

READING SECTION

All answers must be indicated on the MARK SHEET.

I Read the following article from a science magazine and answer the questions below.

① It is midsummer in Montana, near Seeley Lake in the American Rocky Mountains. As the two of us make our way through the lush, dewy undergrowth of the forest, the morning mist is lifting and shafts of orange sunlight beam through the trees. To nature's soundtrack of a gurgling stream and twittering birdsong, we check for quarry in live traps. From the third one we visit, a young snowshoe hare stares up at us, silent, its whiskered nose twitching. This juvenile has unwittingly signed itself up for a cross-continental journey for the sake of science.

② The snowshoe hare (also known as the snowshoe rabbit) is one of only eleven species worldwide that turns pure white in winter. The regrowth of its brown summer fur has evolved to synchronize with average snowmelt times — dates that have been relatively stable for centuries. Not any more. In temperate regions, periods of snow cover are getting shorter—one of the strongest signals of climate change. Snowmelt times are changing so quickly that hares are being caught out of fashion—staying white when their snowy background has already melted. This young hare will be transported across the country to North Carolina State University, where it will help my companion Marketa Zimova and her colleagues answer an important question: Can the snowshoe hare adapt to the shifting climate?

③ Scientists have long been fascinated by animal camouflage. The story of the peppered moth is a classic example of how background matching can, through natural selection, track human-imposed habitat changes. Before the industrial revolution, the vast majority of peppered moths were pale in color, like the trees and lichen they rested on. Within 50 years, the darker-winged ones had become more numerous as this provided better camouflage on the now soot-covered trees.

④ However, early investigations into camouflage were often flawed because researchers based their work on their own vision, says Sami Merilaita at

Abo Akademi University in Finland. What's important, he says, is how the animals' predators see. The snowshoe hare is the primary prey of the lynx and forms part of the diet of a host of other mammals and birds. Birds have good color vision but mammals do not. "Mammals typically have dichromatic vision, like color-blind people," says Merilaita. "They can't distinguish between green and orange very well, and probably green and brown also." So, while being able to run fast helps the snowshoe hare evade some predators, for others its camouflage is vital. But animals have other interests, such as finding food and mates, and these "may conflict with the need to maximize their background matching," says Merilaita.

⑤ In fact, some species that turn white in winter appear to delay the change back on purpose. The rock ptarmigan, a bird that lives in the Arctic, has pure white feathers in winter and mottled brown ones in summer. As the snow melts in spring, females quickly molt and change color, but males take almost a <sup>4</sup> month to do so. Not surprisingly, the males experience higher mortality than females during this period. Clues about why ptarmigan remain dangerously white have emerged from a 17-year field study by Bob Montgomerie at Queen's University in Ontario, Canada, and his team. Their observations suggest that the males show off their stark whiteness to attract females. Then, when the hens are no longer fertile, the cocks deliberately <sup>5</sup> soil their plumage with mud until they molt. In an attempt to test this idea, the researchers dirtied the feathers of male ptarmigans in the mating season with a black "permanent" marker. It took the birds just forty-eight hours to completely remove the ink, says Montgomerie. "It was a strong clue that staying white was important, and that the birds were actively keeping themselves as clean as possible."

⑥ By contrast, snowshoe hares appear to be unaware of whether or not they are camouflaged. "They do not act in any way to reduce color

mismatch, or to reduce the negative consequences of mismatch,” says Zimova. When mismatched with their environment, they don’t hide more, flee more or hang out in areas that match their coat. In short, these creatures don’t seem very smart.

⑦ If snowshoe hares can’t adapt their behavior, can they at least shift the timing of their molts? Zimova and her colleagues recorded coat-color change in wild hares over three Montana winters starting in 2010. Locating radio-tagged hares weekly and noting what proportion of the fur cover was white, they examined the length of time individuals were mismatched with their background—defined as a difference of at least 60 percent between coat whiteness and snow cover. On average, this came in at nine days a year. And the mismatched hare paid a price; it was seven percent less likely to survive the week to the next assessment than one whose coat matched its environment. The study also revealed that the dates when molting began in autumn and spring remained stable, despite large annual differences in snow duration. This suggests that the main trigger of molting is the length of the day, not <sup>6</sup> snow cover. Other factors may also be involved. Looking closely at the two molting seasons the team noticed that hares took about forty days to change color in autumn whatever the conditions. In spring, however, the rate of change was more flexible, with the molt lasting sixteen days longer in the year with the longest period of snow cover compared with the shortest. The source of this flexibility is unclear. Temperature and duration of snow cover appeared to have little effect in autumn. “In spring it might be the high reflectance of snow that enters the eye and <sup>7</sup>triggers a chemical reaction that slows down the change to brown,” says Zimova.

