［Ⅰ］ 次の和文の内容を英語で書き表しなさい。

最近の調査によると，日本人の本離れが進んでいる一方で，読書で満足した人が9割に達し，読んだもので人生観に影響を受けたと感じる人も6割いた。若者を中心にインターネットによる本の購入が増える傾向もみられる。

［Ⅱ］ 次の英文を読んで設問に答えなさい。

Sensory information flowing into the brain fuels our perceptions, memories, intentions, and actions. Although we generally refer only to the five traditional senses—(　あ　), (　い　), (　う　), (　え　), and (　お　)—there are in fact many more. Other sensations include those of heat and cold, gravitation, acceleration, pain, etc. Moreover each of the traditional sensory modalities* is a complex mix of distinctly different sub-senses. In the (　A　) modality for example there is the ability to sense the motion, colour, form, brightness, texture, and contrasts of objects.

The brain analyses primary sensations, transforming them into perceptions upon which informed decisions are made about future actions. Sensations however are just one (　B　) component to perception. It is possible to perceive what is not sensed, not to perceive what is sensed, and to construct more than one perception from the same sensations. Perceptions are not therefore strictly determined by sensations, (　C　) are sensory perceptions linked to single modalities. Perceptions are the brain's educated guesses about what the combined senses are telling it, and as such they will almost always depend on interactions between different modalities. So while making a distinction between sensation and perception may seem academic, actually it is an important one.

This distinction can easily be appreciated by looking at the famous visual illusion based on a painting titled *My Wife and Mother-in-Law* by W. E. Hill. You will either see (　　か　　): two perceptions contained in the same picture. Once both have been perceived, it is possible to swap between the two at will. The (　き　) information falling on the retina* is exactly the same for both, so there must be a top-down process determining

how the (く) system interprets the (け) input. In effect our brains impose different conscious perceptions on the same information registered by our (こ) systems.

The importance for perception of the interaction between different senses is illustrated by the auditory-visual illusion known as the McGurk effect described by Harry McGurk and John MacDonald in an article called 'Hearing Lips and Seeing Voices'. Watching a video of a person repeating the syllable 'dah' three times followed by three repetitions of the syllable 'bah' can produce the illusion. If the soundtrack repeats the sound 'dah', irrespective of the syllable actually being mouthed, you hear both 'dah' and 'bah'. When you see the lips mouth 'bah' you hear 'bah' even though the sound entering your ear is in fact 'dah'. Your brain is trying to provide your consciousness with its best guess about what the senses are telling it. In this case there is a contradiction between what the eyes and ears are telling it to perceive. In this instance, the (D) have it.

Perceptual blindness is a striking example of the way the brain is highly selective in deciding which elements of the sensory information available to it are consciously perceived. A remarkable illustration of this is provided by a short video made by Daniel Simons and Christopher Chabris. The video shows a group of young people passing a basketball to each other. A person dressed in a gorilla suit walks into their midst, waves conspicuously into the camera, and then walks out of the scene. In (E) of viewing the video, the audience is instructed to count the passes and then report their findings after the clip*. Astonishingly, when I saw this demonstrated recently, about half the audience completely failed to notice the gorilla! But the invisible gorilla was there, its image entered the eyes of each viewer, impressed itself on their retinas, was sent to the thalamus* from where it was relayed to the primary visual cortex*. Where then did the proverbial* 900lb* gorilla go? It seems that the brain was so engaged in the counting task that it decided not to bother itself with generating a conscious perception of a gorilla, even though a substantial part of the brain's visual system was fully informed about its (F). So the gorilla was in effect airbrushed* out of the visual perception.

How the brain might achieve such a feat of image manipulation is beyond our current understanding. The task must involve more than removing the visual information associated with the gorilla because the gorilla image is not replaced by a gorilla-shaped hole in vision. The space occupied by the gorilla is filled in appropriately with (さ). Equally remarkable, those who witnessed the invisibility of the gorilla could not recall anything odd about their perception of the original video. Apparently there was no accessible

memory trace left of the strange case of the disappearing gorilla. (1)This example should make us sceptical* about the veracity of eyewitness accounts where accuracy matters, in the reporting of crimes, for example.

設問

1　本文中の（あ）～（お）に入れるのにふさわしい単語になるように解答欄のつづりを完成させなさい。（活字体を使うこと。）

（あ）si　（い）to　（う）aud　（え）ta　（お）sm

2　本文中の (A) ～ (F) に入れるのにふさわしい単語をそれぞれの選択肢 1 ～ 4 の中から 1 つ選び, その番号を解答欄に記入しなさい。

(A)	1	auditory	2	perceptual	3	sensory	4	visual
(B)	1	attributable	2	contradictory	3	contributory	4	similar
(C)	1	and	2	but	3	nor	4	or
(D)	1	ears	2	eyes	3	senses	4	sounds
(E)	1	advance	2	charge	3	consequence	4	spite
(F)	1	absence	2	illusion	3	invisibility	4	presence

