

# 旭川医科大学

## 平成30年度一般入試前期日程

### 英語問題紙

#### 注意事項

1. 試験開始の合図があるまで、この問題紙を開いてはいけません。
2. 英語の問題紙は、9ページあります。
3. 解答用紙は4枚あります。
4. 受験番号は、監督者の指示に従って、全ての解答用紙の指定された箇所に必ず記入しなさい。
5. 受験番号および解答以外のことを解答用紙に書いてはいけません。
6. 解答はすべて解答用紙の指定された欄に書くこと。裏面に書かないこと。
7. 解答用紙のみを提出しなさい。問題紙は持ち帰りなさい。

問題 1 以下の英文を読み、問いに日本語で答えなさい。

### The evolution of language

There is an almost perfect parallel between the evolution of DNA sequences and the evolution of written and spoken language. Both consist of linear digital codes. ①Both evolve by selective survival of sequences generated by at least partly random variation. Both are combinatorial systems capable of generating effectively infinite diversity from a small number of discrete elements. Languages mutate, diversify, evolve by descent with modification and merge in a ballet of unplanned beauty. Yet the end result is structure, and rules of grammar and syntax as rigid and formal as you could want. 'The formation of different languages, and of distinct species, and the proofs that both have been developed through a gradual process, are curiously parallel,' wrote Charles Darwin in *The Descent of Man*.

This makes it possible to think of language as a designed and rule-based thing. And for generations, this was the way foreign languages were taught. At school I learned Latin and Greek as if they were cricket or chess: you can do this, but not that, to verbs, nouns and plurals. A bishop can move diagonally, a batsman can run a leg bye, and a verb can take the accusative. Eight years of this rule-based stuff, taught by some of the finest teachers in the land for longer hours each week than any other topic, and I was far from fluent—indeed, I quickly forgot what little I had learned once I was allowed to abandon Latin and Greek. ②Top-down language teaching just does not work well—it's like learning to ride a bicycle in theory, without ever getting on one. Yet a child of two learns English, which has just as many rules and regulations as Latin, indeed rather more, without ever being taught. An adolescent picks up

a foreign language, conventions and all, by immersion. Having a training in grammar does not (I reckon) help prepare you for learning a new language much, if at all. It's been staring us in the face for years: the only way to learn a language is bottom-up.

Language stands as the ultimate example of a spontaneously organised phenomenon. Not only does it evolve by itself, words changing their meaning even as we watch, despite the railings of the mavens, but it is learned, not taught. The prescriptive habit has us all tut-tutting at the decline of language standards, the loss of punctuation and the debasement of vocabulary, but (3)it's all nonsense. Language is just as rule-based in its newest slang forms, and just as sophisticated as it ever was in ancient Rome. But the rules, now as then, are written from below, not from above.

There are regularities about language evolution that make perfect sense but have never been agreed by committees or recommended by experts. For instance, frequently used words tend to be short, and words get shorter if they are more frequently used: we abbreviate terms if we have to speak them often. (4)This is good — it means less waste of breath, time and paper. And it is an entirely natural, spontaneous phenomenon that we remain largely unaware of. Similarly, common words change only very slowly, whereas rare words can change their meaning and their spelling quite fast. Again, this makes sense — re-engineering the word 'the' so it means something different would be a terrific problem for the world's English-speakers, whereas changing the word 'prevaricate' (it used to mean 'lie', it now seems mostly to mean 'procrastinate') is no big deal, and has happened quite quickly. Nobody thought up this rule; it is the product of evolution.

Languages show other features of evolutionary systems. For instance, as Mark Pagel has pointed out, biological species of animals and plants are more

diverse in the tropics, less so near the poles. Indeed, many circumpolar species tend to have huge ranges, covering the whole of an ecosystem in the Arctic or Antarctic, whereas tropical rainforest species might be found in just one small area — a valley or a mountain range or on an island. The rainforest of New Guinea is a menagerie of millions of different species with small ranges, while the tundra of Alaska is home to a handful of species with vast ranges. This is true of plants, insects, birds, mammals, fungi. It's ⑤a sort of iron rule of ecology: that there will be more species, but with smaller ranges, near the equator, and fewer species, but with larger ranges, near the poles.

And here is the fascinating parallel. It is also true of languages. The native tongues spoken in Alaska can be counted on one hand. ⑥In New Guinea there are literally thousands of languages, some of which are spoken in just a few valleys and are as different from the languages of the next valley as English is from French. Even this language density is exceeded on the volcanic island of Gaua, part of Vanuatu, which has five different native languages in a population of just over 2,000, despite being a mere thirteen miles in diameter. In forested, mountainous tropical regions, human language diversity is extreme.

(Adapted from *The Evolution of Everything: How New Ideas Emerge*  
by Matt Ridley)

問 1 下線部(1)が指示する内容を述べなさい。

問 2 下線部(2)の理由を本文に即して述べなさい。

問 3 下線部(3)の理由を本文に即して述べなさい。

問 4 下線部(4)が指示する内容を述べなさい。

問 5 下線部(5)の内容を本文に即して述べなさい。

問 6 下線部(6)を和訳しなさい。

問題 2 Read the following text and answer the questions in English.