⑧ The researchers can now test out their theories and investigate the genetics underlying coat change at a futuristic-looking facility on the campus of North Carolina State University. In a series of chambers with stainless-steel walls, the young hare Zimova and I trapped, together with a dozen or so others, is being exposed to a variety of conditions to see how these influence the timing and length of molt. From a central control system,

the researchers can manipulate day length, temperature, and light conditions to imitate the reflectance of snow or bare ground—mechanisms that might drive the hares’ twice-yearly wardrobe change.

⑨ The team calculates that, if the snowshoe hare fails to adapt, by 2099 reduced snow duration will increase mismatch to between 39 and 68 days a year. Theoretically, that could drive the species to extinction. It is unlikely to come to that, however. <sup>8</sup> Given that individuals vary widely in the timing of their molt, and that those with the wrong color fur face an increased risk of death, natural selection is likely to kick in by favoring quick changers. “There is large potential for adaptation through evolutionary change,” says Zimova. So as long as some snowshoe hares can stay hidden as snow cover decreases, the species isn’t doomed.

[Adapted from Lesley Evans Ogden,  
“Total white out,”  
*New Scientist* (November 23, 2014)]

(1) Choose the best way to complete these sentences about Paragraphs ① to ⑨.

1 In Paragraph ① the writer	2 In Paragraph ② the writer
3 In Paragraph ③ the writer	4 In Paragraph ④ the writer
5 In Paragraph ⑤ the writer	6 In Paragraph ⑥ the writer
7 In Paragraph ⑦ the writer	8 In Paragraph ⑧ the writer
9 In Paragraph ⑨ the writer	

- A criticizes the influence of Darwin's ideas on how evolutionary biology has developed in recent years.
- B depicts the research facilities recently installed at an American university for studying the conditions influencing how animals change their coats.
- C describes how two female researchers capture a young white hare in a snow-covered forest in the depths of winter.
- D details not only the variations in when, but also the factors affecting when, snowshoe hares begin to change their coats during both the fall and spring seasons.
- E discusses the impact of rapid climate change on one of the small number of species whose coloring changes to white in the winter.
- F evokes both the sights and sounds of an early morning scene in a natural setting where a wild animal is found caught in a trap.
- G gives an overview of current research into animal camouflage, touching both on how predators see and on why background matching is not the only factor involved.
- H notes that, unlike the rock ptarmigan, the snowshoe hare does not alter its behavior to compensate for a lack of fit between its coat and the natural background.
- I offers a well-known historical instance of a species adapting to significant physical changes to its habitat caused by human activity.
- J praises the cooperation between researchers in America, Canada, and Finland in facing up to the threat to ecological diversity from climate change.
- K provides details concerning a species where certain members act to enhance or disguise their white coloring in relation to the mating season.
- L suggests that natural selection is likely to permit the snowshoe hare to survive, since there is a good deal of individual variation regarding seasonal changes in coloring.

(2) From the list below, select the most appropriate way to complete sentences concerning each of the following four people referred to in the article.

1 Merilaita                      2 Montgomerie                      3 Ogden                      4 Zimova

- A belongs to a team of scientists at North Carolina State University which has recently carried out extensive research tracking changes in fur color in wild hares using radio tagging.
- B conducted a research project that involved blackening the white feathers of male members of a species of arctic bird during the mating season.
- C has collected data that suggests snowshoe hares take considerably longer to change their coloring in the fall than in the spring.
- D insists that research concerning an animal's camouflage must take into account the characteristics of the vision of the animal's predators.
- E is carrying out a comparative survey of all eleven species which turn completely white in winter in order to provide camouflage to protect them from predators.
- F is in charge of futuristic research facilities in the far north of Finland to test changing animal camouflage via a central control system that can vary light and temperature conditions.
- G rejects the long-standing theory that pepper moths became darker in color through adaption to changes in their environment due to industrialization.
- H writes for a science magazine and accompanies a researcher from North Carolina State University on an expedition to trap snowshoe hares in the Rocky Mountains.

(3) Choose the **THREE** statements below which **DO NOT** agree with what is written in the article. You must **NOT** choose more than **THREE** statements.

