

# 筑波大学

平成27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12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(\*)のついた語には本文の後に注があります。)

For most of Western history, truth and morality came from God and king, and free will was a theological\* question. This began to change in the 1700s, and the idea that humans were individuals with the freedom of rational choice soon found its way into the belief systems of the upper classes of society. Over time, the concepts of rationality and individualism profoundly shaped the governments and culture of the West.

But to what extent are we freethinking individuals? The question matters <sup>(1)</sup> because economics and psychology have, at their basis, the concept of an independent individual. Perhaps it is this assumption which has led to the difficulty these disciplines\* have had accounting for phenomena such as financial bubbles, political movements, mass panics and technology fads\*.

Recent research is beginning to uncover the degree to which we act as independent individuals. By combining big data from cellphones, credit cards, social media and other sources, we can now observe humans in the same way (ア) biologists can observe animals in their natural habitats using cameras, GPS and other recording devices. From these observations of people, we can derive mathematical rules of behavior—a “social physics” that provides a reliable understanding of how information and ideas flow from person to person. This social physics shows us how the flow of ideas shapes the culture, productivity and creative output of companies, cities and societies.

To develop this new science, <sup>(2)</sup> my students and I have been studying living laboratories. By distributing smartphones with special software to all the residents of several small communities, we could track their social interactions with their peers — both friends and acquaintances — and at the same time ask questions about their health, politics and spending behavior. For instance, when we looked at weight gain, we found that people picked up new habits from

exposure to the habits of peers, and not just through interactions with friends. This means that when everyone else in the office <sup>(3)</sup> (take) a doughnut, you probably will too. In fact, this type of exposure turned out to be more important than all the other factors combined, highlighting the importance of automatic social learning in shaping our lives. We found that this same pattern held true for voting and consumer consumption.

The largest single factor driving adoption of new behaviors was the behavior of peers. Put another way, the effects of this implicit social learning were roughly the same size as the influence of your genes on your behavior, or your IQ on your academic performance.

The logic behind this is straightforward. If others have invested the effort to learn something useful, then it is easier to copy them than to learn it from the very beginning by yourself. If you have to use a new computer system, why read the manual if you can watch someone else who has already learned to use the system? People mostly rely on social learning and are more efficient because of it. Experiments such as those from my research group show us that, over time, we develop a shared set of habits for how to act and respond in many different situations, and these habits account for most of our daily behavior.

In light of this, perhaps we should ask how important individual choices are compared with shared habits. Here again the power of sharing ideas, ( ↑ ) individual thinking, is clear. When we study decision-making in small groups, we find that the pattern of communication— who talked to whom and how much they talked—is far more important than the characteristics of the individuals. In studies of workplaces <sup>(4)</sup> (range) from call centers to drug-discovery companies, communication patterns are usually the single most important factor in both productivity and creative output. And in our recent study of 300 cities in the United States and Europe, variations in the pattern of communication accounted for almost all of the differences in average earnings—much more important than variations in education or class structure. Importantly, income per person

grows dramatically larger ( ウ ): more people share ideas, so it is the sharing that causes the growth, not just having more individuals contributing.

Instead of individual rationality, our society appears to be governed by a collective intelligence that comes from the surrounding flow of ideas and examples. That means we learn from others in our environment, and they learn from us. A community with members who actively engage with each other creates a group with shared, integrated habits and beliefs. What social physics shows is that, when the flow of ideas incorporates a constant stream of outside ideas as well, the individuals in the community make better decisions than they could by finding solutions to problems on their own.

(注)

theological: relating to religious belief

disciplines: fields of academic studies

fads: temporary trends

1. 下線部(1)を日本語に訳しなさい。

2. 空所( ア )に入る最も適切な語を1つ選び、記号で答えなさい。

(A) that                      (B) how                      (C) why                      (D) what

3. 下線部(2)の内容として、最も不適切なものを1つ選び、記号で答えなさい。

(A) Researchers deal with big data taken from social networking activities.

(B) Participants in the study are kept in scientific laboratories for observation.

(C) Researchers can derive mathematical rules of human behavior from observations of social interactions.

(D) The study aims to clarify how ideas or information gets passed on from person to person.

4. 下線部(3) take を最も適切な形に書き換えなさい。
5. 空所( イ )に入る最も適切な語句を1つ選び、記号で答えなさい。
- (A) as well as
  - (B) as opposed to
  - (C) in addition to
  - (D) owing to
6. 下線部(4) range を最も適切な形に書き換えなさい。
7. 空所( ウ )に入る最も適切な語を1つ選び、記号で答えなさい。
- (A) that
  - (B) than
  - (C) to
  - (D) as
8. 本文の主張として正しいものにはTを、間違っているものにはFを記入しなさい。
- (A) Your peers can influence your behavior as much as your genes or IQ can.
  - (B) The concept of “social physics” has its theory based on the freethinking individual.
  - (C) We rely constantly on individual choice for the decisions we make every day, instead of our habits.
  - (D) The concept of individual rationality is believed to be a worldwide phenomenon.
  - (E) The idea of an independent individual cannot account for the cause of financial bubbles or mass panics.
  - (F) It is easier to learn new things by reading manuals than by learning from someone else familiar with them.

