

121. 一橋大 2005
122. 一橋大 2005
123. 大阪医科薬科大・医 2011
124. 大阪医科薬科大・医 2011
125. 東京大 1984
126. 東京大 2011
127. 東京大 1995
128. IELTS
129. IELTS
130. 慶應義塾大・医 2023

ハイレベル読解問題演習 121

(一橋大 2005)

次の英文を読み、下の問いに答えよ。

Most people recognize the importance of reading stories to small children, who can then learn how books work (for example, that a line of text should be read from left to right), how letters form words and how narrative flows.

But literacy is only one benefit of storytelling. (1)Another is the chance for children to identify with fanciful characters who try to work out conflicts with others and within themselves. If very young children can't do this in the safety of an adult's lap, the later costs to them and to society can be greater than poor reading skills. Can any of this loss be made up later? A storybook program at a San Antonio juvenile prison* suggests that it may never be too late.

Three people came together to create the program. Celeste Guzman works for Gemini Ink, a group that seeks opportunities for creative writers to give workshops in schools, homes for the elderly, shelters for battered* women and prisons. Glenn Faulk, a prison officer at the Cyndi Taylor Krier Juvenile Correctional Treatment Center, designs activities for violent youths while they serve their sentences. Grady Hillman, a poet, trains artists and writers to teach in community settings.

Their plan evolved slowly, with few of its possibilities apparent at first. Youths at the Krier juvenile prison are expected to perform public service. Mr. Faulk proposed to several prisoners that, rather than mow lawns at the courthouse or pick up trash on the highway, they write children's books that could be given to a library at a battered-women's shelter. He thought the idea might be particularly attractive to youths who had themselves fathered children before being imprisoned. He also knew that in writing children's stories, the youths would be forced to abandon their tough-guy street language.

Ms. Guzman then recruited Mr. Hillman to run a writing workshop for seven juvenile offenders who volunteered. He began each session by reading a children's book aloud, expecting to teach story structure and character development. But it soon became apparent that the storytelling had another, unexpected effect: the six young men and one young woman, none of whom had lived healthy childhoods that included adults reading stories, were enjoying the tales themselves.

Their favorite, Mr. Hillman said, was *Millions of Cats*, by Wanda Gag. It is an "ugly duckling" kind of story in which an old woman wants to pick a single cat as a pet, from millions of cats who hope to be selected. Her choice is unexpected, a cat who has been least aggressive in seeking her favor.

Mr. Hillman thought that the story was popular because the youths had spent their adolescence driven toward arrogance and pretending to toughness. The notion that humility might have a reward was surprisingly attractive to them.

Mr. Hillman's own favorite was *The Tale of Peter Rabbit*, by Beatrix Potter. Because Peter disobeys his mother's rules, he is trapped in Mr. McGregor's garden. Peter's trouble becomes progressively worse, but he ultimately resolves it and escapes to the security of home. This, Mr. Hillman thought, might be a (a)parable for the young offenders' own lives.

The workshop's goal was the youths' contribution of their work to the community. Each of them wrote a story. Some were fanciful, like a tale about a wizard who can't spell and whose wishes are therefore fulfilled improperly: (2)when he wants a bath, he spells "bat," and so instead of getting a bath, he gets a bat that chases him around his cave. Some stories were more realistic, like one about a girl who has to accept that she is shorter than others.

Ms. Guzman had the storybooks printed, and in May the youths read their stories aloud at a prison meeting to which their parents were invited. Now, as the young offenders earn behavior points that allow them to have supervised trips away from the center, they will be permitted to perform readings for children on the outside.

Thirty years ago, literacy programs were more common in adult and juvenile prisons alike, because reading and writing skills were thought important for future employment. Some adult programs included "bibliotherapy," using literature to explore psychological problems as a step to rehabilitation. But today, prisons give more emphasis to punishment, protection of the community and (b)restitution. The San Antonio program is an exception to that trend, though not the only one. Mr. Hillman now hopes to train writers around the country to use storybooks with youthful offenders. If all children heard fairy tales when they were small enough to sit on laps, though, perhaps (3)fewer would have to do so in prison.

*From LESSONS; Making Fairy Tales Into Learning Tool by Richard Rothstein, The New York Times (2002/07/24)

注 juvenile prison: a prison for young people
battered: abused or subjected to violence

1. 下線部(1)を和訳せよ。
2. 下線部(2)を和訳せよ。
3. 下線部(3)はどうか。日本語でわかりやすく説明せよ。

4. 下線部(a), (b)の語の意味をそれぞれ文脈から判断し、下から最も適切なものを選びなさい。

(a) parable

- イ) A simple story illustrating a moral or religious lesson.
- ロ) A fanciful tale of legendary deeds and creatures, usually intended for children.
- ハ) A piece of humorous writing or a short play that copies and makes fun of another.

(b) restitution

- イ) The act of making good or compensating for loss, damage, or injury.
- ロ) An entertaining and often amusing account of a real or fictitious event.
- ハ) Compensation in the form of payment from the sale of goods.

