

(2015年度)

5 英語問題 (90分)

(この問題冊子は27ページ、8問である。)

受験についての注意

1. 監督の指示があるまで、問題冊子を開いてはならない。
2. 試験開始前に、監督から指示があったら、解答用紙の右上の番号が自分の受験番号と一致することを確認し、所定の欄に氏名を記入すること。次に、解答用紙の右側のミシン目にそって、きれいに折り曲げてから、受験番号と氏名が書かれた切片を切り離し、机上に置くこと。
3. 監督から試験開始の指示があったら、この問題冊子が、上に記したページ数どおりそろっていることを確かめること。
4. 筆記具は、HかFかHBの黒鉛筆またはシャープペンシルに限る。万年筆・ボールペンなどを使用してはならない。時計に組み込まれたアラーム機能、計算機能、辞書機能などを使用してはならない。
5. 解答は、解答用紙の各問の選択肢の中から正解と思うものを選んで、そのマーク欄をぬりつぶすこと。その他の部分には何も書いてはならない。
6. マークをするとき、マーク欄からはみ出したり、白い部分を残したり、文字や番号、○や×をつけてはならない。
7. 訂正する場合は、消しゴムでていねいに消すこと。消しきずはきれいに取り除くこと。
8. 解答用紙を折り曲げたり、破ったりしてはならない。
9. 試験時間中に退場してはならない。
10. 解答用紙を持ち帰ってはならない。
11. 問題冊子は必ず持ち帰ること。

- 1 次の英文を読み、(1)～(9)の空欄に最適な表現を(a)～(d)の中から1つ選びなさい。なお、(8)については示された順で空欄に入るものとする。(10)の設問には最適な答えを(a)～(d)の中から1つ選びなさい。

There are an estimated 2.3 million limestone blocks that form the 445-foot-tall Great Pyramid of Egypt. The largest of these blocks weigh between 25 and 80 tons. One question that has persisted (1) the ages is: How did an ancient people with rudimentary technology drag such massive stones (2) the desert—in some instances, hundreds of miles?

Researchers from the University of Amsterdam announced this week that the answer is surprisingly simple. Their study, published in the journal *Physical Review Letters*, makes the case that ancient Egyptians used wet sand to (3) the blocks, a modest trick that (4) friction between the rocks and the sand during long hauls across the desert.

Archaeologists have (5) assumed that the people who built the pyramids used wooden sledges* to move stones from nearby quarries to the site of the pyramids, but still wondered how the ancient builders (6) the dilatory** effects of sand berms—the heaps of sand that would have formed at the front of the wooden sledges as they were dragged.

Constantly clearing the sand out of the way would have proved (7). Researchers looked at other methods that may have been used to transport giant blocks and landed on a technique involving wet sand.

Researchers built a laboratory version of an Egyptian sledge and experimented with it in a tray of sand. They found that as water was added to the sand, it created small “capillary*** bridges” between individual grains, locking them in place and preventing them from piling up in front of the sledge.

This made the sand stiffer. As the stiffness of the sand (8), the force required to pull the sledge (8) proportionally.

Wet desert sand, researchers discovered, is about twice as stiff as dry sand.

The process of wetting the sand in front of a sledge can be seen in a small painting in the ancient tomb of Djehutihotep. The schematic drawing shows 172 Egyptian workers transporting a 23-foot-tall statue fitted to a sledge. One worker positioned at the front of the sledge appears to be pouring water onto the sand directly in front of it.

"Egyptologists had been interpreting the water as part of a purification ritual, and had (9) sought a scientific explanation," Daniel Bonn, lead researcher of the study, told the Washington Post. "And friction is a terribly complicated problem; even if you realize that wet sand is harder—as in a sandcastle, you cannot build on dry sand—the consequences of that for friction are hard to predict."

Once the blocks were on site, ancient Egyptians are thought to have used ramps to raise the blocks into place, but there is still debate about how exactly the ramps were oriented.