II 次の英文を読んで、下の問いに答えなさい。

(星印(\*)のついた語句には本文の後に注があります。)

Obesity, or having too much body fat, is becoming public health enemy number one in most OECD\* countries. Severely obese people die 8-10 years sooner than those of normal weight, similar to smokers, with every 15 extra kilograms increasing the risk of early death (ア) approximately 30%. In ten European countries, research shows that obesity doubles the chances of being unable to live a normal active life.

Until 1980, fewer than 1 in 10 people were obese. Since then, rates have doubled or tripled and in almost half of OECD countries 1 in 2 people is now overweight or obese. If recent trends continue, projections suggest that more than 2 out of 3 people will be overweight or obese in some OECD countries within the next 10 years.

Women are more often obese than men, but male obesity rates have been growing faster than female rates in most OECD countries.

Obesity is more common among the poor and the less educated. In several OECD countries, women with little education are 2 to 3 times more likely to be overweight than more educated women, but smaller or no differences exist for men.

Differences in income and education levels can also affect children (both boys and girls). This is the case in England, France and the United States, but not in Korea. Children who have at least one obese parent are 3 to 4 times more likely to be obese themselves. <sup>(1)</sup> This is partly genetic, but children generally share their parents' unhealthy diets, an influence which has played an important role in the spread of obesity.

Poor health goes hand in hand with poor job prospects for many obese people. Employers prefer normal weight over obese candidates, partly due to

expectations of lower productivity. This contributes to an employment and wage gap—in the United States, more than 40% of severely obese white women are out of work compared with just over 30% for all women. Obese people earn up to 18% less than people of normal weight. They need to take more days off, claim more disability benefits, and tend to be less productive on the job than people of normal weight. In northern European countries, obese people are up to three times more likely than others to receive a disability pension, and in the United States they are 76% more likely to suffer short-term disability. When production losses are added to health care costs, obesity accounts for over 1% of GDP in the United States.

There is no one “smoking gun\*” which explains the obesity increase. Instead, a series of changes—harmless by themselves—have massed into an increasingly serious problem. <sup>(2)</sup> Increased food supply combined with major changes in food production and sophisticated food advertising have cut the price of calories dramatically and made convenience foods all too available. At the same time, changing working and living conditions mean that fewer people prepare traditional meals from raw ingredients. Less physical activity at work, more women in the labor force, higher levels of stress and job insecurity, and longer working hours are all factors directly or indirectly contributing to the lifestyle changes causing the obesity increase.

Government policies have, incidentally, also played a part. <sup>(3)</sup> Examples include financial support and taxation affecting food prices, and transport policies that encourage the use of private cars and make walking to work uncommon. Urban planning policies in some cities have also led to the creation of deprived urban areas with no green grocers, many fast food outlets, and few playgrounds and sports facilities.

Just as there is no smoking gun responsible for obesity, there is no magic bullet to cure it. Twenty years ago, the scientist Geoffrey Rose estimated that reducing the average weight of a population ( 了 ) 1.25% (e.g. less than 900

grams for a person weighing 70 kg) would reduce the rate of obesity ( ア ) 25%. Unfortunately, none of the strategies tried so far can alone achieve even that small success. An effective prevention strategy must combine group-based approaches—health promotion campaigns, taxes and financial support, or government regulation—with individual-based approaches such as counseling by family doctors, to change what people perceive as the norm in healthy behavior.

Adopting a “multi-stakeholder\*” approach is a sensible way forward. Governments must retain overall control of initiatives to prevent chronic diseases and encourage private sector commitment. Because there will be conflicting interests, fighting obesity and associated chronic diseases will demand (4) compromise and co-operation by all stakeholders. Failure to do so will impose heavy burdens on future generations.

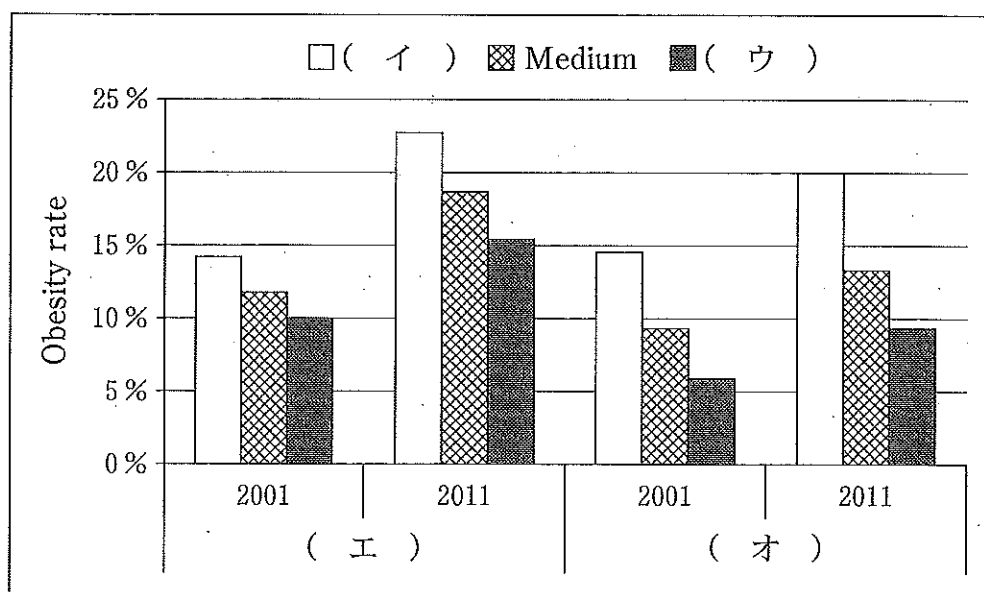
(注)

