

平成 24 年 度

## 問題冊子

教 科	科 目	ページ数
外 国 語	英語リーディング・ ライティング	9

試験開始の合図があるまで、問題冊子を開かないこと。

## 解答の書き方

1. 解答は、すべて別紙解答用紙の所定欄に、はっきりと記入すること。
2. 解答を訂正する場合は、きれいに消してから記入すること。
3. 解答用紙には、解答と志望学部及び受験番号のほかは、いっさい記入しないこと。

## 注 意 事 項

1. 試験開始の合図の後、解答用紙に志望学部及び受験番号を必ず書くこと。
2. 問題の内容についての質問には、いっさい応じないが、その他の用事があるときは、だまって手をあげて、監督者の指示を受けること。
3. 試験終了時には、解答用紙の1ページ目を表にし、机上の右側に置くこと。
4. 試験終了後、問題冊子は持ち帰ること。

[ I ] 次の英文を読んで、後の問いに日本語で答えなさい。

In nearly every country on earth, the dark of a summer night will be lighted by tiny flashes of greenish light. First on, then off, they seem to hang near the ground or shine at treetop height. These are *fireflies*.

Such a bright-colored creature made men curious. One early theory held that the body of the insect was filled with a burning fire which could be seen through his skin. Since heat, fire, and light so often occur together, it is not surprising that such an idea developed. But the theory ended quickly. Catch a firefly and you will see the explanation is clearly false. Instead of a burning hot little body, you will find that the temperature of the firefly is not any different from that of other insects.

The light of the firefly is called *luminescence* or sometimes just “cold light.” Luminescent light has very little temperature change. Sometimes the need for “cold light” can be very great. One example is when a doctor needs light close to where he is operating on a patient. Then men use what they have learned from the firefly and use luminescent light.

Luminescent light is not limited to fireflies. Certain vegetables, minerals, other types of animals, and even air itself can be luminescent. But because the firefly does not hide its light from man, it is the most widely known and most frequently studied example of living “cold light.” Experiments with fireflies date back to ancient times. At that time the question, “Does the light die with the death of the insect?” was of great interest. This might seem easy enough to discover, but it presented at least one problem. As Thomas Bartholin, a 17th-century teacher of science at the University of Copenhagen, wrote, “I tried to check on the truthfulness of this experiment. . . . But while I was waiting for the result it cleverly escaped and, with itself, took away its light.”

Other more successful experimenters were able to show that the firefly’s light was produced by a yellowish-white substance which continues to glow for

a short time after it is removed from the body of the insect. They discovered also that it cannot glow if there is no oxygen present.

The light of fireflies is mostly green. When passed through a prism firefly light shows some red and yellow rays, but all the energy is of the kind that can be seen. None is given off as heat.

There are about 2,000 types of fireflies. In some, both the male and female can fly and have light. But in other types, only the female glows; and in some kinds, only the male can fly. Babies and females with no wings are known as *glowworms*. Fireflies in some parts of the world seem able to glow and darken as a group. For example, the fireflies of Thailand may gather in a group on a tree and then flash on and off together.

There are a number of other insects which are luminescent. South America has a colorful one called the *railroad worm*. The female is two inches long and looks like a worm. On its head there is a glowing red light, while a row of yellowish lights shines along its side. This string of lights glowing in the dark night looks like a tiny train.

Luminescent worms have been a part of strange stories, especially when such worms occurred in great numbers. On some occasions, scientists were able to examine the strange effects and so could explain unusual events. One such event took place in England in 1888. The footprints of horses were outlined in luminescent light on a road. This seemed like magic to some, but actually all that happened was that the worms came through the ground when the feet of the horses broke the surface of the soil.

Fiery footprints on land are unusual, but a glowing ocean is quite common. On a hot, calm night, frequently before rain, the waves may shine with flashing blue, green, and yellow lights. An old man of the sea said that it made the sea look as if "a group of stars had dropped down into the ocean." Other have compared it to a mass of shining jewels.

