

英 語

〈監督者の指示があるまで開いてはいけない〉

1. 試験開始後、まず解答用紙に自分の受験番号と氏名を正しく記入しなさい。
2. 試験開始後、速やかに問題冊子に落丁や乱丁がないか確認しなさい。
落丁や乱丁があった場合は、手を挙げなさい。
3. 下書きは問題冊子の余白を利用しなさい。
4. 記入中でない解答用紙は必ず裏返しにしておきなさい。
5. 問題冊子は試験終了後、持ち帰ってもよい。
ただし、試験途中では持ち出してはいけない。

I. 次の英文を読み、設問に答えなさい。

Nikki Stamp is a cardiothoracic surgeon and her dilemma sums up how far women have come in the workplace and how far there is still to go. On the one hand she has (a) her lack of self-belief and fought her way into the men's club that is surgery: only 12 per cent of surgeons in the UK are female. On the other, when she walks in to see a patient, they assume she's the nurse.

"It's common for them to say, 'Oh, Dr Stamp! We thought we were seeing an older white man.' They're surprised, but 99 times out of 100 it's not ill-natured. I can only remember one instance, when I was the registrar, of someone saying they didn't want a woman surgeon. [W] People have a picture in their head of what a surgeon looks like, and when a young woman (b) up they're shocked."

Since she qualified at the age of 33, Stamp, who is Australian, has worked at a hospital in Perth, where she performs two or three surgeries a day, four days a week. [X] The rest of the time she's holding clinics, or teaching, or (c). She has a partner, and pets, but no children, and in her non-existent downtime she has added author to her qualifications. Her book is called *Can You Die of a Broken Heart?* So, can you? "Yes."

Wow. Really? "Yes. Heartbreak is an unfortunate side-effect of being human, but most of us will be fine. Dying of it tends to happen to people who are already unwell, or elderly, or have other problems, and that stressful event (d) a stroke or a heart attack. But the short answer is yes, you can die of a broken heart."

Her book reads like a love letter to the heart: the amazing things they do, the terrible damage we inflict. Everyone knows that sitting on the sofa smoking is bad for your heart, but so too, it turns out, are stress and depression. [Y] Acute, continuing stress triggers the body's fight-or-flight response, hormones such as adrenaline and cortisol are released and your heart beats faster and harder. In evolutionary terms, this is great in the short term if you're running away from a lion; it's not great in the long term if the cause is your job.

"In the right situation those hormones can save your life. [Z] But if they get activated too often, for too long, they become damaging."

[Adapted from Rose, Hilarly. "The surgeon who mends broken hearts" (Online) URL: <http://www.thetimes.co.uk/article/the-surgeon-who-mends-broken-hearts-2kchr3fnm> (May 7 2018, The Times)]

問 1. (a), (b), (c), (d)に入れるべき最も適切な動詞を以下の4つの語の中から選び、適切な形にして書きなさい。ただし、それぞれの語は1回ずつしか使えません。

- (1) precipitate (2) mentor (3) overcome (4) turn

問 2. 次の文を[W], [X], [Y], [Z]のいずれかに挿入する場合、どこが最も適切な箇所か。1つ選び、その記号を書きなさい。

The irony was that the on-call surgeon that day was also a woman.

問 3. この文章に続くパラグラフの冒頭にくる文として、最もふさわしいものを以下の(1)~(4)の中から1つ選び、その番号を書きなさい。

- (1) At the age of eight she announced that she was going to be a surgeon when she grew up, after seeing a famous heart surgeon on television.
- (2) The training to become a surgeon, from roughly 23 to 33, is precisely when many women think about starting a family, and Stamp says that female surgeons generally have children later, especially compared with male surgeons of the same age.
- (3) So concerned is the American Heart Association that it has recently suggested that how to manage stress should be considered at a population level, and it has listed depression as a significant risk factor for heart disease.
- (4) Stamp was at university with a young man who told her that women couldn't be surgeons because they weren't strong enough and couldn't stand up for long enough.

II. 次の英文を読み、設問に答えなさい。

Human adaptation to running has been suggested to be an example of something which is quite a bold new idea in evolution, an idea which suggests that profound changes in the body can occur *before* genetic changes take place.