- A According to the researcher at a Finnish university, both mammals and birds have difficulty telling the difference between green and colors such as orange and brown.
- B Apart from the snowshoe hare, there are only ten other species in the world that change their color to pure white in winter.
- C From the beginning of the industrial revolution, it took only ten years for pepper moths with darker wings to become more common than those with lighter-colored ones.
- D It took only two days for male rock ptarmigans to remove from their white feathers the supposedly permanent black ink applied during the mating season by a research team.
- E More males than females die during the spring among rock ptarmigans in the Arctic, because the males typically keep their white winter feathers longer.
- F Should current trends continue, by the late 21st century the average period of mismatch between the snowshoe hare and its environment will increase to almost three months.
- G Starting in 2010, the North Carolina State University research team recorded changes in the fur color of wild snowshoe hares in Montana over three winters.
- H The two people described making their way through the Montana forest in the opening paragraph are Ogden and Zimova.

(4) Choose the best way to complete each of these sentences, which refer to the underlined words in the passage.

1 Here synchronize means to match

- A level.
- B positioning.
- C speed.
- D temperature.
- E timing.

2 Here soot means

- A drops of rain.
- B light coating.
- C particles of carbon.
- D spots of color.
- E transparent film.

3 Here flawed suggests that the researchers' conclusions were

- A abandoned.
- B ignored.
- C invalid.
- D misunderstood.
- E rejected.

4 Here molt means to

- A become darker.
- B become lighter.
- C gain camouflage.
- D lose camouflage.
- E lose hair or feathers.

5 Here soil means to

- A clean.
- B color.
- C dirty.
- D disguise.
- E whiten.

6 Here trigger means

- A aim.
- B result.
- C stimulus.
- D target.
- E weapon.

7 Here reflectance refers to how

- A distance is measured.
- B heat accumulates.
- C light rebounds.
- D sound travels.
- E time is measured.

8 Here extinction refers to when

- A an animal adapts.
- B a habitat disappears.
- C a species dies out.
- D the environment gets worse.
- E the temperature increases.

## II Read the following passage and answer the questions below.

This is the story of a lost medieval city you've probably never heard about. Benin City, originally known as Edo, was once the capital of a pre-colonial African empire located in what is now southern Nigeria. The Benin empire was one of the oldest and most highly developed states in west Africa, dating back to the 11th century.

The *Guinness Book of Records* describes the walls of Benin City and its surrounding kingdom as the world's largest earthworks carried out prior to the [ 1 ] era. According to estimates by the *New Scientist's* Fred Pearce, Benin City's walls were at one point "four times longer than the Great Wall of China, and consumed a hundred times more material than the Great Pyramid of Cheops in Egypt."

Situated on a plain, Benin City was enclosed by massive walls in the south and deep ditches in the north. Beyond the city walls, numerous further walls were built that separated the surroundings of the capital into around 500 distinct villages.

Pearce writes that these walls "were all dug by the Edo people and extended for some 16,000 km in all, in a mosaic of more than 500 interconnected settlement boundaries. They took an estimated 150 million hours of digging to construct, and are perhaps the largest single archaeological phenomenon on the planet." [ 2 ] any trace of these walls exists today.

Benin City was also one of the first cities to have a system of street lighting. Huge metal lamps, many feet high, were built and placed around the city, especially near the king's palace. Fueled by palm oil, they were lit at night to provide illumination for traffic to and from the palace.

When the Portuguese first "discovered" the city in 1485, they were [ 3 ] to find this vast kingdom made of hundreds of interlocked cities and villages in the middle of the African jungle. They called it the "Great City of Benin," at a time when there were hardly any other places in Africa the Europeans acknowledged as a city. Indeed, they classified Benin City as one of the most beautiful and best planned cities in the world.

In 1691, the Portuguese ship captain Lourenço Pinto observed: "Great Benin, where the king resides, is larger than Lisbon; all the streets run straight and as far as the eye can see. The

houses are large, especially that of the king, which is richly decorated and has fine columns. The city is wealthy and industrious. It is so well governed that theft is unknown and the people live in such security that they have no doors to their houses."

In contrast, London at the same time was a city of "thievery, prostitution, murder, bribery, and a thriving black market," according to Bruce Holsinger, professor of English at the University of Virginia.

Benin City's planning and design was done according to careful rules of symmetry, proportion, and repetition now known as fractal design. The mathematician Ron Eglash, author of *African Fractals* — which examines the patterns underpinning architecture, art, and design in many parts of Africa — notes that the city and its surrounding villages were purposely laid out to form perfect fractals, with similar shapes repeated in each room, and in the house as a whole, and in the [ 4 ] of houses in the village in mathematically predictable patterns.

When Europeans first came to Africa, they did not understand the principles underlying the city's design. As Eglash puts it: "It never occurred to them that the Africans might have been using a form of [ 5 ] that Europeans hadn't even discovered yet."