5. 第4段落("Their plan evolved"で始まる)について、Mr. Faulk が若い囚人たちに童話を書くように勧めた理由を2つ、100字以内の日本語(句読点を含む)で説明せよ。

									100

6. 以下の文章は童話 Millions of Cats の 1)物語の内容、2)若者たちが物語を気に入った理由についてまとめたものである。空欄(イ), (ロ), (ハ)に入れるのにふさわしい内容をそれぞれ日本語で書け。

- 1) 何百万もの猫の中からおばあさんが飼うことに決めたのは、そのなかでもっとも(イ)_____猫であった。
- 2) 刑務所に入る以前のこれらの若者たちは、(ロ)_____ので、(ハ)_____という物語の教訓に魅力を感じたから。

ハイレベル読解問題演習 122

(一橋大 2005)

次の英文を読んで、下の問いに答えよ。

There are, of course, many motivating factors in human behavior, but we would claim that nationalism is particularly worthy of study. Why is it particularly significant? (1)Its significance lies in its power to arouse passionate loyalties and hatreds that motivate acts of extreme violence and courage; people kill and die for their nations. Of course it is not alone in this: people are driven to similar extremes to protect their families, their extended families or 'tribes,' their home areas with their populations, and their religious groups and the holy places and symbols of their religions. However, these other loyalties are often rather (a) to understand than nationalism. Parents making supreme sacrifices for their children can be seen (b) obeying a universal law in life forms, the instinct to protect one's own genetic material. This instinct can also be seen at work in the urge to protect one's extended family; but then the extended family, or on a slightly larger scale the 'tribe,' can also be seen, in perhaps the majority of circumstances in which human beings have existed, (c) essential for the survival of the individual and of the nuclear family. The nation is not generally essential to survival in this way. Of course, if the entire nation were to be wiped out, the individuals and their families would die, but the (d) of the nation as a social unit would not in itself pose a threat to individual or family survival; (2)only if it were to be accompanied by ethnic violence or severe economic collapse would it be life-threatening, and such disastrous events are not an inevitable consequence of the loss of political independence. Conversely, there is no logical connection between the gaining of political independence by a subject nation and increased life chances for its citizens. In many, perhaps the vast majority, of modern nations there is likewise no evidence that in defending the nation one is defending one's own genetic material; the notion that the citizens of modern nations are kinsfolk, while the citizens of (*potentially*) hostile neighbors are aliens, makes no sense in view of the highly varied genetic make-up of most modern populations.

1. 下線部(1)を日本語に訳せ。

2. 下線部(2)を日本語に訳せ。

3. 空欄(a)に入れるのにふさわしい英語 1 語を書け。

4. 空欄(b), (c)には同一の語が入る。その英語 1 語を書け。

5. 空欄(d)に入れるのにふさわしい dis で始まる英語 1 語を書け。

ハイレベル読解問題演習 123

(大阪医科薬科大・医 2011)

下線部を和訳せよ。

Calling a dog "the dog"

It is the nature of scientific study of non-human animals that a few individual animals who have been thoroughly poked, observed, trained, or dissected come to represent their entire species. (1)Yet with humans we never let one person's behavior stand for all of our behavior. If one man fails to solve a Rubik's cube in an hour, we do not extrapolate* from that that all men will so fail (unless that man had bested every other man alive). Here our sense of individuality is stronger than our sense of shared biology. When it comes to describing our potential physical and cognitive capacities, we are individuals first, and members of the human race second.

By contrast, with animals the order is reversed. Science considers animals as representatives of their species first, and as individuals second. We are accustomed to seeing a single animal or two kept in a zoo as representative of their species; to zoo management, they are even unwitting "ambassadors" of the species. Our view of the uniformity of species members is well exemplified in our comparison of their intelligence. (2)To test the hypothesis, long popular, that a bigger brain indicates greater intelligence, the brain volumes of chimpanzees, monkeys, and rats were compared with human brains. Sure enough, the chimp's brain is smaller than ours, the monkey's smaller than the chimp's, the rat's a mere cerebellum-sized** node of the primates' brains. That much of the story is fairly well known. What is more surprising is that the brains used, for comparative purposes, were the brains of just two or three chimpanzees and monkeys. (3)These couple of animals unlucky enough to lose their heads for science were henceforth considered perfectly representative monkeys and chimps. But we had no idea if they happened to be particularly big-brained monkeys, or abnormally small-brained chimps. (Of course, researchers soon found brains bigger than ours: the dolphin's brain is larger, as are the brains of physically larger creatures such as whales and elephants. The "big brain" myth has long been overturned.)

Similarly, if a single animal or small group of animals fails in a psychological experiment, the species is tainted with the brush of

failure. Although grouping animals by biological similarity is clearly useful shorthand, there is a strange result: we tend to speak of the species as though all members of the species were identical. We never make this slip with humans. If a dog, given the choice between a pile of twenty biscuits and a pile of ten biscuits, chooses the latter, the conclusion is often stated with the definite article: "the dog" cannot distinguish between large and small piles — not "a dog" cannot so distinguish.

So when I talk about *the dog*, I am talking implicitly about *those dogs studied to date*. The results of many well-performed experiments may eventually allow us to reasonably generalize to *all dogs*, period. But even then, the variations among individual dogs will be great: your dog may be an unusually good smeller, may never look you in the eye, may love his dog bed and hate to be touched. (4)Not every behavior a dog does should be interpreted as telling, or taken as something intrinsic; sometimes they just are, just as we are.