Our bodies are adaptable within our own lifetimes. We know that from personal experience: if you were to start a new regime at the gym, your body would change. Certain muscles would grow bigger, and you'd notice those, but what you probably wouldn't notice is that your bones would also change. We tend to think of our skeleton as an inert, lifeless scaffold for our living bodies, but bones are living tissue too. Although heavily mineralized, there are cells living in hollows within the hard bone matrix. These cells are in communication with each other and with cells on the surface of a bone. They respond to altered strains on the bone, laying down new bone where more strength is needed, removing it when loads are lifted. (One of the many challenges for astronauts spending time in a weightless environment is that they lose bone mass.)

As an embryo, as a growing child, and even as an adult, the form and function of your body isn't exclusively determined by your DNA. What this means is that the shape of your skeleton, and in fact, of your whole body, is not just a product of your genes, it is also a product of how you *use* your body: a product of your behavior. Your genes set parameters within which the shape of your body can change.

Examples of quite profound changes to what might be considered to be the 'normal' anatomy in a particular region of the body can occur when anatomy and physiology is somehow disrupted elsewhere. In 1942, a Dutch vet called E. J. Slijper described a strange case of a bipedal goat. This animal had been born with paralyzed front legs so it could not walk on all fours. Instead, it managed to move around quite well by hopping on its back legs. When the goat died, Slijper dissected it and found that its anatomy was very strange indeed: its thorax and sternum were an odd shape, and muscles at the top of the hind leg had changed shape and developed new tendons. Examples like this show just how malleable anatomy can be.

Slijper's hopping goat illustrates an important point: whatever it was that caused the loss of use of the goat's front legs, that problem didn't lead directly to the changes in its hind legs. The anatomical changes came about because of the way the goat was *using* its hind legs. The malleability of anatomy may be more limited during adulthood — you are not going to produce anything this dramatic by going to the gym — but the potential for dramatic change is greater if a behavioral adjustment happens at an earlier stage of development.

[Adapted from Roberts, Alice. *The Incredible Unlikelihood of Being*. Heron Books, 2015]

問 1. 下線部(1), (2), (5), (7)の語の本文中の意味と最も近い意味を持つ語を, それぞれ1~4の中から1つずつ選び, その番号を書きなさい。

- | | | | | |
|----------------|---------------|--------------|---------------|-----------------|
| (1) regime: | 1. rein | 2. reign | 3. regimen | 4. regiment |
| (2) inert: | 1. incapable | 2. marshy | 3. vulnerable | 4. unmoving |
| (5) embryo: | 1. newborn | 2. infant | 3. adolescent | 4. unborn child |
| (7) dissected: | 1. anatomized | 2. discarded | 3. mitigated | 4. prescribed |

問 2. 下線部(3)の They, 下線部(4)の itは何を指しているか。それぞれ本文中の英語1語を使って答えなさい。

問 3. 下線部(6)の itは何を指しているか。1~4の中から1つ選び, その番号を書きなさい。

- | | |
|---------------------------|-------------------------------------|
| 1. the form of your genes | 2. the function of your behavior |
| 3. the shape of your body | 4. the shape of your DNA parameters |

問 4. 本文の趣旨と合う内容を持つ文を1~5の中から1つ選び, その番号を書きなさい。

1. Human adaptation to running takes place as an example of genetic changes in the body.
2. The bone mass of astronauts is lost chiefly because of hard training on the Earth.
3. The example of E. J. Slijper's goat showed how it was born with paralyzed front legs.
4. The anatomical changes in the hind legs of Slijper's goat were due to how its front legs were used.
5. The bodies of younger children have a higher potential of showing how malleable anatomy can be.

III. 次の英文を読み、設問に答えなさい。

Essentialist intuitions are not the only reason that perceptions of danger can be off the mark. Risk analysts have discovered to their bemusement that people's (a) are often way out of line with objective hazards. Many people avoid flying, though car travel is eleven times more dangerous. They fear getting eaten by a shark, though they are four hundred times more likely to drown in their bathtub. They clamor for expensive (b) to get chloroform and trichloroethylene out of drinking water, though they are hundreds of times more likely to get cancer from a daily peanut butter sandwich (since peanuts can carry a highly carcinogenic mold). Some of these risks may be misestimated because they tap into our innate fears of heights, confinement, predation, and poisoning. But even when people are presented with objective information about danger, they may not appreciate it because of the way the mind assesses probabilities.

