平成２６年度　第３学年入学者選抜学力試験問題

一　般　科　目

# 英　語

## 注　意　事　項

1　試験開始の合図があるまで，この問題用紙を開いてはいけません。

2　問題用紙は４ページで，解答用紙は２ページあります。試験開始の合図があってから確かめなさい。

3　監督者の指示に従い，解答用紙の各ページに受験番号を記入しなさい。氏名を書いてはいけません。

4　文字などの印刷に不鮮明なところがあった場合は，手を挙げて監督者に知らせなさい。

5　解答はすべて解答用紙に記入しなさい。

6　問題用紙の余白は下書きとして利用してかまいません。

7　試験終了後，配付された問題用紙は持ち帰りなさい。

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# 問 題 用 紙
## ( 英 語 )

問題１　次の英文はキュリー夫人についての説明です。下線部(1)から(5)について，文脈に適合するように，[　]内の要素を並べ替えなさい。答えは，解答欄に記号で記入しなさい。

Example:
All of us can see [(a)nectar (b)bees (c)to gather (d)flying] in the garden.
Answer: All of us can see [( b ) - ( d ) - ( c ) - ( a )] in the garden.
All of us can see [bees flying to gather nectar] in the garden.

Marie Curie (1867-1934) became the first scientist to win two Nobel Prizes when she was awarded the Nobel Prize in Chemistry in 1911 for her discovery of two new elements, polonium and radium. Radium (1)[(a)the treatment (b)used (c)of cancer (d)in (e)was] until cheaper and safer radioactive materials were developed. Marie Curie's first Nobel Prize, for the study of radioactivity, was shared with her husband, Pierre, and fellow scientist Antoine-Henri Becquerel in 1903.

As a child, Marie Sklodowska (her birth name) wanted to study science. However, (2)[(a)forbidden (b)girls (c)university (d)to attend (e)were] in her native country of Poland. She worked as a private tutor for three years (3)[(a)could earn (b)enough money (c)so that (d)to study (e)she] at the University of Paris. It (4)[(a)that (b)was (c)she met (d)there] her future husband, Pierre. They were very poor and spent most of their money on laboratory equipment, leaving them with very little money for food. In fact, they often couldn't afford to eat. After Pierre was knocked down and killed by a speeding wagon, Marie continued her research in radioactivity, pioneering (5)[(a)for use (b)the development (c)of (d)radioactive materials] in medicine and industry. She became the first female teacher at the University of Paris and worked hard to raise money for scientific research. (adapted from *Science Quest 1*)

注 polonium: ポロニウム　radium: ラジウム　speeding: スピード違反の

# 問 題 用 紙
## ( 英 語 )

問題２　次の英文は人が熱を感知する方法についての記述です。下線部(1)から(5)に入れるのに最も適切な文を下の(a)から(e)の中から一つずつ選び，その記号で答えなさい。

You notice common effects of heat all around you. There is much more heat in the air in summer than there is in the winter. ( 1 )

Sometimes you can tell if people are hot by just looking at them: their faces may be red and covered in perspiration. But you can also tell if they have a fever by touching their forehead. ( 2 )

Cells are the very tiny 'building blocks' that make up our bodies. ( 3 ) Nerve cells are responsible for sending messages from one part of your brain to another and between your brain and parts of your body. ( 4 )

The human body contains special nerve cells, called heat receptors, just below the skin. When you touch something, your heat receptors detect how hot or cold it is and then immediately send this information to your brain. The whole process takes less than a second! Without these receptors, you might be unaware that something you are touching is burning or freezing your skin. ( 5 )

(adapted from *Science Edge 1*)

注 perspiration: 汗　heat receptor: 熱を感知する受容体(感覚器)

(a) Different parts of the body have different numbers of heat receptors and so they have different sensitivities to heat and cold.
(b) What is in our skin that tells us how hot things are?
(c) They are so tiny you can only see them under microscopes.
(d) In general, the hotter something is, the more heat it contains.
(e) To do this they are linked together.

# 問 題 用 紙
## ( 英 語 )

問題３　次のデータに基づいて，下の英文の下線部(1)から(8)に適切な語あるいは句を記入し，英文を完成させなさい。

(%)

| Country | Elementary school | | | Junior high school | | | Senior high school | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2009 | 2010 | 2005 | 2009 | 2010 | 2005 | 2009 | 2010 |
| Brazil | 87.8 | 90.8 | 90.7 | 88.5 | 72.4 | 71.5 | 70.1 | 62.3 | 61.4 |
| Bangladesh | 37.2 | 43.5 | 49.2 | 17.6 | 20.3 | 20.2 | 16.8 | 19.6 | 18.9 |
| Spain | 69.4 | 74.3 | 75.0 | 61.9 | 56.7 | 57.2 | 49.1 | 49.4 | 50.0 |
| Hungary | 95.9 | 96.1 | 95.9 | 78.1 | 78.5 | 78.5 | 63.9 | 64.8 | 64.5 |
| Egypt | 55.0 | 51.8 | 52.9 | 44.6 | 47.5 | 45.1 | 38.4 | 41.5 | 39.1 |
| Sweden | 81.3 | 81.6 | 81.5 | 64.4 | 66.9 | 67.5 | 50.8 | 51.7 | 52.1 |
| Germany | 83.7 | 85.0 | 85.5 | 60.2 | 62.4 | 63.1 | 46.2 | 48.6 | 49.7 |
| Mexico | 66.4 | 66.5 | 66.6 | 49.2 | 50.7 | 51.0 | 42.6 | 44.7 | 45.5 |
| Indonesia | 61.0 | 59.6 | 60.0 | 43.2 | 49.3 | 48.7 | 43.9 | 45.2 | 47.0 |

(adapted from *International Statistical Compendium 2013*)

Above is a table displaying the percentage of female teachers in several countries for the years 2005, 2009, and 2010. Data is shown for three levels: elementary schools; junior high schools; and senior high schools.