(出典: Alexandra Horowitz, *Inside of a Dog*, Scribner, 2009. 一部変更あり)

- *extrapolate: to use known facts as a basis for general statements about a situation or about what is likely to happen in the future
- **cerebellum: the bottom part of your brain that controls your muscles

ハイレベル読解問題演習 124

(大阪医科薬科大・医 2011)

下線部を和訳せよ。

I'd be the last person to discourage children from playing sports. Indeed, I wish many more would move away from their computers, put down their iPods and cellphones and devote more time and energy to physical activities. But for many children and adolescents, the problem is the opposite of being sedentary. (1)Encouraged by parents and coaches, many with visions of glory and scholarships, too many young athletes are being pushed to the point of breaking down, physically and sometimes emotionally.

The statistics cited by Mark Hyman in his book, "Until It Hurts: America's Obsession with Youth Sports and How It Harms Our Kids", are sobering indeed: "Every year more than 3.5 million children under 15 require medical treatment for sports injuries, nearly half of which are the result of simple overuse." Injuries are only part of the problem, Mr. Hyman wrote. As adults become more and more involved, he noted, "with each passing season youth sports seem to stray further and further from its core mission of providing healthy, safe and character-building recreation for children."

Mr. Hyman, a sports journalist, was prompted to tackle this subject in part by his own misguided behavior as the father of an athletically talented son. At 13, Ben Hyman—was a prized pitcher for a local team when his shoulder began to hurt — and hurt enough for him to complain — just before the start of league playoffs. Despite a professional assessment that Ben's problem was caused by throwing too many baseballs and a recommendation to rest his arm up to a month, his father put him in the game, and again three days later, urging him to "blaze a trail to the championship." (2)When the injured boy began lamely throwing balls at home plate, Mr. Hyman realized his foolish shortsightedness in putting winning ahead of his son's well-being.

The problem was put into focus three years ago by the American Academy of Pediatrics' Council on Sports Medicine and Fitness. In a report in the academy's journal, *Pediatrics*, Dr. Joel S. Brenner wrote, "Overuse injuries, overtraining and burnout among child and adolescent athletes are a growing problem in the United States." The

goal of youth participation in sports, the council said, "should be to promote lifelong physical activity, recreation and skills of healthy competition." "Unfortunately," it went on, "too often the goal is skewed toward adult (parent/coach) goals either implicitly or explicitly. As more young athletes are becoming professionals at a younger age, there is more pressure to grab a piece of the 'professional pie,' to obtain a college scholarship or to make the Olympic team." But most young athletes and their parents fail to realize that depending on the sport, only a tiny few — 2 to 5 out of 1,000 high school athletes — ever achieve professional status.

Clearly we've gone too far when the emphasis on athletic participation and performance becomes all-consuming and causes injuries that can sometimes compromise a child's future. The sports surgeon Dr. James R. Andrews said that he now sees four times as many overuse injuries in youth sports as he did just five years ago and that more children today are having to undergo surgery for chronic sports injuries. A major factor in the rising injury rate is the current emphasis on playing one sport all year long, which leaves no time for muscles and joints to recover from the inevitable microtrauma that occurs during practice and play. (3)With increased specialization, there is also no cross-training that would enable other muscles to strengthen and lighten the load.

Even when a sport is done seasonally, daily practice can result in problems. The pediatrics council recommends that young athletes "have at least one to two days off per week from competitive athletics, sport-specific training and competitive practice to allow them to recover both physically and psychologically."

(出典: *The New York Times*, May 24, 2010. 一部変更あり)

ハイレベル読解問題演習 125

(東京大 1984)

次の文を読み、その要旨を 80 字から 100 字の日本語で書け。ただし、句読点も字数に数える。

If history is regarded as just the record of the past, it is hard to see any grounds for claiming that it should play any large role in the curriculum of elementary education. The past is the past, and the dead may be safely left to bury their dead. There are too many urgent demands in the present, too many calls over the threshold of the future, to permit the child to become deeply absorbed in what is forever gone by. Not so when history is considered as an account of the forces and forms of social life. Social life we have always with us; the distinction of past and present is indifferent to it. Whether it was lived just here or just there is a matter of slight moment. It is life for all that; it shows the motives which draw men together and push them apart, portrays what is desirable and what is hurtful. Whatever history may be for the scientific historian, for the educator it must be an indirect sociology — a study of society which reveals its process of becoming and its modes of organization. Existing society is both too complex and too close to the child to be studied. He finds no clues into its labyrinth of detail and can mount no heights from which to get a perspective of its arrangement.

(注) labyrinth : 迷宮

(草稿用)

									80
									100

(解答用)

									80
									100

ハイレベル読解問題演習 126

(東京大 2011)

次の英文の下線部(1),(2),(3)を和訳せよ。

(1)The processes of change in early twentieth-century life are most commonly presented in terms of technological inventions such as those in motorized transport, aviation, and radio, or sometimes by reference to new theoretical models such as Relativity and Psychoanalysis. But there were innovations in the sphere of language as well. Although now scarcely remembered as an event of any cultural significance, the arrival of the crossword puzzle in 1924 may be seen as marking a new kind of relationship between the educated public and the vocabulary of the English language. It started as a newspaper trend, promoted by the offer of cash prizes, but it soon established itself as a national tradition, confirmed by the introduction of the first daily crossword in *The Times*, a British newspaper, in 1930. By this time, crossword fans were beginning to appear in fiction, too. (2)Whether there is a connection between enthusiasm for the crossword and the 1930s boom in detective fiction, with its obvious puzzle-solving appeal, can only be guessed at. More certainly, the crossword encouraged a widespread interest in words. (3)From their newspapers, readers were thus sent hurrying to dictionaries, which libraries complained they had repeatedly to replace because they were being roughly handled or even stolen by crossword lovers. The crossword, after all, relies strongly upon prior language regulation, including standard spellings, and the availability of widely respected dictionaries.