(Adapted from "Mystery of ancient pyramid construction: Egyptians' simple 'trick' for moving massive stone blocks revealed." *International Business Times*, May 3, 2014. Retrieved from <http://www.ibtimes.com>)

Glossary

*sledge: a long narrow flat piece of wood with upturned edges

**dilatatory: causing delay

***capillary: a very thin tube

- | | | | | |
|-----|--------------|--------------|---------------|--------------|
| (1) | (a) through | (b) with | (c) from | (d) against |
| (2) | (a) amongst | (b) above | (c) through | (d) on |
| (3) | (a) mold | (b) maintain | (c) measure | (d) maneuver |
| (4) | (a) reserved | (b) reaped | (c) reflected | (d) reduced |
| (5) | (a) recently | (b) long | (c) never | (d) seldom |

- (6) (a) avoided (b) assumed (c) attached (d) affirmed
 (7) (a) exciting (b) tedious (c) rewarding (d) ominous
 (8) (a) increased, increased (b) increased, decreased
 (c) decreased, increased (d) decreased, decreased
 (9) (a) ever (b) often (c) always (d) never

- 10) According to the author, how did ancient Egyptians move massive stone blocks to construct the pyramids?
- (a) They used wooden sledges to move dry sand to the pyramid sites.
 (b) They used wet sand to make the sledges move more smoothly.
 (c) They constantly cleared the sand out of the way as they dragged the sledges.
 (d) They poured water as a purification ritual so that they could move the blocks safely.

2 次の英文を読み、(11)～(20)の空欄に最適な表現を(a)～(d)の中から1つ選びなさい。

A Walk by the Seashore

It was shortly after six o'clock in the evening when I went for a walk by the seashore in Penang. The (11) was just coming in and waves were beating strongly against the rocks. Seagulls were flying over the sea, looking for fish and (12) down onto the water every now and then.

The scene was truly a beautiful one to (13). The sun was sinking beneath the horizon and the sky was painted with beautiful (14) of pink, gold, orange and yellow. Its (15) on the sea held me spellbound. There was a magical touch about it and it was created by the dancing waves that shimmered in the (16).

I saw fishermen returning wearily after a day of (17) out at sea in their boats which were probably (18) with fish. There were many people strolling along the beach, enjoying the cool sea breeze. Children were the happiest as they ran and dipped their little feet in the cool sea water, letting out squeals of (19) as the waves teased them.

I felt at peace, surrounded by the beauty of Mother Nature and (20) as I welcomed the close of the day by the seashore that evening.

(From "A walk by the seashore." Retrieved from http://www.englishdaily626.com/english_compositions.php?035)

- 011 (a) tendency (b) direction (c) surface (d) tide
02 (a) stepping (b) swooping (c) skipping (d) sending
03 (a) hold (b) have (c) behold (d) behave
04 (a) tints (b) conflicts (c) contraries (d) summaries
05 (a) caution (b) utterance (c) reflection (d) speculation
06 (a) highlight (b) spotlight (c) searchlight (d) twilight
07 (a) toil (b) relief (c) distance (d) extension
08 (a) equipped (b) canned (c) modified (d) loaded
09 (a) sorrow (b) delight (c) rage (d) upset
20 (a) tranquility (b) obligation
(c) commission (d) correspondence

3 次の英文を読み、(21)～(30)の設問に最適な答えを(a)～(d)の中から1つ選びなさい。

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Okay, let's face it: Learning is a human function. Kids learn naturally and effortlessly well before they become students. Students learn complexly in their

non-school endeavors. Yet when it comes to education, students—young through old—use an unnatural approach to learning, a method that leaves students perplexed and educators frustrated.

Below are three research-based facts students must understand about memorization so they can advance toward deeper learning and higher performance.

1. Memorization is the beginning, not the end of learning.

²³ Whether working with college or high school students, kids or adults, I've realized that students attribute their academic success to great memorization skills. The percentage of study and reading time students spend simply on memorizing is not only astonishing, but it is unnatural. The human brain innately uses a range of thinking skills when interacting with the world.

Beginning at around two years old, toddlers incessantly ask, *What is this, Mommy? What is that, Daddy?* I call this the "what stage." This is a basic stage of learning in which kids are acquiring and storing information in their little minds. Soon afterwards, at around three years of age, children advance beyond asking *what questions* to asking *why questions*. It's as if their minds have accumulated enough basic information and now want to make sense of what it has stored.

Children effortlessly progress from wanting only to identify objects to needing understanding of why the objects exist. Students must allow this natural mode of inquiry to unfold throughout their academic lives.

2. Memorization has distinct characteristics.

Students habitually make improper judgments about their knowledge. They often report recognizing the content on tests, but they are not prepared to interact with the content in the ways that exam questions demand. Students need to know that memory-based knowledge is both *fragile* and *fleeting*. Information processed only at the memorization level is delicate. Students must

use other thinking skills, along with memorization skills, to fortify their knowledge.