At the center of the city stood the king's court, from which extended 30 very straight, broad streets, each about 40 meters wide. These main streets, which ran at right angles to each other, had underground drainage to carry away storm water. Many narrower side and intersecting streets extended off them. In the middle of the streets was grass on which animals fed.

"Houses are built alongside the streets in good order, one close to another," wrote the 17th-century Dutch visitor Olfert Dapper. "Decorated with gables and steps, they are usually broad with long galleries inside, and are divided into many rooms which are separated by walls made of red clay, very well erected."

Dapper also observed that wealthy [ 6 ] kept these walls "as shiny and smooth by washing and rubbing as any chalk wall in Holland, and they are like mirrors. The upper floors are made of the same sort of clay. Moreover, every house is provided with a well for the supply of fresh

water.”

Family houses were divided into three sections: the central part was the husband’s quarters, looking towards the road; to the left the wives’ quarters; and to the right the young men’s quarters.

Daily street life in Benin City consisted of large crowds going through wide streets, with people colorfully dressed—some in white, others in yellow, blue or green—and the city captains acting as judges to [ 7 ] lawsuits, moderating debates in the numerous galleries, and settling minor conflicts in the markets.

The early foreign explorers’ descriptions of Benin City portrayed it as a place free of crime and hunger, with large streets and houses kept clean—a city filled with courteous, honest people, and run by a [ 8 ] and highly sophisticated bureaucracy.

But what impressed the first visiting Europeans most was the wealth, artistic beauty, and magnificence of the city. The city was split into eleven divisions, each a small copy of the king’s court, comprising a series of compounds containing accommodation, workshops, and public buildings—interconnected by innumerable doors and passageways, all richly decorated with the art that made Benin famous.

The exterior walls of the courts and compounds were decorated with horizontal ridge designs and clay carvings portraying animals, warriors, and other symbols of power. Shiny stones were also pressed into the wet clay, while in the palaces, pillars were covered with bronze plaques illustrating the victories of former kings and nobles.

At the height of its greatness from the 12th century—well before the start of the European Renaissance—the kings of Benin City rewarded craftsmen with gifts and wealth, in return for their representation of the kings’ great exploits in elaborate bronze sculptures.

“These works from Benin are equal to the very finest European bronzes,” wrote Professor Felix von Luschan, formerly of the Berlin Ethnological Museum. “Benvenuto Cellini could not have cast them better. Technically, these bronzes represent the very highest possible [ 9 ].”

European nations saw the opportunity to develop trade with the wealthy kingdom, importing ivory, palm oil, and pepper—and

exporting guns. At the beginning of the 16th century, word quickly spread around Europe about the beautiful African city, and new visitors flocked in from all parts of Europe. Their glowing testimonies were recorded in numerous voyage notes and illustrations.

Now, however, the great Benin City is lost to history. Its decline began in the 15th century, sparked by internal conflicts linked to the increasing European interference and slave trading at the borders of the Benin empire. Finally, in 1897, Benin City was destroyed by British soldiers. It was looted, blown up, and burned to the ground.

Nowadays, while a modern Benin City has risen on the same plain, the ruins of its former, grander namesake are not mentioned in any tourist guidebook to the area. They have not been preserved, nor has a miniature city or touristic replica been made to keep alive the memory of this great ancient city.

Chief Enogie Aikoriogie’s house—probably built in the second half of the 19th century—is considered the only substantial reminder of the old Benin City. The house possesses features that match the horizontally fluted walls, pillars, central drain, and carved decorations of ancient Benin.

Curious tourists visiting Edo state in Nigeria are often shown places that might once have been part of the ancient city—but its walls and moats are nowhere to be seen. Perhaps a section of the great city wall, one of the world’s largest man-made monuments, now lies bruised and battered, neglected and [ 10 ], in the Nigerian bush.

A discontented Nigerian puts it this way: “Imagine if this monument was in Britain, the USA, Germany, Canada or India? It would be the most visited place on earth, and a tourist mecca for millions of the world’s people, worth countless billions in annual tourist revenue.”

Instead, if you wish to get a glimpse into the glorious past of the ancient Benin kingdom—and a better understanding of this lost city—you are better off visiting the Benin Bronze Sculptures section of the British Museum in central London.

