筑波大学　前期

平成24年度　個別学力試験問題

外　国　語　(英　語)

(120分)

人文・文化学群　(人文学類，比較文化学類，日本語・日本文化学類)
社会・国際学群　(社会学類，国際総合学類)
人　間　学　群　(教育学類，心理学類，障害科学類)
生命環境学群　(生物学類，生物資源学類，地球学類)
理　工　学　群　(数学類，物理学類，化学類，応用理工学類，
　　工学システム学類，社会工学類)
情　報　学　群　(情報科学類，情報メディア創成学類，
　　知識情報・図書館学類)
医　　学　　群　(医学類，看護学類，医療科学類)

注　　意

1　問題冊子は1ページから11ページまでである。
2　解答は解答用紙の定められた欄に記入すること。

Ⅰ　次の英文を読んで，下の問いに答えなさい。
（星印（＊）の付いた語には本文の後に注があります。）

(1) Who would have thought that the package of notecards my mother gave me for my tenth birthday would have been one of the most valuable gifts I have ever received? They were light blue and said "Tina" in block letters on the top. At that age my mother taught me how to write a thank-you note and how important they are. She couldn't have been more correct. （　2　）, as I grew up and ultimately entered the work world, I often tried to recall my mother, who always seemed to know what to do in social settings. But the importance of writing thank-you notes remains one of her most valuable lessons.

Showing appreciation for the things others do for you has a great effect （　イ　） how you're perceived. Keep in mind that everything someone does for you has (3) an opportunity cost. That means if someone takes time out of his or her day to attend to you, there's something they haven't done for themselves or for someone else. It's easy to fool yourself into thinking your request is small. But when someone is busy there are no small requests. They have to stop what they're doing, focus （　イ　） your request, and take the time to respond. With that in mind, there is never a time when you shouldn't thank someone for doing something for you. （　2　）, assume a thank-you note is in order, and look at situations in which you don't send one as the exception. Because so few people actually do this (unfortunately), you will certainly stand out from the crowd.

Some of the other little things that make a big difference in your life are simple, while others are more challenging. Some are intuitive and others surprising. Some are taught in schools but most are not. Over the years I've stumbled many times by not understanding these "little things."

First and foremost, remember that (4) there are only fifty people in the world. Of course, this isn't true literally. But it often feels that way because you're likely to bump into people you know, or people who know the people you know, all

over the world. The person sitting next to you might become your boss, your employee, your customer, or your sister-in-law. Over the course of your life, the same people will quite likely play many different roles. I've had many occasions where individuals who were once my superiors later came to me for help, and I've found myself going to people who were once my subordinates for guidance. The roles we play continue to change in surprising ways over time, and you will be amazed by the people who keep showing up in your life.

Because we live (口) such a small world, it really is important not to burn bridges, no matter how tempted you might be. You aren't going to like everyone and everyone isn't going to like you, but there's no need to make enemies. For example, when you look (八) your next job, it's quite likely that the person interviewing you will know someone you know. In this way your reputation precedes you everywhere you go. This is beneficial when you have a great reputation, but harmful when your reputation is damaged.

I've seen the following scenario play out innumerable (5) times. Imagine you're interviewing for a job that has dozens of candidates. The interview goes well and you appear to be a great match (八) the position. During the meeting, the interviewer looks at your resume* and realizes that you used to work with an old friend of hers. After the interview, she makes a quick call to her friend to ask about you. A casual comment from her friend about your past performance can seal the deal or cut you off at the knees. (口) many cases you will believe the job was in the bag, right before you receive a rejection letter. You'll never know what hit you.

Essentially, your reputation is your most valuable asset — so guard it well. But don't be terribly upset if you make some mistakes along the way. With time it is possible to repair a stained reputation. Over the years I've come up with a metaphor that has helped me put this in perspective: every experience you have with someone else is like a drop of water falling into a pool. As your experiences with that person grow, the drops accumulate and the pool deepens. Positive

interactions are clear drops of water and negative interactions are red drops of water. But they aren't equal. That is, a number of clear drops can dilute* one red drop, and that number differs for different people. Those who are very forgiving only need a few positive experiences — clear drops — to dilute* a bad experience, while those who are less forgiving need a lot more to wash away the red. Also, for most people the pool drains slowly. As a result, we tend to pay attention to the experiences that have happened most recently, as opposed to those that happened a long time ago. This metaphor implies that if you have a large reserve of positive experiences with someone, then one red drop is hardly noticed. It's like putting a drop of red ink into the ocean. But if you don't know a person well, one bad experience stains the pool bright red. You can wash away negative interactions by flooding the pool with positive interactions until the red drops fade, but (6) the deeper the red, the more work you have to do to clean the pool. I've found that sometimes the pool color never clears; when that happens, it's time to stop interacting with that particular person.