There have been many explanations offered for the shining wonder of the ocean. René Descartes believed that tiny pieces of salt separated out from the sea water and, as they rubbed together, shot off tiny bright pieces. The same thing happens, he said, when a stone is struck with iron or steel. He even went so far as to urge people not to use salt water to put out fires since the salt would cause the flames to grow. This was one subject about which Descartes knew nothing.

Benjamin Franklin, who was interested in electricity, produced an electrical theory of luminescent seas. Later, however, he decided he was wrong when his friend James Bowdoin wrote that he had been able to remove the light by passing the sea water through a cloth.

With better microscopes, the true cause was found. The ocean is full of tiny luminescent plants and animals. The number of sea animals which show some luminescent light seems almost without limit. Some are large enough to be seen with the unaided eye. People who go down deep in the ocean have returned with stories of new “lamp-carrying” animals on the bottom of the ocean. Other animals are so tiny that only combined light of great numbers at a time can be seen. These are called *plankton*, and someday they may provide food for the people of the world.

[出典：Beulah Tannenbaum and Myra Stillman. *Understanding Light*.  
Fawcett Publications, Inc. 1963. pp. 99-102.]

**Questions:**

- 1) How did people in the past think fireflies give off light?
- 2) Give one example of how people use cold light.
- 3) Why was Thomas Bartholin's experiment a failure?
- 4) Under what conditions can the fireflies' light not shine?
- 5) According to the text, what do some fireflies in Thailand do?
- 6) Explain in detail why one type of insect in South America is called the "railroad worm"?
- 7) Why did the horses' footprints seem to glow in England in 1888?
- 8) Why did René Descartes recommend not using salt water to put out fires?
- 9) Why did Benjamin Franklin realize that his electrical theory of luminescent seas was wrong?
- 10) What is the true cause of luminescent seas?

〔Ⅱ〕 次の英文を読んで、後の問いに日本語で答えなさい。

For anyone visiting a shopping mall in North America, Europe, Japan or Australia, it is hard to imagine extreme poverty. Yet about 820 million people can barely afford to eat even one meal a day. Most of them live in developing countries. The governments of rich western nations have been providing Official Development Assistance to the world's poorest countries since the 1950s, but this has failed to eradicate poverty. The lack of progress can be blamed on a number of factors: high birth rates, war, corruption, natural disasters and falling prices for commodities such as cotton and coffee, for example.

In September 2000, representatives of 189 countries gathered at the Millennium Summit in New York and committed their countries to an ambitious agenda for reducing global poverty by the year 2015. Eight Millennium Development Goals were formulated. These include halving the proportion of people living on less than a dollar a day, ensuring that all children are able to attend primary school, reducing infant mortality rates by two thirds and maternal mortality rates by three quarters, and fighting diseases such as AIDS and malaria.

This great project was estimated to cost around \$195 billion a year. In order to achieve it, the governments of rich countries would have to give about 0.7% of their national income in development assistance. However, by the year 2006, only five countries had reached or exceeded that level: Sweden, Luxembourg, Norway, the Netherlands and Denmark. The average was just 0.33%, and the US, the world's richest country, was giving just 0.16%. This is not the first time such a commitment has been made and broken by the world's richest countries — the goal of donating 0.7% of GNP dates back to 1963. In 2007, they spent \$251 billion on space research. That would have been more than enough to cover the cost of the Millennium Development Goals for that year.

〔Ⅲ〕 次の英文の指示に従って、自分の考えを 12 行程度の英文でまとめなさい。

Imagine you are alone on a small island far away from anywhere. You can take something to read with you. What would you take? Explain the reasons for your choice.