[Adapted from Mawuna Koutonin, “Benin City, the mighty medieval capital now lost without trace,” *The Guardian* (March 18, 2016)]

- (1) Choose the ONE way to complete each of these sentences that DOES agree with what is written in the passage.
- 1 The earthworks of the Benin empire
    - A did not extend beyond the walls of Benin City.
    - B have survived intact to the present day.
    - C included both walls and ditches.
    - D surrounded the Great Pyramid of Cheops.
    - E were constructed mostly with machines.
  - 2 The street lamps in Benin City
    - A aided travel to and from the king's palace.
    - B were carried by the Edo people.
    - C were constructed entirely of wood.
    - D were fueled by petroleum.
    - E were located only near the king's palace.
  - 3 The mathematician Ron Eglash
    - A believes that ancient African architecture was disorganized.
    - B collaborated with the Portuguese ship captain Lourenço Pinto.
    - C disagrees with the views of English professor Bruce Holsinger.
    - D invented an architectural method called fractal design.
    - E wrote a book about the patterns in African art and design.
  - 4 Olfert Dapper
    - A complained about the lack of fresh water in Benin City.
    - B noted the absence of accommodation for young women in Benin family houses.
    - C observed that houses in Benin City were much dirtier than those in Holland.
    - D visited Benin City in the same century as Lourenço Pinto.
    - E was impressed by the number of mirrors in the houses in Benin City.
  - 5 Each of Benin City's eleven divisions
    - A had its own separate bureaucracy.
    - B included a special field where animals could feed.
    - C was based on the design of the king's court.
    - D was carefully inspected by European visitors.
    - E was designed so that workshops and public buildings were not connected with each other.
  - 6 The bronze sculptures of Benin City
    - A depicted the daily life of the common people.
    - B depicted the great achievements of its kings.
    - C have been preserved in the Berlin Ethnological Museum.
    - D indicate the low social status of artists in the Benin empire.
    - E were surpassed in quality by those of Benvenuto Cellini.
  - 7 Nowadays, works of art from Benin City
    - A are a significant source of tourist revenue for Nigeria.
    - B are being uncovered by tourists and amateur archaeologists.
    - C are on display in central London.
    - D can only be seen in the Nigerian bush.
    - E survive only in tourist guidebooks and miniature replicas.
  - 8 The Benin empire
    - A began and reached a peak in the 11th century, and started to decline in the 15th century.
    - B began in the 11th century, and reached a peak after it started to trade with Europeans at the beginning of the 16th century.
    - C began in the 11th century, had its period of greatness from the 12th century, and started to decline in the 15th century.
    - D began in the 11th century, was first discovered by Europeans in 1485, and reached a peak around the year 1691.
    - E began in the 12th century, was first discovered by Europeans in 1485, and began to decline in the 16th century.

(2) Choose the FIVE statements below which DO NOT agree with what is written in the passage. You must NOT choose more than FIVE statements.

- A Benin City was located in what is now the country of West Africa.
- B The walls of Benin City were longer than the Great Wall of China.
- C Benin City was one of the first cities to have a system of street lighting.
- D When the Portuguese first came to Benin City, they thought that it was dirty, disorganized, and ugly.
- E Benin City was designed according to the principles of what is now known as fractal design.
- F The king's court was located at the western edge of Benin City.
- G The walls of houses in Benin City were constructed of white clay decorated with precious stones.
- H Family houses in Benin City were divided into three sections.
- I Benin City was richly decorated with art.
- J Europeans were impressed by Benin City but reluctant to trade with it.
- K The slave trade played a role in Benin City's decline.
- L Chief Enogie Aikoriogie's house contains typical features of the architecture of ancient Benin.

(3) Choose the best item to fill each of the numbered blanks [ 1 ] to [ 10 ] found in the passage.

- |       |               |              |              |               |                |
|-------|---------------|--------------|--------------|---------------|----------------|
| [ 1 ] | A ancient     | B Asian      | C European   | D industrial  | E medieval     |
| [ 2 ] | A Almost      | B Barely     | C Merely     | D Only        | E Totally      |
| [ 3 ] | A amused      | B concerned  | C frightened | D relieved    | E surprised    |
| [ 4 ] | A categories  | B chains     | C groups     | D roofs       | E stacks       |
| [ 5 ] | A archaeology | B economics  | C geography  | D mathematics | E physics      |
| [ 6 ] | A architects  | B bankers    | C merchants  | D residents   | E visitors     |
| [ 7 ] | A activate    | B dissolve   | C resolve    | D satisfy     | E understand   |
| [ 8 ] | A centralized | B confused   | C deep       | D limited     | E selfish      |
| [ 9 ] | A achievement | B completion | C idea       | D reward      | E satisfaction |
| [10]  | A chosen      | B forgotten  | C incomplete | D unaware     | E worried      |



WRITING SECTION
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**All answers must be written clearly within the boxes provided on the ANSWER SHEET.**

**Ⅲ Read the following passage and briefly summarize the main points in JAPANESE.**

The right to water is an essential right since water plays a major role in the daily life of all people, whether adults or children. The right to water implies the right to drinking water and to adequate sanitation. Water is particularly used for direct consumption, cooking, and farmland irrigation.