3　本文中の（か）に入れるのにふさわしい句を次の選択肢 1 ～ 4 の中から 1 つ選び，その番号を解答欄に記入しなさい。

1　a young woman looking away and the profile of an old woman
2　an old woman looking away or the profile of a young woman
3　an old woman looking away and the profile of a young woman
4　a young woman looking away or the profile of an old woman

4　本文中の（き）～（こ）に入れるのにふさわしい語を次の中から選び，その番号を解答欄に記入しなさい。

1　perceptual　　2　sensory

5　本文中の（さ）に入れるのにふさわしい英語になるように，次の句を適当な順に並び替えて完成させ，その順序を解答欄に番号で記入しなさい。

1　been seen
2　behind it
3　had the gorilla
4　not actually been there
5　what would have

6　下線部（1）を和訳しなさい。

［Ⅲ］ 次の英文を読んで設問に答えなさい。

On a bright day last spring, I hiked at dawn into the foothills behind our house in Colorado. Snow still lay in the shadows beneath boulders* and pine trees, but the morning was warm—so warm the honeybees I keep up there would soon awaken, emerge from their wooden boxes and begin searching out their first nectar of the new year. As I climbed the final slope, I could see that two of the hilltop hives* were already thrumming* with activity: Bees lifted off from the entry holes, catching the light and rising like sparks on a wind, and bees spiraled in for a landing, returning already from their first outings. The third hive, however, was conspicuously quiet—its entrance a small dark hole offering no sign of life. Colony Collapse, I thought. The bee plague.

As you've probably heard, honeybees are disappearing. Across the country, beekeepers are cracking open their hives to discover the remnants of a sudden and mysterious desertion.

The stores of honey are good, the brood* are tucked as usual into their cells, but all the adults are gone. Last winter, over a third of the honeybee hives kept in the United States suffered the strange fate now called (1) Colony Collapse Disorder.

(2) What's at stake here is not just our honey, or our favorite symbol of cooperative society, but our food. Most of our crops require pollination—deposition of a bit of male pollen on the female flower—to set fruit and ultimately produce the parts we eat. Out of 115 of the world's leading crops, 87 depend on animals—predominantly bees—to perform that vital act of placing pollen.

It is important to add that in the United States, the majority of crops are pollinated not by wild bees, or even by honeybees like mine, which live in one location throughout the year, but by (3) a vast mobile fleet of honeybees-for-rent. Hundreds of thousands of domestic honeybee hives travel the interstate highways on tractor-trailers. The trucks pull into a field or orchard just in time for the bloom, the hives are unloaded and the bees are released. Then, when the work of pollination is done, the bees are loaded up and the trucks pull out, (ア) for the next crop.

The mobile fleets have been hit exceptionally hard by Colony Collapse Disorder (hereafter, CCD), and if the epidemic continues, crop yields will soon decline. The consequences of CCD are therefore very clear. The causes, however, are not.

A recent survey of all the foreign DNA that could be found in honeybee

hives discovered that a certain virus was (イ) in 85 percent of hives that had fallen to CCD, but only 5 percent of hives that had not. That's a strong association. But it's not perfect, and there is surely more to the story.

CCD hit a honeybee population that was already feeling worn down: a large mite* that attaches to bees and sucks their fluids, a tiny mite that inhabits the bee trachea*, and a pair of fungal* infections were all (A) a toll when CCD first appeared. Not surprisingly, evidence of this grim company also showed up in the survey of foreign DNA.

But those plagues, too, could be part of a broader erosion of honeybee health. If you hang around beekeepers, from the hobbyists on up to the managers of mobile fleets, you'll hear a variety of hypotheses about CCD. (4) The mobile hives, some say, are overworked: for a species that evolved with an off-season and a steady home, year-round migratory labor must be taxing.

What's more, each time they fly out into a new workplace, the itinerant* honeybees encounter a variety of insecticides, herbicides and crops engineered to produce insecticidal proteins. Between jobs, they get a road-trip diet of pure corn syrup, which lacks many nutrients.

The list of plausible risk factors goes on. But if the cause of CCD truly is complex and multi-factorial, or if it simply remains obscure, what is there to do?

Here we may need a brief history of bees. Honeybees first came to the New World on European ships. Once they'd hitched a ride across the Atlantic, however, they required no further assistance. They went feral*, expanding swiftly across the American landscape. As the feral honeybees extended their range, they took up residence alongside thousands of native species of bees that were already here.

For bees, the next important historical development was the transformation of landscapes. The immigrant humans set about remaking the continent—clearing land, building, sowing crops—and we have done so, (ウ) an accelerating rate, ever since.

Obviously, a parking lot is a hard place for bees to live. (5) Less obviously, a huge field of a single crop is equally unsuitable, for it lacks nesting sites and yields its nectar as a sudden flood that soon recedes. The American landscape is a tough place (B) a living.

And yet, the wild bees—both the feral honeybees and many of the native species—have persisted. To this day, they are stowed* away in our attics, hidden in holes in our wood siding* and our dirt roads, and mostly, subsisting in the thin, semi-natural interstices* of our transformed landscapes.

What does this mean for our current pollination crisis? Those remnant

wild bees, feral and native alike, might just be the seeds of a solution. And to sow those seeds and foster their growth, we must not till* the earth, but do just the opposite: (6) we must take patches of agricultural land out of production, and restore them to natural habitat.