ハイレベル読解問題演習 127

(東京大 1995)

次の英文を和訳せよ。

Creative thinking may well mean simply the realization that there's no particular virtue in doing things the way they have always been done.

次の英文の下線部を和訳せよ。

Most of us feel intuitively that time goes on forever of its own accord, completely unaffected by anything else, so that if all activity were suddenly to cease time would still continue without any interruption. For many people the way in which we measure time by the clock and the calendar is absolute, and by some it has even been thought that to tamper with either was to court disaster.

次の英文の下線部を和訳せよ。

Before the sun was full up I went out into the yard and I was shocked to see Ritchie still squatting there reading in the flowerbed; I walked over and spoke to him. But he didn't so much as take his eyes off the book to look at me; you'd have thought he didn't hear me.

READING PASSAGE 1

You should spend about 20 minutes on **Questions 1-13**, which are based on Reading Passage 1 below.

Crop-growing skyscrapers

By the year 2050, nearly 80% of the Earth's population will live in urban centres. Applying the most conservative estimates to current demographic trends, the human population will increase by about three billion people by then. An estimated 109 hectares of new land (about 20% larger than Brazil) will be needed to grow enough food to feed them, if traditional farming methods continue as they are practised today. At present, throughout the world, over 80% of the land that is suitable for raising crops is in use. Historically, some 15% of that has been laid waste by poor management practices. What can be done to ensure enough food for the world's population to live on?

The concept of indoor farming is not new, since hothouse production of tomatoes and other produce has been in vogue for some time. What is new is the urgent need to scale up this technology to accommodate another three billion people. Many believe an entirely new approach to indoor farming is required, employing cutting-edge technologies. One such proposal is for the 'Vertical Farm'. The concept is of multi-storey buildings in which food crops are grown in environmentally controlled conditions. Situated in the heart of urban centres, they would drastically reduce the amount of transportation required to bring food to consumers. Vertical farms would need to be efficient, cheap to construct and safe to operate. If successfully implemented, proponents claim, vertical farms offer the promise of urban renewal, sustainable production of a safe and varied food supply (through year-round production of all crops), and the eventual repair of ecosystems that have been sacrificed for horizontal farming.

It took humans 10,000 years to learn how to grow most of the crops we now take for granted. Along the way, we despoiled most of the land we worked, often turning verdant, natural ecozones into semi-arid deserts. Within that same time frame, we evolved into an urban species, in which 60% of the human population now lives vertically in cities. This means that, for the majority, we humans have shelter from the elements, yet we subject our food-bearing plants to the rigours of the great outdoors and can do no more than hope for a good weather year. However, more often than not now, due to a rapidly changing

climate, that is not what happens. Massive floods, long droughts, hurricanes and severe monsoons take their toll each year, destroying millions of tons of valuable crops.

The supporters of vertical farming claim many potential advantages for the system. For instance, crops would be produced all year round, as they would be kept in artificially controlled, optimum growing conditions. There would be no weather-related crop failures due to droughts, floods or pests. All the food could be grown organically, eliminating the need for herbicides, pesticides and fertilisers. The system would greatly reduce the incidence of many infectious diseases that are acquired at the agricultural interface. Although the system would consume energy, it would return energy to the grid via methane generation from composting non-edible parts of plants. It would also dramatically reduce fossil fuel use, by cutting out the need for tractors, ploughs and shipping.

A major drawback of vertical farming, however, is that the plants would require artificial light. Without it, those plants nearest the windows would be exposed to more sunlight and grow more quickly, reducing the efficiency of the system. Single-storey greenhouses have the benefit of natural overhead light: even so, many still need artificial lighting. A multi-storey facility with no natural overhead light would require far more. Generating enough light could be prohibitively expensive, unless cheap, renewable energy is available, and this appears to be rather a future aspiration than a likelihood for the near future.

One variation on vertical farming that has been developed is to grow plants in stacked trays that move on rails. Moving the trays allows the plants to get enough sunlight. This system is already in operation, and works well within a single-storey greenhouse with light reaching it from above: it is not certain, however, that it can be made to work without that overhead natural light.

Vertical farming is an attempt to address the undoubted problems that we face in producing enough food for a growing population. At the moment, though, more needs to be done to reduce the detrimental impact it would have on the environment, particularly as regards the use of energy. While it is possible that much of our food will be grown in skyscrapers in future, most experts currently believe it is far more likely that we will simply use the space available on urban rooftops.

Questions 1-7

Complete the sentences below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer. Write your answers in boxes 1-7 on your answer sheet.