(注)

resume: a brief account of your personal details, education, and the jobs you have had

dilute: weaken, lessen, thin out

1. 下線部(1)を日本語に訳しなさい。

2. 空所(　2　)には同じ語句が入ります。最も適切な語句を次の中から1つ選び，記号で答えなさい。

(A) By the way　　(B) However

(C) In fact　　(D) On the other hand

3. 下線部(3)の an opportunity cost はどのように説明されていますか。日本語で答えなさい。

4. 筆者が下線部(4)のように言う根拠について，それを最も適切に言い表しているものを，次の中から1つ選び，記号で答えなさい。

(A) The author knows only fifty people in her life.

(B) You might cross paths with the same people many times in your life.

(C) You tend not to run into the same people in your life.

(D) The number of people who help you in your life is small.

5. 下線部(5)の innumerable の意味として最も適切なものを，次の中から1つ選び，記号で答えなさい。

(A) a few　　(B) countless　　(C) few　　(D) several

6. 下線部(6)を日本語に訳しなさい。その際，the red と the pool の表す内容を具体的に示すこと。

7. 空所(　イ　)(　ロ　)(　ハ　)には，それぞれ共通する1語が入ります。それぞれに入る最も適切な1語を次の中から選び，記号で答えなさい。ただし，同じものを二度選んではいけません。(本文中で文頭に来る場合でも，選択肢では小文字で始めています。)

(A) at　　(B) for　　(C) in　　(D) of

(E) off　　(F) on　　(G) over

8. 次の中から，本文の内容と合っているものを3つ選び，選択肢の順に記号で答えなさい。

(A) The author completely realized the significance of her mother's lesson even before she grew up.

(B) When you are sacrificing yourself to help someone, in most cases he or she realizes it and expresses his/her gratitude.

(C) The author believes that people who once were enemies can be friends in the future.

(D) When you fail to get a job which you thought was already yours, it is possible that someone who knew you spoke about your bad reputation to the employers.

(E) You always need a lot of good experiences to wipe out a bad one.

(F) You should avoid a person only after you try to get along with that person and fail.

（次ページに第Ⅱ問があります。）

Ⅱ　次の英文を読んで，下の問いに答えなさい。
（星印（＊）の付いた語には本文の後に注があります。）

Until quite recently, zero was not much thought of in the history of ideas. It is quite literally nothing and so doesn't draw attention to itself. Moreover, zero seems to be so self-evident, as obvious as 1, 2, 3, and any other number, that it hardly qualifies as an idea. In fact, it's very (　1　) obvious. Its discovery was slow and painful and science historians have just begun to acknowledge what a crucial breakthrough (a) the finding of zero was.

When numbers were first developed in the ancient world, there was no need for zero. People needed numbers to know how many cows they had, or how many bags of grain they owed to the tax collector. They didn't need a number to know they didn't have any cows and that they didn't have to pay any tax (2). And yet there is a problem with a number system that doesn't have zero.

Nowadays, we use zero in two ways. One is as the number zero: the number nothing, the number exactly half way between −1 and +1. The other is as a 'place-holder' (3). It's the zero we put on the end of a number to indicate whether it's a ten, a hundred, a thousand or so on; it's how you tell the difference between 10, 100, and 1,000. Our system is called a base ten system, since the steps are marked in multiples of ten, and the number of zeros marks the number of multiples of ten in the absence of other numbers. It was as a place-holder that zero made its first tentative appearance.

The Egyptians and Greeks didn't have a place-holder. The Egyptians had different symbols for single digits (a vertical line), multiples of ten (an inverted U sign), and multiples of one hundred (a spiral). This was cumbersome (b) even for quite small numbers. 999, for instance, would need 27 symbols (4) — 9 spirals, 9 Us, and 9 lines. The Greeks were slightly smarter, since they used different letters for each multiple, rather than simply repeating them. But this was still quite cumbersome and there was a limit to the biggest number they could have. Moreover, it was hard doing arithmetic with them.

The Babylonians used a number system that worked, in some ways, like an abacus*, making calculations easier. But instead of being based on ten like our (ア) numbers, their system was based on 60, which means the numbers went in (イ) multiples of 60. Initially, they could only tell which multiple it was — whether it (ウ) was, say, 1, 60, or 3,600 — by the context, since they were all indicated by the same single mark. Then they started adding little checkmarks to indicate which (エ) it was — in other words, place-holders.