There are several important principles to guarantee the survival and health of everyone. Firstly, enough water must be available for both personal and household uses. The United Nations has estimated that every person needs from 20 to 50 liters of water each day. Also, adequate facilities and services for water must be accessible in the home or nearby. Furthermore, the water, facilities, and services must be affordable for all. Finally, water must be drinkable, that is, clean and free of harmful substances. Clean water must be available and accessible in all circumstances, for example, even if there is a flood that pollutes water or a drought.

The development of a healthy child requires access to water. The water needs of infants and young children are much higher than those of adults. If children suffer a significant lack of water, this may irreversibly harm their physical and mental development.

Also, the presence of safe water and adequate sanitation in schools contributes significantly to children's education. Their learning can be seriously restricted if the school they go to doesn't have clean drinking water or sanitary toilets. Children that drink unsafe water and use dirty toilets are at high risk of getting ill and, therefore, missing school. Moreover, in developing countries many girls do not attend school at all due to lack of proper toilets for them. Better hygiene in schools means that children will be less at risk of getting ill. They will attend school more often, which will contribute to greater social development and economic development.

[Adapted from "Right to water," Humanium

URL: <http://www.humanium.org/en/fundamental-rights/water/>]

**Ⅳ In recent years, many local and national governments have considered imposing a tax on sugary drinks (Coca-Cola, Pepsi, etc.), because such drinks are thought to be a major contributor to health problems such as being significantly overweight. Would you support or oppose a tax on sugary drinks? Write a paragraph in ENGLISH, providing specific reasons and examples to support your opinion.**

[以下余白]

## LISTENING SECTION

All answers must be indicated on the MARK SHEET.

I First listen to a monologue which you will hear only ONCE, and decide whether each of the statements below is True (T) or False (F), according to what the speaker says. (This is the reading of an opinion piece by Hiroshi Mikitani, the CEO of Rakuten.)

- 1 When Mikitani first announced that Rakuten would start using English for all of its business, his audience was enthusiastic about the policy.
- 2 Japanese executives usually do not criticize each other publicly.
- 3 English, not Chinese, is the language of international business because English has more native speakers than Chinese does.
- 4 Many Japanese companies are more interested in international markets than in domestic ones.
- 5 Using English can make Japanese companies less hierarchical and more efficient.
- 6 Even in European companies, some workers are frightened when they need to use English for their jobs.
- 7 The first board meeting at Rakuten using English took six times as long as a typical meeting before Englishization.
- 8 Over 90% of Rakuten workers have already reached the target level of English ability.
- 9 Rakuten workers no longer need to rely on translators when making business phone calls.
- 10 One manager came to support the Englishization policy after attending business meetings in the Philippines which were conducted in English.
- 11 Rakuten has been expanding outside Japan by buying web sites and apps from foreign companies.
- 12 80% of the engineers hired at Rakuten since 2011 have been foreigners.
- 13 Having Japanese employees who are skilled in English will eliminate the need to hire foreign workers in the future.

II Now listen to the opening of a recorded interview, which you will hear only ONCE, and choose the most appropriate way to complete each of the sentences below. (The recreated interview concerns the early career of Dorothea Lange (1895-1965), the pioneering American photojournalist best known for her pictures documenting migrant workers and the rural poor during the Great Depression of the 1930s, and Japanese internees during the Second World War.)



Dorothea Lange, 1936



Her "White Angel Breadline, San Francisco," 1933

- 1 The original interview with Dorothea Lange was recorded in  
A New Orleans in 1965. B New York in 1964.  
C San Diego in 1956. D San Francisco in 1946.
- 2 The interviewer understands that Dorothea Lange decided to become a photographer at the age of  
A seventeen. B twenty. C twenty-four. D twenty-seven.
- 3 Dorothea Lange's mother was a  
A librarian. B photographer. C receptionist. D teacher.
- 4 When she decided to become a photographer Dorothea Lange did not have a  
A bank account. B camera. C dark room. D telephone.
- 5 While still at school Dorothea Lange got a part-time job at a studio specializing in  
A funerals. B landscapes. C portraits. D weddings.
- 6 In her part-time job, Dorothea Lange had to perform many tasks. These did NOT include  
A changing photographic plates. B painting pictorial backdrops.  
C retouching photographic images. D soliciting new business.
- 7 According to the interviewer, Dorothea Lange arrived in San Francisco around  
A 1916. B 1919. C 1926. D 1929.
- 8 According to Dorothea Lange, many great photographs can be found hidden in  
A art museum basements. B the columns of old newspapers.  
C the pages of magazines. D people's top drawers.
- 9 Dorothea Lange says that she was a portrait photographer in San Francisco for  
A only two years. B nearly ten years.  
C over twenty years. D most of her life.
- 10 In San Francisco Dorothea Lange became bothered by the fact she only took pictures of people who  
A paid her for it. B she liked.  
C were good-looking. D were rich.
- 11 In the period following the stock market crash of 1929, Dorothea Lange  
A got married and had a child. B suffered a nervous breakdown.  
C joined the Communist Party. D was divorced from her first husband.
- 12 The interviewer describes the photograph "White Angel Breadline, San Francisco" as probably Dorothea Lange's  
A finest. B most simple. C most well-known. D worst.