Students need to realize that memorized information *will* vanish! It's not a question of if but when their knowledge will be inaccessible. How many times have students become excited as they recognized that the wording of a test question matched material they'd studied, only to find that the knowledge they had accumulated was missing in action? This is a chief cause of the widespread sentiment among students that teachers are trying to trick them on tests. The students didn't do anything necessarily wrong when studying. It's just that memorized knowledge requires an adequate cue to activate it, and rigorous exams are cue-less.

3. Memorization feels like learning, but is actually not learning.

Memorization is a wonderful counterfeit for learning. As students memorize, they accumulate learning outcomes. They are able to recall and retrieve terms and ideas from memory that they were completely or largely unaware of before studying. This process of accumulation creates feelings of mobility in learning, internal affirmations that students are moving along and progressing in their knowledge. However, they never move beyond the shallowest type of interaction. In essence, they never stop asking *what questions*. They actually short-circuit their mind's instinctive desire to follow up those what questions with a deeper string of questions.

(Adapted from "Three things every student must know to move beyond memory-based learning." Retrieved from <http://www.thelearnwellprojects.com>)

- 21) According to the author, what is "unnatural" about the way students approach learning?
- (a) Students spend too much time studying before a test.
 - (b) Students spend too much time memorizing.
 - (c) Students do not spend enough time studying before a test.
 - (d) Students do not spend enough time memorizing.
- 22) According to the author, many students have the false belief that _____.
- (a) they can achieve academic success through memorization alone
 - (b) memorization is less important than deep thinking
 - (c) teachers expect students to fail
 - (d) children are better at memorizing than students
- 23) What does the author mean when he says, "Memorization is the beginning, not the end of learning"?
- (a) Learning involves not just memorization of facts but making sense of those facts.
 - (b) Learning will always involve more memorization.
 - (c) Memorization is a skill that will improve as you get older.
 - (d) Memorization is an unnatural approach to learning that will become natural over time.
- 24) According to the author, what should students learn from children?
- (a) Complaining less and studying more.
 - (b) Asking *what questions* and *why questions*.
 - (c) Asking their parents for help when they need it.
 - (d) Learning the names of objects but not about why the objects exist.

25. What is one characteristic of memorized knowledge?
- (a) Memorized knowledge will disappear unless written down.
 - (b) Memorized knowledge will disappear unless the teachers are trying to trick you.
 - (c) Memorized knowledge is only temporary unless you take many exams.
 - (d) Memorized knowledge is only temporary unless combined with deeper thinking skills.
26. What does the author mean by "It's not a question of *if* but *when*"?
- (a) Memorized knowledge will disappear after time has passed.
 - (b) Students should be asking *when questions* instead of *if questions*.
 - (c) Students can surely be taught to learn deeply in time.
 - (d) Memorization is a skill that will be recognized and valued in time.
27. What does the author mean when he says, "Memorization is a wonderful counterfeit for learning"?
- (a) Memorization is a wonderful substitute for learning.
 - (b) Memorization is a positive goal of learning.
 - (c) Memorization gives a false impression of learning.
 - (d) Memorization is a dishonest way of learning.
28. Which of the following is NOT a statement made in the article?
- (a) Students are able to learn deeply outside of school.
 - (b) Students tend to only ask *why questions*.
 - (c) The "what stage" involves accumulating lots of information.
 - (d) Memorization is a shallow way of learning.

- 29 Which of the following questions represents the kind of question that the author states will lead to deeper learning?
- (a) What are the colors of the Olympic rings?
 - (b) Where will the next Summer Olympic Games be held?
 - (c) When are the next Summer Olympic Games?
 - (d) What are the reasons for holding the Olympic Games?
- 30 What is the primary purpose of this article?
- (a) To help students achieve deeper learning.
 - (b) To inspire educators to create more challenging tests.
 - (c) To discourage teachers from tricking their students.
 - (d) To help students get better jobs.

4 次の英文を読み、30～40の設問に最適な答えを(a)～(d)の中から1つ選びなさい。

Standing at the front of the classroom in Hong Kong, 9-year-old Charlotte Yan recites a 2008 speech by then-U.S. Secretary of State Hillary Rodham Clinton—enunciating the words with a perfect American accent. “Make sure we have a president who puts our country back on the path to peace, prosperity and progress,” says Yan, her brow furrowed as she concentrates intensely on her pronunciation. She is one of a growing number of children in the ex-British colony learning to speak English like an American, some parents believing it is more relevant than an accent of the southern Chinese city’s former rulers. Language tutors say wealthy mainlanders are helping fuel demand, crossing into Hong Kong for a pick of the myriad* educational opportunities on offer in an increasingly competitive market.