Overall, although most countries have many female teachers, only three countries—Brazil, Hungary, and ( 1 )—have more than 50 percent of female teachers in all years and at all levels. ( 2 ) has less than 50 percent of female teachers in all years and at all levels.

On the whole, although there is a general trend for the percentage of female teachers to increase over time, the percentage of female teachers increases every year at all levels only in Germany and ( 3 ). Indonesia and ( 4 ) have more than 50 percent of female teachers in elementary schools but less than 50 percent of female teachers in junior and senior high schools in all years.

Turning our attention to each level of education, in elementary schools both ( 5 ) and Egypt have a lower percentage of female teachers in 2010 than in 2005, and ( 6 ) has the same percentage of female teachers in 2010 and 2005. In junior high schools ( 7 ) has the greatest increase in the percentage of female teachers from 2005 to 2010. In senior high schools every country listed except ( 8 ) has a higher percentage of female teachers in 2010 than in 2005.

# 問 題 用 紙
## ( 英 語 )

問題４　次の英文は未来の燃料(Fuels of the Future)についての説明です。この英文を読み，下の問いに答えなさい。

Solar energy is used for travel in outer space, where there is plenty of sunlight and very little friction to slow down a spacecraft. However, once a spacecraft travels far away from the Sun — as far as the outer planets Jupiter and Saturn —(1)the amount of energy reaching it is far less than the energy it was getting near Earth. The sunlight can be helpful only if solar cells on the vehicle can collect enough of it. One solution is to reflect sunlight. Scientists are developing solar sails, which will act like enormous (2)(　　). The pressure of reflected sunlight on the sails can be used to move a large ship through space — even far from the Sun.

Another way to power a spacecraft is to send energy to it all the way from Earth. This idea is called beamed energy propulsion. A beam delivers (3)(　　) to solar sails on the spacecraft. The energy can be in the form of microwaves — the same energy that heats food in a microwave oven or delivers calls on a cell phone. Or it can be in the form of laser light, a very concentrated beam of visible light. This method has already been used successfully to power very small vehicles, 10 centimeters (4 inches) long. Experiments are under way with larger spacecraft.

Scientists and inventors have long been looking for practical alternative fuels to power vehicles on Earth as well (4)(　　) in outer space. Most vehicle engines on Earth use gasoline or other fossil fuels. These fuels are based on resources, such as petroleum, that are found in underground deposits. Those deposits will not be replaced for millions of years. Solar energy, (5)(　　), is endlessly renewable, so it seems to be a good alternative to nonrenewable fossil fuels.

Solar-powered cars rely on solar cells, which convert the energy of sunlight directly into electrical energy that can be stored in batteries. One outstanding solar car was built by Dutch students and entered in the 2001 World Solar Challenge.

The students' car, called the *Nuna,* used several technologies that had been developed for space travel. Its body was reinforced with Kevlar, a space-age material that is also used in satellites, space suits, and bulletproof vests. During the race, the *Nuna* covered 3010 kilometers of desert in Australia, breaking solar-car speed records, and won the race.

Does the development of solar cars like the *Nuna* mean that most people will be driving solar cars soon? Unfortunately, (6)such cars run only when the Sun is shining unless they rely on batteries — and it takes hundreds of pounds of batteries to store the amount of energy in a gallon of gasoline. As with spacecraft, the goal is to design a vehicle in which the fuel doesn't outweigh the vehicle itself.

(adapted from *Matter and Energy*)

注 spacecraft: 宇宙船　Jupiter: 木星　Saturn: 土星　propulsion: 推進　bulletproof: 防弾の　outweigh ～ : ～より重い

問１　下線部(1)を日本語に訳しなさい。

問２　(2)と(3)の(　　)について，それぞれ文構成上最も適切な語あるいは句を以下の(a)から(d)の中から選び，その記号で答えなさい。

(2)　(a) energy　(b) sunlight　(c) mirrors　(d) vehicles

(3)　(a) energy　(b) ships　(c) a spacecraft　(d) the form

問３　(4)の(　　)について，文構成上最も適切な語(1語)を補いなさい。

問４　(5)の(　　)について，文構成上最も適切な語あるいは句を以下の(a)から(d)の中から選び，その記号で答えなさい。

(5)　(a) as a result　(b) similarly　(c) by contrast　(d) thus

問５　下線部(6)を日本語に訳しなさい。

※「英語」の試験問題の出典は、以下のとおりです。なお、試験問題の無断転載・複製を禁じます。但し、著作権法で許される場合を除きます。

問題１

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問題２

Jenny Sharwood/Monika Khun, "Science Edge 1", © 2004 Cengage Learning Australia, Reproduced by permission.

問題３

International Statistical Compendium 2013

問題４

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