[以下余白]

Question 1. First listen to the talk, which you will hear only ONCE.

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Five years ago, I stood before several thousand mostly native Japanese speakers and addressed them in English. From now on, I told them, Rakuten -- Japan's largest online marketplace, of which I am the chief executive officer -- would conduct all of its business, from official meetings to internal e-mail, in English. I still remember the shocked expressions on the listeners' faces.

Their reaction was certainly understandable. No major Japanese company had ever changed its official language. But the simple fact is that adopting the English language is vital to the long-term competitiveness of Japanese business.

Of course, my decision faced plenty of criticism. One of my fellow Japanese CEOs went so far as to call the plan "stupid" -- notable, in a country where executives do not generally criticize one another in the press. Clearly, I would have to fight an uphill battle for cultural acceptance.

But I was not deterred. A seismic shift demands that we adapt to a new landscape, and a seismic economic shift is exactly what Japan has undergone in recent decades, driven by the forces of globalization and digitization. The only way to compete in this inter-connected Internet age is to speak the language of the market -- and that language is English. Though the number of native English speakers is dwarfed by the number of, say, native Chinese speakers, English is the language of global business.

Yet Japan continues to work inside a linguistic bubble -- not least because many firms in Japan are oriented towards the domestic market and pay little heed to global trends. But this approach is becoming increasingly difficult to justify. Switching to English makes Japanese firms more competitive, while opening employees' eyes to the outside world.

There is another benefit to using English in business: The language has few power markers. Its use can therefore help to break down the hierarchical, bureaucratic barriers that are entrenched in Japanese society and reflected in Japanese conversation. This could boost efficiency.

Of course, the Englishization of companies is not easy. The internal shake-up is profound. Staff who speak English well suddenly acquire a higher status: those who do not fear for their careers. And this is true not just for Japan. A recent study in *Management International Review*, assessing Air France's 2004 takeover of the Dutch airline KLM, found that the decision to make English the merged company's language thrilled some employees and scared others.

For Japan, low levels of English fluency compound the challenge. In Asia, the country ranks 13th in English fluency, behind both China and South Korea.

In Rakuten's case, adjustment certainly took time. At first, meetings often felt awkward. The first board meeting after the Englishization decision took four hours to complete -- double the normal duration. But whenever executives asked if they could say certain things in Japanese, I told them no. I knew that the challenge would pay off -- and it has.

Today, more than 90 per cent of our employees have achieved the required level of English. This has helped to make our operations more efficient than ever. An employee anywhere in the world can pick up a phone and get an immediate answer, instead of working through a translator.

The impact can also be felt on an individual level. One manager, who initially feared that he would have to leave the company, changed his tune after attending an intensive English-language school in the Philippines, where he met students from South Korea and China who were committed to mastering the language. His English improved quickly, and so did his standing in the company. More importantly, he gained a much-needed global perspective.

Thanks partly to Englishisation, Rakuten has been able to expand outside Japan, buying e-commerce sites like Ebates in the United States and PriceMinister in France.

More recently, we acquired the messaging app Viber and bought minority stakes in the American ride-hailing app Lyft and online scrapbooking site Pinterest. The fact that we all communicated in English smoothed these transitions, as the acquired companies' management did not get the sense that a foreign company had taken over.

Within Japan, Englishisation has enabled us to hire more non-Japanese employees, including 80 per cent of our new engineers since 2011.

A new casual vibe permeates our office, with employees happily shunning the monotonous navy suit typical of the Japanese workplace. This diverse and modern approach is breathing new life into a moribund business culture.

Japan's population is ageing. Our economy is slowing. We are not producing enough coders and digital gurus. The only way we can catch up and restore growth and dynamism is by looking outside our borders for talent.

For that, we have to be speaking English.