Poverty alleviation is not just a question of money. How the money is spent is also important. Aid projects often involve buying expensive equipment and materials from the donor country, and paying rich foreign consultants for services of dubious value. Cynics have suggested that the real goal of Official Development Assistance is to take money from taxpayers in rich countries and pay it to corporations and consultants in those same countries. The projects are often unsuitable, and the equipment soon breaks down. In many cases, locally available alternatives would be cheaper and more appropriate.

Suppose, for example, we want to help poor farmers in the Philippines. Would it be better to give them tractors made in Japan or water buffaloes from Cambodia? The tractors would cost more, and would need fuel, maintenance and repairs. The buffaloes, on the other hand, would need only grass and water. What's more, they would provide milk and manure, and could have babies that could be donated to other farmers. Moreover, the Cambodian community selling the buffaloes would also benefit. To take another example, if we want to reduce the number of Tanzanians suffering from malaria, would it be better to provide expensive drugs made in the US or help set up a factory in Tanzania making mosquito nets? Sumitomo Chemical Company chose the latter approach. First they designed a durable bed-net containing a non-toxic insecticide. They then set up a joint venture with a Tanzanian company to produce the nets at low cost. In the first year, half a million were sold. Now they are selling 10 million a year in 25 countries, and the factories that produce them now employ 4,700 workers.

While the governments of rich countries renege on their promises to increase Official Development Assistance, rich corporations buy commodities such as coffee and bananas at a very low price in developing countries and then sell them for a huge profit to western consumers. Public outrage at the way companies have pushed down the prices they pay producers while raking in bigger and bigger profits every year is one factor behind the phenomenal

success of the fair trade movement, which guarantees a reasonable price to the farmers and additional benefits to their communities. However, even with fair trade, only a very small share of the final price paid by western consumers remains in the country of origin. A much greater impact is possible if value is added before the product is shipped abroad. For example, the Malagasy Company of Madagascar buys cocoa grown by local farmers and then makes it into chocolate, a much more profitable export.

Recently, micro-credit has received a great deal of attention, and rightly so. It has enabled millions of poor people to supplement their income by buying a few hens and selling their eggs, for example, setting up a small bakery, or buying a cell-phone and operating a telephone kiosk. However, what benefits an individual may not always benefit a community. For instance, door-to-door cosmetics sales and stores selling cheap liquor make individuals richer and communities poorer. Every micro-loan request should be screened not only for the probability of repayment but also for the impact on the community.

[出典 : David Peaty. "Poverty: Meeting the Millennium Development Goals", *Confronting the Issues*. Kinseido. 2009. pp. 68-71.]

**Notes:**

**alleviation:** the act of making something less difficult

**manure:** animal waste that is used to help plants grow

**renege on:** break a promise

**non-toxic insecticide:** a chemical substance used for killing insects but not dangerous to people

[設問]

- 1) なぜ発展途上国は貧困を根絶できないのでしょうか。その原因を3つ挙げなさい。
- 2) 2000年のミレニアムサミットの目標を2つ挙げなさい。
- 3) 下線部(A)の文意を、文頭の that が何を指すか明らかにしながら、説明しなさい。
- 4) ODA (Official Development Assistance)のお金の本当の使い方について、cynics (皮肉屋)はどのような意見を持っていますか。
- 5) フィリピンへの援助で、トラクターよりも水牛が優れている理由は何か。3つ挙げなさい。
- 6) タンザニアにある蚊帳(かや)の工場が成功した理由は何か。
- 7) 裕福な企業のやり方に対して、人々が腹を立てているのはなぜか。
- 8) 下線部(B)の具体例を挙げなさい。
- 9) 発展途上国で micro-credit (少額融資)が大きな注目を集めている理由を述べなさい。
- 10) 下線部(C)を日本語に直しなさい。



外国語 (英語リーディング・ライティング)  
問題訂正

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問題訂正

外国語(英語リーディング・ライティング)

問題冊子 2 ページ 最終行

(誤) Other have ....

(正) Others have ....

問題冊子 4 ページ 問題文6の末尾

(誤) ?

(正) .