Indoor farming

- 1 Some food plants, including _____, are already grown indoors.
- 2 Vertical farms would be located in _____, meaning that there would be less need to take them long distances to customers.
- 3 Vertical farms could use methane from plants and animals to produce _____.
- 4 The consumption of _____ would be cut because agricultural vehicles would be unnecessary.
- 5 The fact that vertical farms would need _____ light is a disadvantage.
- 6 One form of vertical farming involves planting in _____ which are not fixed.
- 7 The most probable development is that food will be grown on _____ in towns and cities.

Questions 8-13

Do the following statements agree with the information given in Reading Passage 1? In boxes 8-13 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

- 8 Methods for predicting the Earth's population have recently changed.
- 9 Human beings are responsible for some of the destruction to food-producing land.
- 10 The crops produced in vertical farms will depend on the season.
- 11 Some damage to food crops is caused by climate change.
- 12 Fertilisers will be needed for certain crops in vertical farms.
- 13 Vertical farming will make plants less likely to be affected by infectious diseases.

READING PASSAGE 2

You should spend about 20 minutes on **Questions 14-26**, which are based on Reading Passage 2 below.

THE FALKIRK WHEEL*A unique engineering achievement*

The Falkirk Wheel in Scotland is the world's first and only rotating boat lift. Opened in 2002, it is central to the ambitious £84.5m Millennium Link project to restore navigability across Scotland by reconnecting the historic waterways of the Forth & Clyde and Union Canals.

The major challenge of the project lay in the fact that the Forth & Clyde Canal is situated 35 metres below the level of the Union Canal. Historically, the two canals had been joined near the town of Falkirk by a sequence of 11 locks — enclosed sections of canal in which the water level could be raised or lowered — that stepped down across a distance of 1.5 km. This had been dismantled in 1933, thereby breaking the link. When the project was launched in 1994, the British Waterways authority were keen to create a dramatic twenty-first-century landmark which would not only be a fitting commemoration of the Millennium, but also a lasting symbol of the economic regeneration of the region.

Numerous ideas were submitted for the project, including concepts ranging from rolling eggs to tilting tanks, from giant see-saws to overhead monorails. The eventual winner was a plan for the huge rotating steel boat lift which was to become The Falkirk Wheel. The unique shape of the structure is claimed to have been inspired by various sources, both manmade and natural, most notably a Celtic double-headed axe, but also the vast turning propeller of a ship, the ribcage of a whale or the spine of a fish.

The various parts of The Falkirk Wheel were all constructed and assembled, like one giant toy building set, at Butterley Engineering's Steelworks in Derbyshire, some 400 km from Falkirk. A team there carefully assembled the 1,200 tonnes of steel, painstakingly fitting the pieces together to an accuracy of just 10 mm to ensure a perfect final fit. In the summer of 2001, the structure was then dismantled and transported on 35 lorries to Falkirk, before

all being bolted back together again on the ground, and finally lifted into position in five large sections by crane. The Wheel would need to withstand immense and constantly changing stresses as it rotated, so to make the structure more robust, the steel sections were bolted rather than welded together. Over 45,000 bolt holes were matched with their bolts, and each bolt was hand-tightened.

The Wheel consists of two sets of opposing axe-shaped arms, attached about 25 metres apart to a fixed central spine. Two diametrically opposed water-filled 'gondolas', each with a capacity of 360,000 litres, are fitted between the ends of the arms. These gondolas always weigh the same, whether or not they are carrying boats. This is because, according to Archimedes' principle of displacement, floating objects displace their own weight in water. So when a boat enters a gondola, the amount of water leaving the gondola weighs exactly the same as the boat. This keeps the Wheel balanced and so, despite its enormous mass, it rotates through 180° in five and a half minutes while using very little power. It takes just 1.5 kilowatt-hours (5.4 MJ) of energy to rotate the Wheel —roughly the same as boiling eight small domestic kettles of water.

Boats needing to be lifted up enter the canal basin at the level of the Forth & Clyde Canal and then enter the lower gondola of the Wheel. Two hydraulic steel gates are raised, so as to seal the gondola off from the water in the canal basin. The water between the gates is then pumped out. A hydraulic clamp, which prevents the arms of the Wheel moving while the gondola is docked, is removed, allowing the Wheel to turn. In the central machine room an array of ten hydraulic motors then begins to rotate the central axle. The axle connects to the outer arms of the Wheel, which begin to rotate at a speed of 1/8 of a revolution per minute. As the wheel rotates, the gondolas are kept in the upright position by a simple gearing system. Two eight-metre-wide cogs orbit a fixed inner cog of the same width, connected by two smaller cogs travelling in the opposite direction to the outer cogs — so ensuring that the gondolas always remain level. When the gondola reaches the top, the boat passes straight onto the aqueduct situated 24 metres above the canal basin.

The remaining 11 metres of lift needed to reach the Union Canal is achieved by means of a pair of locks. The Wheel could not be constructed to elevate boats over the full 35-metre difference between the two canals, owing to the presence of the historically important Antonine Wall, which was built by the Romans in the second century AD. Boats travel under this wall via a tunnel, then through the locks, and finally on to the Union Canal.