*Your good health*

It's become well known that drinking a moderate amount of alcohol may be beneficial to health because it reduces the risk of heart disease and heart attacks. These claims arise from the findings of surveys completed by thousands of people showing that on the continuum from being teetotal through moderate drinking and into heavy drinking, health problems tend to be found at the ends of this continuum. Simply put, it is teetotallers and heavy drinkers who have the most risk of disease compared with moderate drinkers.

The Whitehall II study carried out by epidemiologists at University College London is a good example of this kind of study. The researchers asked a large group of people, in this case more than 10,000 London-based civil servants, a number of questions about their drinking habits. Then they waited for a long time — 14 years to be precise. Over that time some of the civil servants became ill, and a fair few died. The researchers accessed medical and work records to find out what caused the deaths and the nature of the illnesses suffered. The aim was to see if illness or death due to heart disease had any connection with the amount of alcohol typically consumed.

They found that people who died from heart disease were more likely to be very low or high consumers of alcohol, with fewer deaths among moderate alcohol consumers. In the UK, 1 unit of alcohol is a standard drink size containing 8g (10ml) of neat ethanol. Non-drinkers and those drinking more than 31 units per week (i.e. more than around 10 pints of strong 5% \*ABV beer or its equivalent) had twice the risk of dying from heart disease compared with moderate drinkers (drinking under 31 units per week). They also looked

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\*ABV: alcohol by volume アルコール度数

at how often people drank and noted that those drinking between once a week and once a day had a lower risk of heart disease. Drinking less often or more often than this, again, doubled the risk of heart disease. A similar survey in Spain found that compared with teetotallers, moderate drinkers (having 1-2 drinks per day) had a reduced risk of depression by around 40 per cent.

If you are a moderate drinker, studies like this are good news — the message that drinking alcohol, already considered pleasurable, also benefits health is very welcome. However, there is a raging and ongoing debate among researchers as to how reliable these findings are. The worry is that surveys of this kind do not provide a fair test of the link between alcohol and heart disease because of the complexity of carrying out 'real world' research such as this. The specific problem that is hard, if not impossible, to overcome is that there are many things that could be having an effect when one is looking at real people living their complex lives. The findings of these studies are, essentially, correlational; in other words, they have found two things in the world that happen together — being teetotal and having slightly higher levels of illness.

However, it does not always follow, when two things happen at the same time, that one caused the other and there are many examples of coincidental occurrences that are not causal. Take intelligence in children, for instance. Up to the age of about 18 years, intelligence increases year on year as the brain develops. Height also increases year on year as the body develops. If you only measured height and intelligence you would observe a correlation between the two that might tempt you to form a conclusion that being taller causes children to be more intelligent. This would be incorrect because a third variable — age — accounts for both height and intelligence.

The main criticism levelled at alcohol surveys showing health benefits for moderate drinkers over teetotallers is that moderate drinkers are generally a

privileged and well-off group of people. In Western societies where these surveys are usually carried out, moderate drinking is a very normal part of everyday life. People who don't drink are unusual and have, to some extent, opted out of drinking. We don't know why but it could conceivably be because of underlying health issues. If so, then these underlying health issues may be the true cause of the increased risk in teetotallers rather than because of any protective effect of moderate drinking.

While studies like the Whitehall II study and the Spanish study take account of possibly important factors like age, smoking, obesity, and so on, there is a concern that they still do not sufficiently address the problems of inequality that are present in people filling in surveys as well as in wider society. The point is often made that only a randomized controlled trial can properly deal with these research design problems. A randomized controlled trial is a research technique in which, rather than have people choose themselves what or whether to drink (as the real life people who fill in a survey have done), instead people are randomly assigned to either alcohol or abstainer groups as part of a research project. They then spend a period of time drinking, or abstaining. When they are followed up, we can be more sure that alcohol underlies any effects (such as heart attacks) because the basis for choosing to drink (or not drink) alcohol was random, rather than due to reasons likely to influence the outcome, such as underlying health problems.

However, getting people to agree to take part in such a study would be impossible. Most moderate drinkers would be unwilling to give up alcohol for several years while the study was running and teetotallers would not welcome being asked to drink alcohol. That's why, to date, no such randomized controlled trial assessing the health benefits of alcohol has been carried out.

(Adapted from *Black Sheep: The Hidden Benefits of Being Bad*

by Richard Stephens)

Question 1. What did the Whitehall II study find?

Question 2. Why would a conclusion that being taller causes children to be more intelligent be incorrect?

Question 3. Why would it be difficult to conduct a randomized controlled trial instead of the design used in the Whitehall II study?

Question 4. Read the following statements, and mark T for true or F for false according to the text.

- A. Drinking a large quantity of alcohol may be beneficial to health because it reduces the risk of heart disease and heart attacks.
- B. Compared with moderate drinkers, non-drinkers have a lower risk of disease.
- C. The researchers studied a large group of civil servants by observing them continuously over a period of 14 years.
- D. A study done in Spain looked at depression and found that moderate drinkers had a decreased risk.
- E. In Western countries, moderate drinkers often come from the middle class.
- F. Everyone who doesn't drink has opted out of drinking due to health issues.
- G. The reason for the increase in disease in teetotalers may be due to the fact that some of them decided not to drink because they had health problems.
- H. The Whitehall II study is problematic because it was not done in a controlled environment.

**問題 3** Suppose your name is Hikaru Kamui. Imagine you made a mistake and hurt your friend, Michiru Asahikawa. Write a letter to Michiru in English and explain what happened and give reasons for what you did.