During weekends at Yan’s school, Nature EQ—where a giant Stars and

Stripes flag hangs on the wall—children as young as 5 pack into classrooms, chanting words in unison and reciting from memory Robert Frost poems, any error in their enunciation quickly corrected. Mickey Ho, 15, said he goes to the school because an American accent is “more international” while 19-year-old Sam Yu attends because Hollywood films and popular television dramas make a U.S. lilt** “easier to understand and learn.” A short distance away in the Tseung Kwan O district is the American English Workshop, which has gone from having 20 students a week when it opened 12 months ago to more than 180 today.

They are among a number of centers and tutors specifically providing American English, offering something different to government-run schools where pronunciation largely depends on the accent of the English teacher. “I intend to send my sons to America for further study so I chose an American accent for them,” said Victor Chan, whose two boys—Jackie aged 10 and Samuel, 7—attend Nature EQ. “I think having an American accent is better for their employment (prospects) in Western countries,” the 50-year-old added.

Hong Kong recruitment consultant Adam Bell agrees that sounding American can help boost a candidate’s employability—particularly if the job is with a U.S. firm. “There’s a degree of prestige associated with both the U.K. and the U.S. accents compared to a Hong Kong accent as it suggests they are from a good background and can afford to study at school or university abroad,” he said. “In terms of employability, I think it largely depends on the background of whoever is doing the hiring. If he or she has a North American background I strongly believe someone with an American accent has a better chance of getting the job. Likewise with the U.K. accent.”

⁰⁴ Experts say there are signs of a wider shift in attitudes toward accents in Hong Kong as the financial hub moves further away from its 150-year-long colonial past. Dr. Qi Zhang of Dublin City University said there is evidence U.S. accents are “starting to replace” British ones in terms of preference “owing to the popularity of American culture.” Acting Head of English at Hong Kong’s City

University, Dr. Rodney Jones, said: "There's no doubt that the American accent is becoming more prevalent here. The main reason is because people are more exposed to it. In the past in Hong Kong there was a sense that speaking in a British accent made you sound more educated. Now I think that's changing and perhaps people think speaking in an American accent may have more 'cultural capital.' That is it may make you sound more contemporary, or modern, or may fit in with the international business world better."

³⁶ Word seems to be spreading to mainland China. Tim Laubach—founder of American English Workshop—has increased the number of teachers at his school from one to eight since opening a year ago, to meet rising demand from across ³⁷ the border. "We have noticed a large influx of mainland Chinese students," he said. "When we first opened last year we had zero students from the mainland but now at least 30 percent are from there. We expect that number to continue to grow."

But it would be premature to sound the death knell**** for the British accent just yet. "I prefer the British accent. Sometimes I can't understand an American one." Riven Chan, a 28-year-old flight attendant, said. "I think it's better if Hong Kong people learn to speak English with a British or local accent." According to Jones at City University, Hong Kongers' fondness for the United Kingdom means a British accent will remain popular. "Many people here are nostalgic about the British," he said. "I don't think they think of things like imperialism or colonialism when they hear a British accent. It still has a lot of prestige in Hong Kong and the bottom line is whatever accent you speak in, it has no actual reflection on your English proficiency or intelligence."

(Adapted from *The Japan Times*, October 30, 2013, p. 5.)

Glossary

*myriad: very many

**lilt: accent

***knell: the sound of a bell at a funeral

31. Why has the number of children learning American-accented English been increasing in Hong Kong?
- (a) Because it will give the people of Hong Kong a stronger connection to the Chinese government.
 - (b) Because the American accent is considered to be the most prestigious in Hong Kong.
 - (c) Because large numbers of Chinese people from the mainland have started sending their children to learn it there.
 - (d) Because the schools are very competitive and are good at marketing their strong points to Hong Kong residents.
32. According to their comments, what is one of the reasons students like to learn American English?
- (a) Because they want to go to Hollywood.
 - (b) Because they can learn international poems.
 - (c) Because they enjoy the teaching methods used.
 - (d) Because they have had prior contact with it.
33. Why does one of the parents at Nature EQ want his children to have an American accent?
- (a) So that they will be successful after they leave Hong Kong.
 - (b) So that they will be different from students at government-run schools.
 - (c) So that they can get a job with a Western company in Hong Kong.
 - (d) So that they can contribute to the further development of Hong Kong.