A statement like "The chance of dying of botulism poisoning in a given year is .000001" is virtually incomprehensible. For one thing, magnitudes with lots of zeroes at the beginning or end are beyond the ken of our number sense. The psychologist Paul Slovic and his colleagues found that people are unmoved by a lecture on the (c) of not wearing a seat belt which mentions that a fatal collision occurs once in every 3.5 million person-trips. But they say they will buckle up when [1] that their lifetime chance of dying in a collision is one percent.

The other reason for the incomprehensibility of many statistics is that the probability of a single event, such as *my* dying in a plane crash (as [2], such as the proportion of all airline passengers who die in crashes), is a genuinely puzzling concept, even to mathematicians. What (d) can we make of the odds offered by expert bookmakers for particular events, such as that the Archbishop of Canterbury will confirm the second coming within a year (1000 to 1), that a Mr. Braham of Luton, England, will invent a perpetual motion machine (250 to 1), or that Elvis Presley is alive and well (1000 to 1)? Isn't odd that they are more likely alive than dead? Either Elvis is alive or he isn't, so what does it mean to say that the probability that he is alive is .001? Similarly, what should we think when aviation safety analysts tell us that on average a single landing in a commercial airliner reduces one's life expectancy by fifteen minutes? When the plane comes down, either my life expectancy will be reduced by a lot more than fifteen minutes or [3]. Some mathematicians say that the probability of a single event is more like a gut feeling of confidence, expressed on a scale of 0 to 1, than a meaningful mathematical quantity.

The mind is more comfortable in reckoning probabilities in terms of the relative frequency of remembered or imagined events. That can make recent and memorable events — a plane crash, a shark attack, an anthrax infection — loom larger in one's worry list than [4], such as the car crashes and ladder falls that get printed beneath the fold on page B14. And it can lead risk experts

to speak one language and ordinary people to hear another. In hearings for a proposed nuclear waste site, an expert might present a fault tree that lays out the conceivable sequences of (e) by which radioactivity might escape. For example, erosion, cracks in the bedrock, accidental drilling, or [5] might cause the release of radioactivity into groundwater. In turn, groundwater movement, volcanic activity, or an impact of a large meteorite might cause the release of radioactive wastes into the biosphere. Each train of events can be assigned a probability, and the aggregate probability of [6] can be estimated. When people hear these analyses, however, they are not reassured but become more fearful than ever — they hadn't realized there are so many ways for something to go wrong! They mentally tabulate the *number* of disaster scenarios, rather than mentally aggregating the *probabilities* of the disaster scenarios.

[Adapted from Pinker, Steven. *The Blank Slate: The Modern Denial of Human Nature*. Penguin Books, 2002.]

問 1. (a)～(e)のそれぞれに入る最も適切な英単語 1 語を(1)～(5)の中から選び、その番号を書きなさい。ただし、それぞれの語は 1 回ずつしか使えません。

- (1) sense (2) measures (3) hazards (4) events (5) fears

問 2. 以下の設問に対する最も適切な答えを記号で書きなさい。

1. Which one of the following fills in the blank [1] ?

- (A) local police officers wear badges
(B) the odds are recalculated to show
(C) there is an even smaller percentage
(D) they make sure to fasten their seat belts

2. Which one of the following fills in the blank [2] ?

- (A) often as the causes of happenings are unaccounted for
(B) opposed to the frequency of some events relative to others
(C) in the cases where the number of victims is unknown
(D) soon as your survival rate in more tragic airplane accidents

3. Which one of the following fills in the blank [3] ?

- (A) my expectations heightened
- (B) cuts in the landing of the plane
- (C) it won't be reduced at all
- (D) your life expectancy increases

4. Which one of the following fills in the blank [4] ?

- (A) fewer ancient catastrophes
- (B) greater disasters and tragedies
- (C) smaller and rarer road accidents
- (D) more frequent and boring events

5. Which one of the following fills in the blank [5] ?

- (A) improper sealing
- (B) radiation chemistry
- (C) incidental charges
- (D) long-suffering

6. Which one of the following fills in the blank [6] ?

- (A) the ways and costs of fixing them
- (B) a list of radioactive elements
- (C) an accident from all the causes
- (D) these risks of nuclear explosives

問 3. 下線部[X]を日本語に訳して解答欄に書きなさい。

問 4. 本文の中には、文脈に合わず、しかも語法に誤りのある1文がある。その文の適切な位置に it を挿入し、書きなさい。

IV. 次の日本語の文を英語に訳しなさい。

私は、自分には意味がよくわからない話を同時通訳するのがとても苦手であることを悟った。