

## 2015 年度 入学 試験 問題

# 英 語

(試験時間 10:30~11:50 80分)

1. 解答用紙は、記述解答用紙とマーク解答用紙の2種類がありますので注意してください。
2. 解答は、必ず解答欄に記入してください。なお、解答欄以外に書くと無効となりますので注意してください。
3. 解答は、HBの鉛筆またはシャープペンシルを使用し、訂正する場合は、プラスチック製の消しゴムを使用してください。特に、マーク解答用紙には鉛筆のあとや消しくずを残さないでください。また、折りまげたり、汚したりしないでください。記述解答用紙の下敷きにマーク解答用紙を使用することは絶対にさけてください。
4. 解答用紙には、受験番号と氏名を必ず記入してください。
5. マーク解答用紙の受験番号および受験番号のマーク記入は、コンピュータ処理上非常に重要なので、誤記のないよう特に注意してください。

I 次の英文を読み、設問に答えなさい。(27点)

There is no denying that the central concept of modern biology is evolution, but I was a victim of the American public school system and I went ( あ ) twelve years of education without once hearing any mention of the word. We were made to memorize extremely elementary pieces of knowledge for exams, but we were not given any framework to make sense of it all. One reason I care very much about science education now is that mine was so poor.

The situation wasn't much better at college. There, evolution was treated as a matter of fact, without any introduction to the topic. It was sink or swim. Determined not to drown, I sought out anything that would help me understand all the facts my instructors expected me to know. I found it in a used bookstore, in a book that I selected because it wasn't too thick, and because I could see that it was clearly written, unlike the reference books my classes piled ( い ) on me. It was John Tyler Bonner's *On Development: The Biology of Form*, and it had such an impact on me that it changed me permanently. From then on, I have always seen biology through the lens of development.

The first thing the book taught me was not an explanation, which was something of a relief; my classes were just full of explanations already. Bonner's book is about questions — good questions, some ( う ) which had answers and others that just hung there ripely. The book clarified the questions we need to answer in order to explain the problem.<sup>(1)</sup> Maybe that is explanation at a different level: science is not a body of archived facts; it is the path we follow to acquire new knowledge.

設 問

1. 本文第1節の空所 ( あ ) に入る最も適当なものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

A. of    B. at    C. back    D. through

2. 本文第2節の空所（い）に入る最も適当なものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. with    B. through    C. up    D. from

3. 本文第3節の空所（う）に入る最も適当なものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. until    B. of    C. at    D. across

4. 本文第1節の内容と一致するものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. The author never heard the word evolution at public school.  
B. The biology classes at the author's public school was very informative.  
C. The author's poor background made it difficult to go on to college.  
D. The author sensed that the framework of science lay in biology.

5. 本文第2節の内容と一致するものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. At college the author joined a swimming club.  
B. The author ran into a second-hand book that deeply influenced him.  
C. John Tyler Bonner's book was a reference book for one of his classes.  
D. The set books for his classes were sold in a used bookstore.

6. 本文第3節の内容と一致するものをA～Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. The classes presented questions to the author without answering them.  
B. In science, asking the right questions is crucial.  
C. In science, information is ripened by storing them in archives.  
D. John Tyler Bonner's book presented a wealth of facts to the author.

7. 下線部(1)を和訳しなさい。答えは記述解答用紙に書きなさい。

II 次の英文を読み、設問に答えなさい。(24点)

Climate affects everything we do in life, from the clothes we wear to the diseases we catch. This is because as humans we only feel comfortable within a very narrow range of temperature and humidity. This comfort zone ranges from 20°C to 26°C and from 20 to 75 per cent relative humidity. However, we live almost everywhere in the world, meaning that conditions are frequently outside this comfort zone, and we have learnt to adapt our clothing and dwellings to maintain our comfort. So while you may think the clothes you have hanging in your wardrobe simply reflect your fashion taste or lack of it, in ( あ ) they reflect the climate in which you live and how it changes throughout the year. So you have a thick padded coat for a Canadian winter and a short-sleeved shirt for a business meeting in Rio de Janeiro. Our wardrobes also give hints about where we like to take our holidays. If you are a Polar explorer then there will be very warm Arctic clothes hanging up — if you love sunning yourself on the beach, then there will be shorts or a bikini instead.

