so that I'll finish by the new due date.
  - I don't think I can meet the deadline. Could you please give me more time?
  - I apologized for being late for my report. Is it possible to make other day for it?