At present, wild bee populations are too small, too few and too far between* (C) on the task of pollinating our crops. But if the wild bees were provided with habitat of the right kind and in the right geographic arrangement, they could achieve pollination both reliably and effectively.

As the swift expansion of feral honeybees across the Americas shows, they are not especially picky about their habitat; most anything outside of parking lot or vast monoculture will (D). And for native bees, habitat could be restored to suit the needs of whichever species are exceptionally good pollinators of local crops. Bumblebees, for instance, are the best pollinators of Maine blueberries, whereas blue orchard bees work well for California almonds.

The right geographic arrangement of habitat would also depend on which native species are desired for a certain crop. Many native species are willing to fly relatively far from their home habitat—a kilometer or so—to visit flowers; accordingly, patches of habitat for these bees could be placed relatively far apart. Other species are homebodies*, (エ) to fly more than a few hundred meters. To provide their services to an entire agricultural field, habitat patches would need to be closer together.

設問

1　下線部（1）について，何にどのようなことが起こっているのかを20字程度の日本語で簡潔に説明しなさい。

2　下線部（2）を和訳しなさい。

3　下線部（3）は具体的にどのようなミツバチを言っているのか，30字程度の日本語で説明しなさい。

4　本文中の（ア）～（エ）に入れるのにふさわしい単語をそれぞれの選択肢1～3の中から1つ選び，その番号を解答欄に記入しなさい。

（ア）	1 bounding	2 facing	3 heading
（イ）	1 infected	2 killed	3 present
（ウ）	1 at	2 for	3 to
（エ）	1 ready	2 reluctant	3 willing

5　本文中の（A）～（D）に入れるのに最もふさわしい動詞形を次の中から選び，その番号を解答欄に記入しなさい。（同じ番号を複数回使用してはならない。）

1 do	2 doing	3 to do
4 take	5 taking	6 to take
7 make	8 making	9 to make

6　下線部（4）を和訳しなさい。

7　下線部（5）を和訳しなさい。

8　下線部（6）を和訳しなさい。

[IV] Write about the best teacher you have ever had. What was it about this teacher that brought about the best in you? What did you learn from this teacher? Write about them in English in about 70 words.

[NOTES]

airbrush / *verb*
[with object] alter or conceal (a photograph or a detail in one) using an airbrush: *Somebody had been airbrushed out of the picture.*

between SEE **few and far between**

boulder / *noun*
a very large rock which has been shaped by water or the weather

brood / *noun*
all the young birds or creatures that a mother produces at one time

clip / *noun* [C]
a short part of a film / movie that is shown separately: *Here is a clip from her latest movie.*

cortex SEE **visual cortex**

feral / *adjective*
(of animals) living wild, especially after escaping from life as a pet or on a farm

few and far between
not frequent; not happening often

fungal / *adjective*
caused by **fungus**: *a fungal infection*
fungus: *noun* [U, C] 真菌

hive / *noun* (also **beehive**) [C]
beehive / *noun* a box-like or dome-shaped structure in which bees are kept.

homebody / *noun*
(informal, especially NAmE) a person who enjoys spending time at home

interstice / *noun*
[usually pl.] (formal) a small crack or space in something
itinerant / *adjective*
[usually before noun] (formal) travelling from place to place, especially to find work: *itinerant workers / musicians • to lead an itinerant life*
lb (BrE) (NAmE **lb.**) *abbreviation* (pl. **lb** or **lbs**)
a pound in weight, equal to about 454 grams (from Latin 'libra').
mite / *noun*
a very small creature like a spider that lives on plants, animals, carpets, etc.: *house dust mites*
modality / *noun* [C]
the kind of senses that the body uses to experience things
proverbial / *adjective*
well known and talked about by a lot of people
retina / *noun*
a layer of tissue at the back of the eye that is sensitive to light and sends signals to the brain about what is seen
sceptical (BrE) (NAmE **skeptical**) / *adjective*
siding / *noun* (NAmE)
material used to cover and protect the outside walls of buildings
stow / *verb*
[with **away**] put out of the way or out of sight
thalamus / *noun* 視床
thrum / *verb* (thrums, thrumming, thrummed)
[no object] make a continuous rhythmic humming sound: *the boat's huge engines thrummed in his ears.*
till / *verb*
[with object] prepare and cultivate (land) for crops: *no land was being tilled or crops sown.*
trachea / *noun*
each of a number of fine tubes in the body of an insect, conveying air direct to the tissues.
visual cortex / *noun*
the part of the cerebral cortex that receives and processes sensory nerve impulses from the eyes.

(Adapted from *Oxford Advanced Learner's Dictionary* 7th edition, *Oxford Dictionary of English,* and *Shorter Oxford English Dictionary* 6th edition)

[出典]
[Ⅱ] Michael O'Shea, *The Brain* (Oxford University Press, 2005), pp.64-67.
[Ⅲ] Aaron E. Hirsh, "Bee plague: Just let them be," *International Herald Tribune*, Jan. 30, 2009, p.8.