Our houses are also built with a clear understanding of local ( い ). In England almost all houses have central heating as the outside temperature is usually below 20°C, but few have air conditioning as temperatures rarely exceed 26°C. On the other hand, in Australia most houses have air conditioning but rarely central heating. Climate also affects the structure of our cities and how transport systems around the world operate. In Houston, Texas, there is a ( う ) of 7 miles of underground tunnels connecting all the major downtown buildings; this is fully climate controlled and links 95 heavily populated city blocks. People use the tunnel when it is raining or hot outside, because for at least 5 months of the year the average temperature in Houston is above 30°C. Similarly there are underground malls in Canada to avoid the problems of heavy snow and extreme cold.

Climate controls where and when we get our food, because ( え ) is

controlled by rainfall, frost, and snow, and by how long the growing season is, which includes both the amount of sunlight and the length of the warm season. So in a simplified way, rice is grown where it is warm and very wet, while ( お ) can grow in much more temperate climates. The climate can also affect the quality of our food, for example it is well known that the very best vintages of French wine are produced when there are a few short sharp frosts during the winter, which harden the vines, producing excellent grapes. Farmers can also 'help' the local climate, for example by growing tomatoes in a greenhouse or by irrigating the land to provide a more constant supply of water.

設 問

1. 英文の空所 ( あ ) ~ ( お ) に入る最も適当なものをA~Fよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。ただし、選択肢には使用しないものが1つ含まれている。

- A. agriculture    B. reality    C. forecast  
D. climate        E. wheat        F. network

2. 下線部(1)の意味に最も近いものをA~Dより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. vary    B. decline    C. develop    D. work

3. 本文の内容に関する質問の答えとして、最も適当なものをA~Dよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。

イ. Which is NOT mentioned as things affected by climate?

- A. Diseases.  
B. Transport systems.  
C. Life expectancy.  
D. Quality of our food.

□. Which of the following conditions is out of the comfort zone?

- A. Temperature 20°C, humidity 20%.
- B. Temperature 20°C, humidity 75%.
- C. Temperature 24°C, humidity 26%.
- D. Temperature 26°C, humidity 18%.

△. Which is common in English houses?

- A. Central heating.
- B. Arctic clothing.
- C. Air conditioning.
- D. A bikini.

㊦. Which is true about the passage?

- A. It is important to know about our comfort zone to deal with environmental problems.
- B. What you wear should depend more on your fashion taste than on the climate.
- C. Houston has the underground facilities because it can be hot out of doors.
- D. Farmers expect that greenhouse gases can help to grow better tomatoes.

III 次の英文を読み、設問に答えなさい。(24点)

In 1969, American astronaut Neil Armstrong climbed down the side of the space vehicle that had taken him to the moon. As his foot touched the surface of the moon, pictures of the event were sent back to televisions on Earth. The pictures were not very good. It was hard to see astronaut Armstrong clearly. The surface of the moon was extremely bright. And the moon lander vehicle created a very dark, black shadow. But the quality of the television pictures was not important. Every man, woman and child who saw the television pictures understood they were watching an important event. They were watching history take place as it was happening many hundreds of thousands of kilometers away. For a few minutes, the poor quality television pictures captured the imagination of millions of people throughout the world. Experts believe about six hundred million people around the world watched as Neil Armstrong stepped from the space vehicle to the surface of the moon. In the years since then, people around the world have shared in many events. Television has made it possible for people in distant places to share a single experience.

Scientists all over the world made important discoveries that led to the development of modern television. Yet it was a young boy living on an American farm who was the first person to invent and design what became television. He first thought of the idea of an electronic television when he was only fourteen years old. His name was Philo Taylor Farnsworth. Philo Farnsworth was born in the western state of Utah. The house he lived in for the first few years of his life had no electric power. But Philo read about electricity. He was very excited when his family moved to a new house in Idaho that had electric power. He quickly began to experiment with electricity. He built an electric motor when he was twelve. Then he built the first electric washing machine for clothes that his family had ever owned.