OECD: Organization for Economic Co-operation and Development

smoking gun: indisputable proof or evidence

multi-stakeholder: involving all those concerned

Figure 1: Evolution of obesity rates by education level, men and women (Spain)





1. 本文中に3箇所ある空所(ア)に共通して入る最も適切な前置詞を答えなさい。

2. Figure 1 は、OECD 加盟国の1つであるスペインの2001年と2011年における男女別、教育水準別の obesity rate を表しています。第4段落の内容に合うように空所(イ)(ウ)(エ)(オ)に入る最も適切な語句をそれぞれ1つ選び、記号で答えなさい。

- (A) Men
- (B) Women
- (C) Low education
- (D) High education

3. 下線部(1)のようになる理由を30字程度の日本語で説明しなさい。

4. 下線部(2)の例として最も不適切なものを1つ選び、記号で答えなさい。

- (A) Foods high in calories are available at a lower cost than before.
- (B) Nowadays, quite a few people take more time to cook meals from raw ingredients than before.
- (C) Jobs require less physical activity but longer working hours than before.
- (D) The rate of female employees is higher than before.

5. 下線部(3)の a part とは具体的に何における part のことですか。そのことを明らかにする形で、以下の空所( A )に入る最も適切な2語からなる句を本文中から抜き出して答えなさい。

Government policies have, incidentally, also played a part in the ( A ).

6. 下線部(4)の interests と最も近い意味の interest/interests を含む英文を1つ選び、記号で答えなさい。

- (A) His two great interests in life are politics and gardening.
- (B) With low interest rates, investors are seeking better returns than can be found in bank savings.
- (C) The happiest people are those whose work interests them.
- (D) The treaty represents a delicately balanced compromise between the varying interests of the countries.

7. 本文の内容として正しいものを1つ選び、記号で答えなさい。

- (A) Severely obese people are more likely to die 8-10 years sooner than those who smoke.
- (B) Today, 50% of the people in almost half of OECD countries are said to be overweight or obese.
- (C) Since employers hesitate to hire obese candidates, once hired, obese employees generally earn more than employees of normal weight.
- (D) Since none of the strategies tried so far can achieve even a small amount of success, individuals must take more responsibility to reduce obesity than governments.

8. 本文のタイトルとして最も適切なものを1つ選び、記号で答えなさい。

- (A) Obesity and the Economics of Prevention
- (B) The International Organization to Prevent Obesity
- (C) Obesity and Death Rates in OECD Countries
- (D) How Governments Are Dealing with Obesity

(次ページに第Ⅲ問があります。)

Ⅲ 次の〔A〕, 〔B〕に答えなさい。

〔A〕 下の英文の文脈に適合するように, (1)と(2)の( )内の語または句を並べ替えるとき, それぞれ3番目と5番目にくるものを選び, 記号で答えなさい。

Sometimes it is hard to understand why recycling helps the earth. The main principle is that recycling saves the energy that would be otherwise required to produce waste products again. Industrial production along (1)(イ other/ □ like/ ハ of/ ニ with/ ホ causes/ ヘ pollution) transport is increasing the levels of harmful gases in the atmosphere and this is causing the global temperature to rise. As a result, weather patterns have changed in some areas, which have had devastating effects such as more natural disasters and problems in farming and agriculture.

The saddest part is that most affected areas are the underdeveloped countries in the global south, which don't have enough money or resources to waste as we do. Therefore, they don't make a large contribution to global warming. While they struggle with natural disasters and changing weather affecting their food production, people like us living in (2)(イ the global/ □ located in/ ハ that/ ニ developed countries/ ホ are mostly/ ヘ north) experience few problems.

- (1) 3番目 \_\_\_\_\_ 5番目 \_\_\_\_\_  
(2) 3番目 \_\_\_\_\_ 5番目 \_\_\_\_\_

[B] 次の英文の主張に対する反論を 80 語程度の英語で書きなさい。(句読点は数える必要はありません。)

High school students often complain that they are too busy and have no free time. However, they do have a lot of time for hobbies and sports. Many students also spend several hours every day in convenience stores with their friends. They also play computer games and chat with their friends on their mobile phones until late at night. So, high school students have a lot of free time.