Questions 14-19

Do the following statements agree with the information given in Reading Passage 2? In boxes 14-19 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

14 The Falkirk Wheel has linked the Forth & Clyde Canal with the Union Canal for the first time in their history.

15 There was some opposition to the design of the Falkirk Wheel at first.

16 The Falkirk Wheel was initially put together at the location where its components were manufactured.

17 The Falkirk Wheel is the only boat lift in the world which has steel sections bolted together by hand.

18 The weight of the gondolas varies according to the size of boat being carried.

19 The construction of the Falkirk Wheel site took into account the presence of a nearby ancient monument.

Questions 20-26

Label the diagram below.

Choose **ONE WORD** from the passage for each answer. Write your answers in boxes 20-26 on your answer sheet.

How a boat is lifted on the Falkirk Wheel

A pair of **20** are lifted in order to shut out water from canal basin

A **21** is taken out, enabling Wheel to rotate

26 raise boat 11 m to level of Union Canal

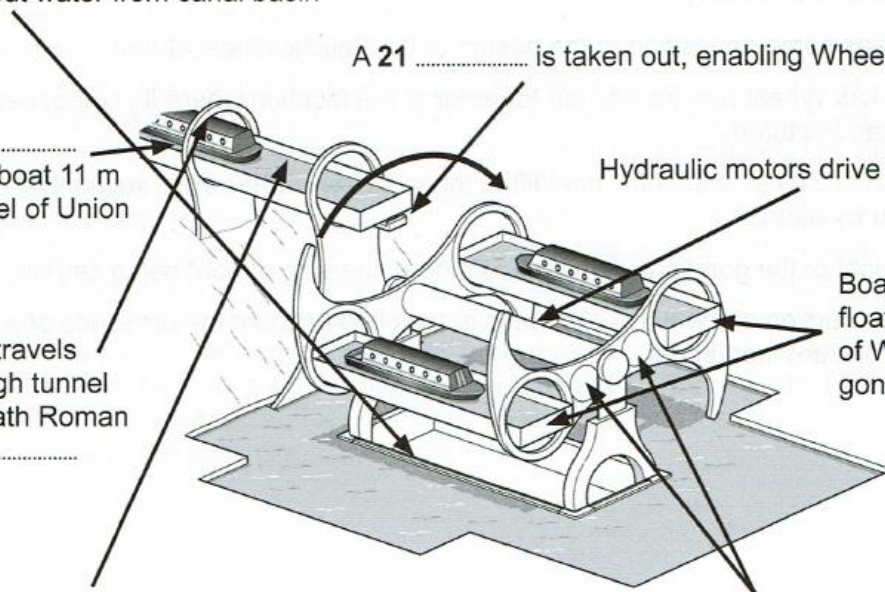
Hydraulic motors drive **22**

Boat travels through tunnel beneath Roman **25**

Boat is raised, floating in one of Wheel's two gondolas

Boat reaches top Wheel, then moves directly onto **24**

A range of different-sized **23** ensures boat keeps upright



ハイレベル読解問題演習 130

(慶應義塾大・医 2023)

NOTES

bustling	full of activity
census	an official survey of the population of a country that is carried out in order to find out how many people live there and to obtain details of such things as people's ages and jobs
given	an assumed fact
integral	Something that is an integral part of something is an essential part of that thing.
precursor	a person or thing that comes before somebody/something similar and that leads to or influences its development

Adapted from *Collins COBUILD English Dictionary for Advanced Learners* (3rd ed.) and *Oxford Dictionary of English* (2nd ed. rev.)

[出典] 以下の資料に基づく

- [1] Ally Hirschlag, "Sounds of a healthy ocean can bring degraded marine ecosystems back to life," *The Washington Post*, 5 February 2022.
- [2] Arakawa Kazuhisa, "A Community of Connections: Looking Forward to the Solo Society," *nippon.com*, 13 January 2020.

[I] 次の英文はサウンドスケープ(音風景)に関する研究について述べたものである。英文を読んで設問に答えなさい。

A healthy marine ecosystem is an orchestra of sounds—the rhythmic humming of fish calling to each other, crabs scuttling along reefs, and sea grass rustling in the currents. (A) しかし、生態系が崩れつつあるときには、音を立てる生命がそこにはあまりいない。 Marine animals tend to avoid these wastelands, so (1) when an ecosystem is degraded by human interference, storms, or heat waves, it has a harder time coming back to life. However, if marine animals think there's life in these sparsely populated environments, they are more likely to check them out and even put down roots.

Mounting research shows that the sounds of a healthy ocean habitat may be a pivotal tool in bringing unhealthy marine ecosystems back to life. (2) Numerous research teams studying soundscape diversity in the ocean over the past few decades have found this to be the case. Just as big cities draw more people, a bustling* part of the ocean seems to attract more marine life. If marine animals hear a healthy-sounding

environment, they're (ア)incline to move in — even if the habitat has been destroyed.

What happened off Lizard Island in the Great Barrier Reef is an example. A group of marine biologists (イ)study ocean soundscapes regularly visited it, because it's a protected area that was once overflowing with life. But in 2016, a long heat wave (ウ)lead to an enormous coral bleaching event that wiped out much of the reef, after which the sounds of the reef diminished significantly, says Steve Simpson, Professor of Marine Biology & Global Change at the University of Bristol. (B)その静けさは、荒涼としたゴーストタウンになってしまったサンゴ礁に合っていた。

Simpson's team decided to see whether they could lure young fish back to the almost barren reefs off Lizard Island using old sound recordings of the marine habitat (エ)make when it was full of life. (3)Sure enough, twice as many fish took up residence near speakers playing the old soundscape recordings than in the areas of the reef that had no acoustic enhancement. This made Simpson's team think that sound could perhaps (オ)use as a tool to actually accelerate recovery.