Philo Farnsworth attended a very small school near his family's farm. He did

very well in school. He asked his teacher for special help in science. The teacher began helping Philo learn a great deal more than most young students could understand. One night, Philo read a magazine story about the idea of sending pictures and sound through the air. Anyone with a device that could receive this electronic information could watch the pictures. The magazine story said some of the world's best scientists were working on the idea. It said these scientists were using special machines to try to make a kind of device to send pictures. The story made Philo think. Fourteen-year-old Philo decided these famous scientists were wrong. He decided that mechanical devices would never work. They could never be made to move fast enough to clearly capture and reproduce an electronic picture sent through the air. Philo decided that such a device would have to be electronic, not mechanical. Philo knew electrons could be made to move extremely fast. All he would have to do was find a way to make electrons do the work. Very quickly Philo had an idea for such a receiver. It would trap light in a container and send the light on a line of electrons. Philo called it "light in a bottle."

Several days later, Philo told his teacher about a device that could capture pictures. He drew a plan for it that he gave his teacher. Philo's drawing seems very simple. But it still clearly shows the information needed to build a television. In fact, all television equipment today still uses Philo's early idea. Philo's teacher was Justin Tolman. Many years later Philo would say Mr. Tolman guided his imagination and opened the doors of science for him. Philo Farnsworth had to solve several problems before he could produce a working television system. One was that he was only fourteen years old. He knew no one would listen to a child. In fact, experts say that probably only ten scientists in the world at that time could have understood his idea. Philo also had no money to develop his ideas. His idea for a working television would have to wait. After only two years of high school, Philo entered Brigham Young University in Utah. But he did not finish his education. He was forced to leave school when his father died. Philo



did not give up his idea for creating a television. He began serious work on it when he moved to San Francisco, California a few years later. He was twenty-one years old.

In 1927, Philo turned on a device that was the first working television receiver. In another room was the first television camera. Philo had invented the special camera tube earlier that year. The image produced on the receiver was not very clear, but the device worked. Within a few months, Philo Farnsworth had found several people who wanted to invest money in his invention. In 1930 the United States government gave Philo patent documents. These would protect his invention from being copied by others. Very soon, however, several other inventors claimed they had invented a television device. One of these inventors, Vladimir Zworykin, worked for the powerful Radio Corporation of America. The RCA began legal action against Philo Farnsworth. It said Mr. Zworykin had invented his device in the 1920s. The big and powerful RCA claimed that it, not the small Philo Farnsworth Television Company, had the right to produce, develop and market television.

The legal action between RCA and the Farnsworth's company continued for several years. RCA proved that Mr. Zworykin did make a mechanical television device. RCA said Philo Farnsworth should be forced to prove he had invented the television image tube. Philo could not prove he invented it. But his high school teacher could. In court, Justin Tolman produced the drawing that Philo had made for him many years before as a student. At that moment, the legal experts for RCA knew they had lost. Philo Farnsworth won the legal action and the right to own the invention of television. However, he did not have the money or support to build a television industry. It was the 1950s before television became a major force in American life. Vladimir Zworykin and David Sarnoff, the head of RCA, became the names connected with the new industry.

In his last years, Mr. Farnsworth became a strong critic of television. He did not like most of the programs shown on television. Yet, as he watched Neil

Armstrong's first step on the moon, Mr. Farnsworth knew the event clearly showed the power of his invention. Philo Farnsworth died in 1971. Today, a statue of him stands in the United States Capitol. He is considered one of the most important inventors of the 20th century.

#### 設問

1. 本文において言及されている内容の答えとして、最も適当なものをA～Dよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。

イ. What did a television enable people who live in different places to do?

A. To gain useful information very easily and quickly.

B. To share the same experience.

C. To make much more money.

D. To watch local TV programs.

ロ. What did Philo Farnsworth make for his family?

A. Electric power.

B. A washing machine.

C. A dishwasher.

D. An electronic microscope.

ハ. What problem did Philo Farnsworth have to build a television?

A. He had to take care of his family.

B. He had to finish his education before moving to Utah.

C. Not so many people could understand his idea.

D. It was hard to find a person who could open the doors of science.

ニ. Who proved that Philo Farnsworth had invented television?

- A. Mr. Zworykin.
- B. Mr. Tolman.
- C. Mr. Sarnoff.
- D. Philo Farnsworth himself.

ホ. When Philo Farnsworth got old how did he see his invention?

- A. He enjoyed watching most of the programs on television.
- B. He kept an attitude of indifference.
- C. He held a critical view.
- D. He would like to appear in TV shows.

2. 本文の内容と一致するように、下の英文の空所（イ）～（ハ）に入る最も適当なものをA～Dよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。ただし、選択肢には使用しないものが1つ含まれている。

A television system changes (イ) and pictures into (ロ) that travel through (ハ).