- 34 What does the sentence "Likewise with the U.K. accent" mean in this passage?
- (a) A U.K. accent can also be useful but it will never be as useful as an American accent.
 - (b) Nowadays if someone has a U.K. accent, it is as useful as a Hong Kong accent.
 - (c) If the employer is British, he or she will be more likely to hire someone with a British accent.
 - (d) American employers will prefer to hire someone with a British accent over someone with a Hong Kong accent.
- 35 Why do experts say there has been a shift from a preference for a British accent to a preference for an American accent?
- (a) People these days feel that the American accent sounds more educated than a British accent.
 - (b) An American accent sounds more up-to-date.
 - (c) Because most people in Hong Kong are eager to distance themselves from anything relating to the British.
 - (d) The American accent is easier to pronounce.
- 36 What does "Word" mean in this context?
- (a) vocabulary from the English language
 - (b) news about good jobs in Hong Kong
 - (c) the idea of the advantage of an American accent
 - (d) English used for international business

37. What does the "rising demand from across the border" refer to?
- (a) Hong Kong residents are demanding better English education.
 - (b) English is a way to cross over borders between countries and people.
 - (c) They have to set up more schools in mainland China because Chinese people also want their children to learn the American accent.
 - (d) More Chinese people from the mainland are sending their children to schools in Hong Kong.
38. Does the author believe that the British accent will die out soon?
- (a) No. It still holds value for some people in Hong Kong.
 - (b) No. But people must try to forget about the history of colonization.
 - (c) Yes. It's just a matter of time before it disappears completely.
 - (d) Yes. Some people no longer like the British accent.
39. According to the views expressed in this article, what does the British accent *not* represent to the people of Hong Kong?
- (a) social status
 - (b) warm feelings towards the past
 - (c) a sorry reminder of colonialism
 - (d) a high level of education
40. Which of the following titles matches the content of this article most accurately?
- (a) Language schools in Hong Kong pushing American accents
 - (b) Goodbye Britain, goodbye British English
 - (c) Mainland Chinese rush to learn international English
 - (d) American accents lead the way to better jobs in Chinese companies

- 5 次の会話を読み、40～50の設問に最適な答えを(a)～(d)の中から1つ選びなさい。なお、40については示された順で空欄に入るものとする。

LIVING ROOM—EVENING

FRANK and WALT sit in front of their FATHER in an oddly formal manner. The boys' MOTHER comes into the living room and sits down.

FATHER: Okay. All set?

MOTHER: Yes.

FATHER: Okay, your mom and I...

Frank already knows what's coming and bursts into tears.

FATHER: Okay ... yeah ... Mom and I are going Yeah ... we're going to separate.

Frank puts his head in his hands, crying harder. Walt looks at his brother and back at his mom who, smiles at him. He doesn't know what to say.

MOTHER: You're not going to be leaving either of us.

FATHER: We're going to have joint custody. Frank, it's okay. I've got an elegant new house across the park.

FRANK: Across the park? ⁴⁰_____ Is that even in Brooklyn?

FATHER: It's only five stops on the subway from here. It's an elegant block. The best of the neighborhood. (smiling at Walt) We'll have a ping
pong table. ⁴²

WALT: I don't ⁴³_____ ping pong.

MOTHER: And we'll both see you equally. ⁴⁴

WALT: And how will that work?

FATHER: We're splitting up the week. Alternating days.

FRANK: Why?

FATHER: Because I love you and want to see _____
45

WALT: But there's seven days.

FATHER: Right.

WALT: How will you split evenly with seven days?

FATHER: Oh, I got you Tuesday, Wednesday and Saturday. And every other Thursday.

FRANK: (crying) Every other?

FATHER: That's how we each have you equally.

MOTHER: That was your father's idea.

FRANK: (sobbing) Don't do this.

WALT: _____

FATHER: 46 There's a subway four blocks from the house. Four or five. No more than six blocks.

WALT: What about the cat?

MOTHER: Oh, no. The cat.

FATHER: We didn't discuss the cat.

The father looks at the mother, who is waiting for him to answer.

MOTHER: Your father will pick _____ up on those days when
47 _____ switching houses.

FATHER: (annoyed) I'll have to drive here two additional times a week?

MOTHER: I guess so. You got a place on the other side of the park. If you'd gotten a place near here, _____
48

FATHER: This neighborhood has gotten very expensive. Joan, it's very painful for me to stay in this neighborhood, you know that. I feel banished.

WALT: So, Dad, what will happen with the cat? (realizing) And my guitar.
Who will transfer my guitar?