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Adapted from Hiroshi Mikitani, "Japan's new business language – English," *Straits Times* (April 25, 2016)

URL: <<http://www.straitstimes.com/opinion/japans-new-business-language-english>>

Question 2. Now listen to the interview, which you will again hear only ONCE.

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RICHARD K. DOUD: This is a recorded interview with Dorothea Lange, the pioneer photojournalist whose pictures of migrant workers and rural poverty during the depression make her one of the most important visual artists of our times. The recording is made in New York City, on May 22, 1964. The interviewer is Richard K. Doud, on behalf of the Archives of American Art. Thank you very much for your participation, Ms Lange.

DOROTHEA LANGE: It's my pleasure.

RICHARD K. DOUD: I believe you decided to become a photographer when you were only seventeen. I want to ask you first, why you chose photography rather than, say, painting or design. It seems that at that time, before the First World War, photography would be an unlikely choice for a young woman.

DOROTHEA LANGE: Well, I have no convincing answer. Many of my decisions, I don't know where they came from. All of a sudden I know what I'm going to do. I was young, and faced with how to earn my own living. My mother was a librarian, taking care of myself and my brother, and the family thought that the way for a woman to earn a living was to go into teaching, which I didn't want to do. I decided, on a certain day, that I was going to be a photographer instead. I thought at the time that I could make money easily. I'd take simple photographs of people, starting with those that I knew. I remember poring over books of photos in the library when I was a kid in high school and this gave me a general idea. This was before I even owned a camera, but I knew that was what I wanted to do.

RICHARD K. DOUD: Once you decided this was it, how did you go about getting started?

DOROTHEA LANGE: In what free time I had -- I wasn't yet through school -- I got myself a part-time job at a commercial studio where they did portraits. I did retouching, and what is called "solicitation." I sat all day at the telephone calling lists of people to drum up business. I went out on jobs, and arranged the bride's veil, and changed photographic plates, was a receptionist, and a dark-room girl. It was interesting, it was exciting, and I learned much about people's foibles and vanities. And so I got a lot of -- I guess the right phrase is, grass-roots experience.

RICHARD K. DOUD: After this initial experience, then, I understand that you decided to work your way around the world with a camera, and wound up in San Francisco around 1916. That you lost your money, and started a studio out there. You were taking portraits, I understand, until you began to take an interest in life on the streets.

DOROTHEA LANGE: Well, I did get as far as San Francisco, and I had to get a job pretty quick. Of course, it had to be something to do with photography, so I went to Market Street and I got a job in a sort of a variety store. They had luggage and umbrellas and stationery, and also a photo-finishing counter where people brought in their snapshots and took them home, developed and printed. I got a job there right away. I got interested in the snapshots and I realized something that's never left me --

that is, the visual importance of what's in people's snapshots that they don't know is there. Many great photographs are hidden in people's top drawers, pictures of their relatives, though they never see the images in any way but personal.

RICHARD K. DOUD: But you did eventually start your own studio in San Francisco?

DOROTHEA LANGE: Yes, I did. I was a portrait photographer in San Francisco for nearly ten years. It was a fine little studio, and the things that I made there were not empty portraits. I enjoyed every portrait that I made in an individual way. Some of my hardest-working years were those years. It was quite a venture because it was a rather expensive place and I had what they called the cream of the trade. I could have gone on with it, and enlarged it, and had a fairly secure living, but I realized that it wasn't really what I wanted.

RICHARD K. DOUD: What was it that guided you finally into the documentary work for which you are famous?

DOROTHEA LANGE: With the stock market crash of 1929 and the depression that followed, I wanted to work on a broader basis. I realized I was photographing only people who paid me for it. That bothered me. So I closed my elegant studio and I took over a big, empty, loft-like place instead. I really had to face myself. I was married in the meanwhile and my first son was born in that period. But I was also aware that there was a wider world out there that I had not engaged with yet. I never had the idea of making a career out of it. It was more a sense of personal commitment.

RICHARD K. DOUD: Could you tell us in particular about what is perhaps your most well-known photograph, the old man with the tin cup in the White Angel breadline?

DOROTHEA LANGE: I began to take photographs which revealed how deep the depression was becoming. There was an area of San Francisco not far from my new studio where I could observe closely what was happening. As for the old man with the tin cup, I took that the first time I ever walked around in an area where people said, "Oh, don't go there." It was the first day that I ever took a photograph on the street ...

Adapted from: Oral history interview with Dorothea Lange, May 22, 1964 Archives of American Art, Smithsonian Institution  
URL: <<http://www.aaa.si.edu/collections/interviews/oral-history-interview-dorothea-lange-11757>>.

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That is the end of the listening test.