- A. the air
- B. electronic signals
- C. patent documents
- D. sound

IV 次の英文を読み、設問に答えなさい（\*印の語は〔注〕を参照しなさい）。(25点)

Asian orang-utans and African gorillas are two of the four members of the \*great ape family. Orang-utans live in the forests of Indonesia and Malaysia. They are highly intelligent and very like humans — in fact their name comes from the Malaysian words *orang hutan*, meaning ‘person of the forest’. These apes, which evolved about fourteen million years ago, live only in the trees. Every evening they build a new nest for themselves and their families.

Like humans, these playful animals have a sophisticated language and culture. Just before bedtime they have been seen blowing raspberries at each other, the orang-utan equivalent of saying ‘night-night’. They also play games like surfing down fallen dead trees, grabbing as many leaves as they can on the way. Wild orang-utans have even been known to visit their orphaned relatives in rescue centers. They seem to communicate with them, and when the orphans are released they help them re-adapt to a life back in the trees.

Gorillas are mild-mannered vegetarians that live on grasslands, and not up in the trees. Only two species survive today. Both are endangered. Several hundred died in 2004 of \*ebola virus, for which there is currently no known vaccine or cure. Gorillas are highly intelligent. Koko, born in 1971, is a captive female gorilla living in California. She has been taught sign language from the age of one. Her trainer, Dr Penny Patterson, claims she can communicate using a ( あ ) of up to a thousand words. Something of a scientific ( い ) has been going on for years since Koko first showed off her language ( う ). Does she really understand what she is saying? Or is she just prompted by the prospect of a ( え ) if she says the right thing? In August 2004 Koko indicated that she had a toothache. According to her handlers she communicated that she was in pain. She could even indicate its ( お ) on a scale of one to ten.

Humans are apes. Until the 1960s it was thought that mankind split from apes about twenty million years ago — mostly because so few fossils had been

discovered to prove, one way or another, what happened and when. There was also a strong feeling that the split had to be at least that far back, ( イ ) there could never have been enough time ( ロ ) us humans ( ハ ) ( ニ ) evolved ( ホ ) such apparently superior beings. We talk, we build things, we invent amazing machines, we are clean (generally), ingenious, and we appear to have mastered nature, tailoring it to our own ends.

But in the early 1990s, \*molecular biologists discovered that we humans share at least 96 per cent of our genetic code (DNA) with the other great apes.

Their (2) four and seven million years ago.

- \*[注] great ape 大型類人猿 (オランウータン・ゴリラ・チンパンジー・テナガザル)  
ebola virus エボラウイルス (出血熱の原因となる)  
molecular biologist 分子生物学者

#### 設 問

1. 本文の内容と一致するものをA～Eより1つ選び、その記号をマーク解答用紙にマークしなさい。

- A. Orang-utans have ill feeling to the people living in their forest.
- B. Orang-utans say good night by blowing raspberries at each other.
- C. Orang-utans bring their orphaned relatives to rescue centers.
- D. Gorillas are meat-eating animals that live on African grasslands.
- E. Gorillas are suffering from severe starvation in Asian forests.

2. 空所 ( あ ) ~ ( お ) に入る最も適当なものをA～Fよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。ただし、選択肢には使用しないものが1つ含まれている。

- A. skills      B. level      C. debate
- D. reward      E. evidence      F. vocabulary

3. 下線部(1)が「さもないとわれわれ人間がこのような外見上はより優れた生き物に進化するのに十分な時間はありませんでしたらう」という意味になるように、空所（イ）～（ホ）に入る最も適当なものをA～Fよりそれぞれ1つ選び、その記号をマーク解答用紙にマークしなさい。ただし、選択肢には使用しないものが1つ含まれている。

A. for    B. into    C. to    D. if    E. or    F. have

4. 下線部(2)が「彼等の分析は人間が4百万から7百万年前の間のある時に生きていた類人猿の子孫であることを示したのである」という意味になるように、下のカッコ内に与えられた語をすべて使って空所を満たし、英文を完成させなさい。ただし、同じ語を繰り返して使用することはできない。答えは記述解答用紙に書きなさい。

( humans / ape / analysis / sometime / are / lived / descended / showed /  
that / which / from / between / an )