FATHER: (mumbling) We'll figure something out.

(Adapted from Baumbach, N. (2005). *The squid and the whale: Shooting script*.
New York, NY: Newmarket Press, pp. 19-22.)

41) Select the sentence that best fits the blank.

- (a) I want to live in the park.
- (b) I love the park.
- (c) That's great news.
- (d) That's so far away.

42) Why does the father say, "We'll have a ping pong table"?

- (a) The father wants to upset Walt.
- (b) The father wants to cheer Walt up about the separation.
- (c) The father wants Frank to feel jealous.
- (d) The mother has always wanted a ping pong table.

43) Select the word that best fits the blank.

- (a) do
- (b) care
- (c) hit
- (d) play

44. How are the parents proposing to see their sons equally?
- (a) Each son will stay with the mother and father separately.
 - (b) The father will go visit the sons separately.
 - (c) The sons will stay with the father four days a week every other week.
 - (d) The sons will stay with the father on alternating months.
45. Select the phrase that best fits the blank.
- (a) you as much as your mother does
 - (b) your mother as little as I can
 - (c) you more than your mother does
 - (d) the cat as much as your mother does
46. Select the question that best fits the blank.
- (a) But where will we sleep?
 - (b) How will I get to school?
 - (c) But where will Mom go?
 - (d) Who will take care of us?
47. Select the pronouns that best fit the blanks.
- (a) you, he's
 - (b) him, you're
 - (c) them, they're
 - (d) her, I'm
48. Select the sentence that best fits the blank.
- (a) it wouldn't be a problem
 - (b) you would be in trouble
 - (c) we wouldn't have to separate
 - (d) we could give away the cat

49. Which of the following best summarizes what the writer wanted to convey in this scene?
- (a) The difficulty of negotiating a separation when children are involved.
 - (b) A family should never buy a cat if the cat cannot be cared for.
 - (c) The shame of no longer being able to care for your children.
 - (d) Everything can be easily divided equally in a divorce.
50. What kind of screenplay is this?
- (a) a workplace comedy
 - (b) a family drama
 - (c) a dramatic monologue
 - (d) a documentary

6 次の英文を読み、51～60の空欄に最適な表現を(a)～(d)の中から1つ選びなさい。

I was dressed in my one white linen shirt, which was usually kept (51) for the Sabbath day*, my blue roundabout, and my whole Sunday suit. I had at that time, and for a few weeks after I entered the telegraph service, (52) one linen suit of summer clothing; and every Saturday night, no matter if that was my night on (53) and I did not return till near midnight, my mother washed those clothes and ironed them, and I put them on fresh on Sabbath morning. There was nothing that heroine did not do in our struggle (54) elbow room in the western world. Father's long factory hours tried his strength, but he, too, fought the good fight like a hero and never failed to encourage me.

The (55) was successful. I took care to explain that I did not know Pittsburgh, that perhaps I would not do, would not be strong enough; but all I wanted was a trial. He asked me how (56) I could come, and I said I could

stay now if wanted. And, looking back over the circumstance, I think that answer might well be pondered by young men. It is a great mistake not to (57) the opportunity. The position was offered to me; something might occur, some other boy might be sent for. Having got myself in I (58) to stay there if I could. Mr. Brooks very kindly called the other boy—for it was an additional messenger that was wanted—and asked him to show me about, and let me go with him and learn the (59). I soon found opportunity to run down to the corner of the street and tell my father that it was all (60), and to go home and tell mother that I had got the situation.

(Adapted from Carnegie, A. (2006). *The autobiography of Andrew Carnegie and the gospel of wealth*. New York, NY: New American Library, p. 38.)

Glossary

*Sabbath day: 安息日

- | | | | | |
|----|----------------|---------------|--------------|-----------------|
| 51 | (a) sweet | (b) soft | (c) scarce | (d) sacred |
| 52 | (a) whether | (b) and | (c) but | (d) extra |
| 53 | (a) work | (b) rehearsal | (c) duty | (d) pilgrim |
| 54 | (a) out | (b) for | (c) into | (d) up |
| 55 | (a) investment | (b) interview | (c) trial | (d) examination |
| 56 | (a) far | (b) only | (c) high | (d) soon |
| 57 | (a) receive | (b) decline | (c) offer | (d) seize |
| 58 | (a) dreaded | (b) postponed | (c) proposed | (d) refused |
| 59 | (a) ironing | (b) business | (c) spelling | (d) messages |
| 60 | (a) right | (b) wrong | (c) neutral | (d) gone |