Sound is a vital part of marine animals' ability to navigate and survive in their environment. In the early stages of life, they (海洋生物は) (C)音を使ってどの生息地が棲家(すみか)と呼ぶに最もふさわしい場所であるかを判断している。 Sound travels long distances in water without being lost to things like currents, making it a long-distance cue. It's much more useful than sight, since water often obscures anything at a distance, as researchers such as Simpson quickly learned while traveling across the Great Barrier Reef. (D)海洋生態系の健全性は、サウンドスケープの多様性、つまりどれだけ複雑で生産的であるかによって評価することができる。

Underwater microphones (hydrophones) are used to record marine soundscapes, which researchers analyze to determine the diversity of marine life within them. They can, for example, count the number of snaps per minute (オ)record in a particular soundscape to determine how many snapping shrimp live there.

(4)When the underwater sounds in a previously declining environment grow more lively, it is a clear indicator that an ecosystem is healing. So with improving underwater listening and recording technology, soundscape assessments will probably become integral* to

showing the complete picture of a restoration project's success. And as the catalogue of underwater sounds grows, scientists are even learning which sounds may help boost restoration efforts in specific ecosystems. "We call it 'Reef DJ,' where we learn how to mix the right track to get the recovery to happen in a particular place in the right way," Simpson says. (5)But the process involves a lot of trial and error. Using targeted sounds may attract some species while it repels others, or it may attract two conflicting species. A sound that attracts young oysters, for example, will not be helpful if it also attracts predators that eat them.

Thanks to advancements in artificial intelligence, however, researchers are no longer alone in analyzing this growing soundscape catalogue. "We've got a team in London now (キ)use artificial intelligence to classify these sounds so that we can listen to the ocean in real time," Simpson says. He adds that there soon may be (6)public systems that can broadcast these real-time records globally so that anyone can hear them. This could be useful to restoration efforts that rely on collaboration among scientists across specialties. It could even help scientists detect ocean habitats that are just beginning to decline so that restoration efforts can be deployed before the ecosystems are in real trouble. And if more civilians connect with ocean soundscapes via these public broadcast systems, the struggling ecosystems may receive even more support.

設問

問1 下線部(A)を英語に訳しなさい。

問2 下線部(1)を日本語に訳しなさい。

問3 下線部(2)を the case が指すものを明らかにして日本語に訳しなさい。

問4 (ア)～(キ)の単語をふさわしい形に変えて解答欄に書きなさい。

問5 下線部(B)を英語に訳しなさい。

問6 下線部(3)を日本語に訳しなさい。

問7 下線部(C)の日本語になるように以下の単語を並べ替え、2 番目、6 番目、13 番目に当たる単語の記号を答えなさい。

(ア) best	(イ) call	(ウ) determine	(エ) habitat
(オ) home	(カ) is	(キ) place	(ク) the
(ケ) to	(コ) to	(サ) sound	(シ) use
(ス) which			

問8 下線部(D)を英語に訳しなさい。

問9 下線部(4)を日本語に訳しなさい。

問10 下線部(5)の文について、①筆者はどのようなプロセスを取り上げているのか、②またどのような理由でそのプロセスが involves a lot of trial and error と述べているのか、①については日本語 40 字以内、②については日本語 80 字以内で書きなさい。

①

									40

②

									80

問11 下線部(6)の public systems によって今後期待できると示唆されていることは次の(い)～(と)のどれか、3つ選びなさい。

- (い) 政府が公的な支援を主導する。
- (ろ) Reef DJ による公共放送を世界中に配信できる。
- (は) 専門分野を超えた共同の修復作業が行える。
- (に) 衰退し始めた海洋生物の生息地を発見できる。
- (ほ) 人工知能により海の音が聴けるようになる。
- (へ) 多くの市民から支援を受けることができる。
- (と) リアルタイムで海洋生物のサウンドスケープを楽しむ。

[II] Read the passage below and answer the questions that follow it.

As is well known, Japan leads the world in terms of its elderly population. Statistics published in September 2019 show that people aged 65 and older now (1)make up 28.4% of the population, the highest proportion ever and the largest percentage for any country in the world. At the same time, there is another less commonly noticed area in which Japan may also lead the world: its "solo" population of people living alone. According to population forecasts released in 2019, single people will make up nearly half of the Japanese population by 2040 ([a] counting as "single" both people who have never married and those separated from their spouse by divorce or death). As for household (ア), the number of single-person households will (2)swell to 39% of the total, while nuclear families consisting of parents and their children will represent just 23% of all households.

This (イ) in Japanese society started in the 1990s, which saw a steep rise in the number of people who remain unmarried at the age of 50. For 70 years after Japan's first population surveys in the 1920s, the percentage of people unmarried at age 50 never rose above 5% for men or women. However, the unmarried population started to increase dramatically from 1990, rising to 23.4% for men and 14.1% for women by the time of the 2015 census*. By 2040, it is estimated that ①33% of men and ②20% of women will remain unmarried throughout their lives. (あ)Proof that this is already happening can be found in the shrinking numbers of new marriages taking place each year. In 1973, 1.1 million couples got married. By 2018, this had fallen almost by half, to just 590,000 marriages.