It seems strange then that the Greeks, with all their mathematical skills, didn't adopt the zero. Yet still, there was a more basic problem with zero. It would have upset the arithmetic logic which the Greek mathematicians were so brilliantly constructing. Add any number to itself enough times, Archimedes* reasoned, for instance, and it will exceed any other number. That's not so with zero. Similarly, if you multiply one number by another, you only have to reverse the process to get back to the originals. So 6 times 3 = 18 and 18 divided by 3 = 6. But zero throws this (5) out too. 6 times 0 = 0, yet 0 divided by 6 is not 6, it is 0. And that's just the beginning of the problems with zero. It seems to imply that the whole logic of arithmetic has faults. No wonder the Greeks chose to ignore it. (6)

In India, however, they had no such problems, because, after working with the Greek numbering system, they switched to a system that was like that of the (7) Babylonians, only based on the Greek 10, not the Babylonian 60. It's not clear exactly when it first appeared, but by the seventh century, if not earlier, the Indians were using a dot as a place-holder, so 10 would be written '1.' and 100, '1..'. What was good about this system was that it allowed the Indians to make calculations very rapidly, in the same way in which we are taught to multiply and divide things at school.

It also freed the Indians to see numbers in abstract arithmetic terms rather than the geometric terms which the Greeks did. The Greeks would have had trouble taking 3 acres from a 2-acre field because that made no sense; but the

Indian mathematicians were comfortable taking 3 from 2 and getting (8). With negative numbers in place, zero as a number was a logical arrival, slotting in between −1 and +1. Brahmagupta, a brilliant Indian mathematician known as the Father of Zero, noted some key properties of zero, such as: 'When zero is added to a number or subtracted from a number, the number remains unchanged; and a number multiplied by zero becomes zero.'

(注)

abacus: そろばん

Archimedes: アルキメデス(古代ギリシアの数学者．物理学者)

1. 空所(1)に入る最も適切な語句を，次の中から1つ選び，記号で答えなさい。

(A) apart from (B) aside from (C) close to

(D) far from (E) further from (F) near to

2. 下線部(2)を日本語に訳しなさい。

3. 下線部(3)の place-holder はどのように説明されていますか。日本語で答えなさい。

4. エジプト人は637という数字を表すのに，いくつの記号を必要としましたか。下線部(4)を参考にして数字で答えなさい。

5. 下線部(5)の this の表す内容を日本語で説明しなさい。

6. 下線部(6)の it が指すものを本文中から選び，英語で答えなさい。

7. 下線部(7)の内容を示す箇所を波線部(ア)～(エ)の中から１つ選び，記号で答えなさい。

8. 空所(　8　)に入る数字を答えなさい。

9. 下線部(a)の breakthrough および下線部(b)の cumbersome のそれぞれとほぼ同義になる語を，次の中から１つずつ選び，記号で答えなさい。

(A) breakdown	(B) development	(C) disappointment
(D) modest	(E) period	(F) possible
(G) simple	(H) troublesome	(I) unnecessary

10. 次の中から，本文の内容と合っていないものを１つ選び，記号で答えなさい。

(A) Historians have only started to recognize the significance of finding zero.

(B) The Babylonians' number system based on multiples of 60 and working similarly to an abacus was the most advanced number system in history.

(C) According to Brahmagupta, adding or subtracting zero does not change the results of a calculation.

(D) Zero's first role in historical number systems was a place-holder.

Ⅲ　次の英文を読んで，下の問いに答えなさい。

Not long ago, I spent the morning having coffee with Kanzi. He invited me. Kanzi is a bonobo (ba-no-bo), which is a close cousin of the chimpanzee. Researchers say Kanzi knows 384 words. But he probably knows dozens more. He uses sheets displaying colorful symbols that stand for the words. (1)カンジはシートを指差すことによって，考えを示したり文を作ったりすることができる。 Some scientists are discovering that (2)人間は言語や道具を使うことができる，あるいは感情を有する，唯一の動物ではない。 For example, in an experiment, crows proved (　3　). They used the hook to fish a basket of food from a plastic tube. Monkeys practice charity. A 2008 study showed that they will share food with other monkeys who are familiar to them rather than keeping all the food for themselves. Elephants mourn their dead. If they find elephant bones, (　4　).

1. 下線部(1)の日本語を英語に訳しなさい。

2. 下線部(2)の日本語を英語に訳しなさい。

3. 空所(　3　)に次の語を最も適切な順に並べかえて入れ，英文を完成させなさい。その際，(　3　)の中で3番目と6番目はどの語になりますか。その語を答えなさい。

a, at, bending, create, hook, skillful, to, wire

4. 空所(　4　)に次の語を最も適切な順に並べかえて入れ，英文を完成させなさい。その際，4番目の単語を with にしなさい。

examine, like, looks, sadness, them, they, what, with