7

次の英文を読み、61～70の設問に最適な答えを(a)～(d)の中から1つ選びなさい。

Dogs were domesticated in Europe during the last Ice Age, DNA shows

Amid the harsh icy lands of ancient Europe, early humans found themselves an unexpected companion—the snarling killer wolf—that would eventually become man's best friend. New genetic analysis of 148 prehistoric and modern animals has revealed that our present-day dogs are most closely related to either ancient or modern European canines. The comprehensive study points to places like Germany and Switzerland as to where domestication of dogs likely began, and to free-roaming wolves evolving into the pet dogs we know and love today. The study was published online Thursday in the journal *Science*.

“The first dogs looked like wolves,” said study author and evolutionary biologist Robert K. Wayne of the University of California, Los Angeles. Wayne and his colleagues estimated domestication occurred around 18,800 to 32,100 years ago, when ice sheets extended over much of Europe's northern lands. Hunter-gatherers feasted on huge kills, such as mammoths. But at the same time, early men looked over their shoulders for predatory cave bears and lions. Perhaps the humans accepted wolves as friends because they provided a little extra protection.

They began the first step toward domestication by coexisting with wolves in a mutually beneficial relationship, the scientists speculate. The docile wolves started to stay with humans and stopped intermingling with the wild wolves. After generations upon generations of selective breeding, wolves slowly became more like the dogs of today, said Wayne. They even adapted to a high-starch diet, leaving them in better shape during human society's later forays into agriculture.

Although there was no question that modern dogs descended from wolves, recent research findings clashed over where and when domestication originated.

Archaeologists dug up the oldest doglike fossils dating back 36,000 years ago in Western Europe and Siberia, but it wasn't certain if they truly were the bones of early dogs or some other creature. Curiously, the latest genetic studies traced back the family tree of modern dogs and wolves to canine origins in the Middle East or East Asia—tens of thousands of years after those first known fossils. “The fossils spoke for Europe, but the genetics spoke for Asia,” said study author and population geneticist at Finland’s University of Turku, Olaf Thalmann. “At some point, you have to combine the two stories.”

That is exactly what Thalmann and his colleagues set out to do. The team gathered genetic data from 18 prehistoric doglike fossils from Eurasia and the New World, along with a slew from present-day dogs and wolves. They cribbed insight on how to best work with old, battered DNA from the groundbreaking sequencing of the Neanderthal genome in 2010. “Ancient DNA is shattered into many, many small pieces,” said National Institutes of Health geneticist Elaine Ostrander, who was not involved in the study. “When you have an ancient sample, sequencing the mitochondrial DNA is the right first thing to do.”

Mitochondria are organelles inside cells that also contain a bit of DNA, like the nucleus. But the DNA in the nucleus only has two copies, compared with up to a thousand copies of mitochondrial DNA in a single cell. When it comes to extracting prehistoric DNA, the more backup copies, the better. In total, the team input 148 complete and partial mitochondrial sequences into a model that spit out an evolutionary tree. To the researchers’ surprise, all four of the living groupings of modern dogs had their closest ancestors in Europe, not Asia. One group, including a Siberian husky and a Great Dane, had sequences most closely related to that of an ancient wolf from Switzerland. Ancestors for a second set of present-day dogs containing a pit bull terrier and a cocker spaniel included two ancient dogs found in Germany.

Also, two of the oldest fossils, including one from Siberia, were from creatures not directly related to today’s dogs. Thalmann thinks these may have

been unsuccessful domestication efforts, in which these wolves became partly doglike but the branch of evolution got cut short somehow. "There is not a single proto-dog from which modern dog breeds descended," said Ostrander. Today more than 300 breeds exist. The majority of these are only a few hundred years old.

However, other researchers say the matter of who tamed dogs first and where it happened is far from settled. A separate team of researchers published a study in *Science* in 2002, saying modern dogs came from southern China. "Our data points to origins in China, and I am still pretty sure that is the place," said Pere Savolainen, an associate professor at the Royal Institute of Technology in Sweden. Savolainen said the study by Thalmann and colleagues lacks samples from the Middle East and China. "If you are looking for the origins of dogs and you only have samples from Europe, then of course it must be Europe," he said.

(Adapted from *The Japan Times*, November 16, 2013.)