This population trend has (3)prompted a widespread sense of crisis, and many people warn that the rapid increase in the number of unmarried people is unprecedented in Japanese history. But in fact, this is not the first time the phenomenon has occurred. (い)日本は、常にほとんど誰もが結婚する社会だったわけではない。 In fact, it was not until the end of the nineteenth century that Japan was in a situation where almost everyone got married. Before that, it was not uncommon for people to go through life without getting married. In that sense, there are some surprising (ウ) of similarity between the Edo period and contemporary society.

In 2015, 54% of people aged 20 to 59 were married. This is similar to the proportion of married people aged 16 to 60 in 1865, at the very end of the Edo period. In those days, farmers, merchants, and craftsmen from all around the country were (4)drawn to the capital in huge numbers in search of fortune. [b]Men outnumbered women two to one — a situation with similarities to the male surplus we see in the population today, with around 3.4 million more unmarried men than unmarried women.

Divorce is today common in Japan, with 33% of all marriages ending in divorce. But this is another area in which the Edo period (5)shows surprising similarities with the modern period. Back then, the divorce rate was 4.8 per 1,000 people — higher than the equivalent figure of 4.7 (in 2003) for Russia, the country with the highest rate of divorce in the world today. It is probably (A) the time.

Some aspects of the culture of the time seem to have (6)flourished precisely because Edo was home to so many single men. The fact that they were unable or unwilling to cook for themselves gave rise to the establishment of commercial restaurants on a large scale in the seventeenth century, earlier than anywhere else in the world. Carts moved through the city selling familiar items of Japanese cuisine such as *sushi* and *tempura*, which were probably (7) viewed in the same way we would now view fast food. The *izakaya* pub/restaurant also dates to this period.

There were even early (エ) of the "idols" and "maid cafés" that are part of the contemporary scene in Akihabara today. The *kibyōshi* that were the precursors* to modern *manga* also date from this time. Many men in Edo remained unmarried throughout their lives and did not leave any (オ) behind. Instead, their (カ) was the various forms of popular culture that are enjoyed around the world today.

Japan is famous as an apparently inexhaustible source of *otaku* culture. *Manga*, *anime*, and *cosplay* have moved far from their Japanese roots and become popular around the world. It is more or less a given* that any society with large numbers of single people will give rise to a consumer culture that (8)serves as an alternative route to happiness for people without families. This was true in Edo three centuries ago and remains true in Tokyo today.

(ヱ)The idea that everyone should get married and stay with their spouse for the rest of their life is a recent innovation with a history of

little more than 100 years. The situation we see today, marked by a high percentage of single people and widespread divorce, is in fact a (キ) to what was the norm throughout most of Japanese history.

Questions

1. For each of the underlined verbs marked (1) to (8) in the passage, select one with a similar meaning from the following list that could be used to replace it. Write your selections in the correct form on the answer sheet. Each verb in the list may be selected only once.

attract	bring about	comprise	function
grow	have	regard	thrive

2. Referring to the underlined part marked [a] in the first paragraph, explain in Japanese how "single people" were defined for the purposes of the population forecasts released in 2019.

3. Select one noun from the list below to fill each of the blanks marked (ア) to (キ) in the passage. Write your selections in the correct form (singular or plural) on the answer sheet. Each noun in the list may be selected only once.

composition	decline	descendant	legacy
point	prototype	reversion	role
shift			

4. Give two other ways to express each of the underlined percentages marked ① and ② in the second paragraph.

5. Translate the underlined sentence marked (あ) into Japanese, making it clear what "this" refers to.

6. Rearrange the words below in the correct order to translate the underlined Japanese sentence marked (い), Write the 4th, 8th, and 12th words on the answer sheet.

a all always but in Japan
marriage not society universal was was
which

7. Translate the underlined clause marked [b] in the fourth paragraph into Japanese, and then explain in Japanese what reason is given in the text to account for that situation.

8. The words below are from the blank space marked (A) in the fifth paragraph. Rearrange them in the correct order and write the 3rd, 7th, and 13th words on the answer sheet.

any at common country divorce
in in Japan more other
safe say than that to
was

9. Translate the underlined sentence marked (う) into Japanese.

10. According to the passage, are the following statements true or false? On the answer sheet, indicate those you consider to be true with an A, and those you think are false with a B. If you think it is impossible to tell from the passage whether a particular statement is true or false, indicate this with a C.
- (1) Japan has a higher proportion of people aged 65 or more than any other country.
 - (2) No country has a higher percentage of unmarried people than Japan.
 - (3) Fewer than half as many people got married in Japan in 2018 as in 1973
 - (4) Viewed historically, the high proportion of unmarried people in Japan today is unusual.
 - (5) Japan had a very high divorce rate in the Edo period.
 - (6) A high rate of unmarried people in a country's population can be seen as advantageous to the development of new types of popular culture.
 - (7) The notion that being stably married is a precondition for a happy life is one that Japanese people have taken for granted for centuries.