- 61) カリフォルニアの大学に勤務する進化生物学者であるのは誰か。
- | | |
|----------------------|---------------------|
| (a) Robert K. Wayne | (b) Olaf Thalmann |
| (c) Elaine Ostrander | (d) Pere Savolainen |
- 62) 本文中、下線が引かれている "huge kills" は何を意味するか。
- | | |
|---------------|------------------|
| (a) 大量虐殺 | (b) 大きな獲物 |
| (c) 脅威となる大きな獣 | (d) たくさんの動物を殺すこと |

- 63 人間にとってオオカミたちが間近で生活することの利点として考えられる事項のうち本文中で触れられているのは次のどれか。
- (a) マンモスのような大きな動物を狩りする手伝いをしてもらえること。
 - (b) 一緒にいることでお互いの体温で寒さから身を守る上で便利だった。
 - (c) 辛い生活の中で癒しを与えてくれる存在として重要な役割を果たしていた。
 - (d) クマやライオンなどの猛獣から身を守る上で役に立っていた。
- 64 ネオカミたちが人間との生活に順応していく過程で起こったことで本文中で触れられていることは次のうちのどれか。
- (a) 澱粉質が多く含まれる食事が食べられるようになったこと。
 - (b) 人間や人間が飼っている動物を襲って食べることはしなくなったこと。
 - (c) 大きな群れで行動しなくても生きていけるようになったこと。
 - (d) 大きな声で遠吠えをすることがなくなったこと。
- 65 Thalmann たちが古く傷んだDNAを分析する際に参考になった先行研究は何についての研究だったか。
- (a) 中東や東アジアで発見された犬に似た動物の化石
 - (b) 凶暴なオオカミがどのように大人しい犬に進化したか
 - (c) 2010年に行われたネアンデルタール人の遺伝情報
 - (d) シベリアン・ハスキーとグレート・デンの進化の過程
- 66 ミトコンドリア内のDNAを調べることの利点として挙げられているのは何か。
- (a) 内部に含まれているDNAの数が非常に多いこと。
 - (b) 細胞核の中のDNAの数が非常に多いこと。
 - (c) イヌ科の動物のミトコンドリアには特に重要な遺伝情報が含まれていること。
 - (d) ミトコンドリア内の遺伝情報はメスからメスに受け継がれること。

- 67) 犬に似た動物の最古の化石の中には、オオカミが完全に家畜化するに至らずに進化の過程が止まってしまったものもあって考えているのは誰か。
- (a) Robert K. Wayne (b) Olaf Thalmann
(c) Elaine Ostrander (d) Pere Savolainen
- 68) 現在存在する様々な犬種の共通の祖先である単一の「原犬種」は存在しないと述べた人物は誰か。
- (a) Robert K. Wayne (b) Olaf Thalmann
(c) Elaine Ostrander (d) Pere Savolainen
- 69) オオカミが家畜化されて犬になったのは中国においてであったと主張しているのは誰か。
- (a) Robert K. Wayne (b) Olaf Thalmann
(c) Elaine Ostrander (d) Pere Savolainen
- 70) 犬の起源を調査する場合に起こり得る誤りの起因として何が指摘されているか。
- (a) 利用データの数 (b) 標本の採取地域
(c) 研究者の分析能力 (d) 対象犬種の数

8 次の(71)~(75)に示された下線部(a)~(d)の中から、誤りのあるものを1つ選びなさい。

Blood Type Switch

- (71) Scientists have discovered a way by that they can convert A, B and AB-type blood groups into O-type blood. The technique could lead to a dramatic increase in the worldwide stocks of blood available for transfusion.
- (a) (b) (c) (d)

72. O-type blood can be transfused safely into humans of any blood-type without medical risk— the problem is that it's not always readily available for a person who desperately need blood.

73. Now an international team of scientists believe they have found a way to convert A, B and AB blood types into O-type, and making it safe to use in transfusions. Professor Martin Olsson of Lund University Hospital in Sweden is one of the report's authors.

74. PROFESSOR OLSSON: That's we're looking at—to get a unified blood supply that is not fragmented due to the different groups. The dream scenario as I see it is that all those blood units drawn from blood donors would be converted if they're not group-O from the start, so to speak. That is approximately half of all blood units.

75. Professor Olsson says the conversion technique would be cost-effective and would take about an hour at room temperature. The process promises not only increase the stock of blood available for transfusions but could also prevent the accidental transfusion of the wrong blood group into patients. Early-stage clinical trials are now underway.

(Adapted from "Blood type switch." Retrieved from http://www.bbc.co.uk/worldservice/learningenglish/newseenglish/witn/2007/04/070404_blood.shtml)