

## 外 国 語

英 語： 1～6 ページ

1. 試験開始の合図があるまで、この問題冊子を開いてはいけません。
2. 解答時間は 60 分間です。
3. 解答用紙の記入にあたっては、**解答用紙の注意事項**を参照し、HBの鉛筆を使用して丁寧にマークしなさい。
4. 受験番号、氏名、フリガナを解答用紙に記入しなさい。受験番号は正しくマークしなさい。
5. マークの訂正には、消しゴムを用い、消しきずは丁寧に取り除きなさい。
6. 試験開始後、ただちにページ数を確認し、落丁や印刷の不鮮明なものがあれば申し出なさい。
7. 試験終了後、**解答用紙のみ**を提出しなさい。問題冊子は持ち帰りなさい。
8. 解答用紙は折り曲げないようにしなさい。
9. 受験番号欄にマークミスがあった場合は、採点対象外となります。

**PASSAGE 1**

Use the content from this passage, separated into 8 sections (*sec 1 - sec 8*), to answer the **PASSAGE 1 QUESTIONS**.

*sec 1* As pirates of old could attest, you really don't want to get scurvy. It's a truly wretched<sup>1</sup> condition, which starts with **fatigue** and only gets worse from there – potentially even life threatening. Fortunately, scurvy is very easy to avoid. Its cause is quite simple; a lack of vitamin C. Because today's diets, which include plenty of fresh fruits and vegetables, usually contain adequate amounts of **this crucial nutrient**, scurvy is fortunately now quite rare.

*sec 2* But between 1500 and 1800, scurvy is thought to have killed as many as two million sailors. On some long sea voyages, as many as two-thirds of those on board perished of the disease. These figures may seem almost unbelievable today. Yet there was confusion about scurvy's exact cause for hundreds of years. As early as the 1500s, people saw a connection between citrus juice and scurvy [ A ]. But they didn't know exactly what was working to prevent the sickness. Some came to the conclusion that it was the acidity of the citrus that was effective.

*sec 3* In 1747, a Scottish doctor named James Lind conducted the world's first clinical trial on a group of scurvyed sailors. The seamen were divided into six experimental groups and received daily doses of six potential "cures". Group 1 got seawater, group 2 got vinegar, group 3 got a "spicy paste" and barley water, group 4 got sulfuric acid, group 5 got cider, and the fortunate group 6 got two daily oranges and a lemon. Well, they ran out of fruit in six days' time, but it was enough. By then, one fruit-eating sailor had recovered enough for full duty, and the other was almost better.

*sec 4* Oddly enough, this successful experiment didn't fully convince Lind himself. However, he did recommend that sailors consume citrus juice and watercress (also high in vitamin C) while on voyages. The British Navy also began issuing daily rations of lemon juice to sailors, which worked very well... at first. History intervened, and the idea that citrus cured scurvy was almost lost. You see, lemons were hard to come by in the British Empire, but limes, which grew well in the Caribbean colonies, were not. So, the British navy started supplying its sailors with lime juice instead; hence, the term "Limey" for a British sailor.

*sec 5* The problem? Limes are significantly lower in vitamin C than lemons. Of the common citrus fruits, oranges and lemons are the highest in C, with grapefruit next, and limes in last place. What's more, at sea, the lime juice was stored in conditions that destroyed what vitamin C it did have. In other words, the Limeys' lime juice wasn't actually working, and some travelers consuming lime juice still got scurvy.

*sec 6* It had also been noticed that people who ate fresh meat, and only meat, didn't seem to suffer from the sickness. Yet those who were living mostly on salted and preserved meat definitely did. This observation did even more damage to the "fresh fruit" theory of scurvy. "Never mind the oranges and lemons!" the thinking began to go. "Scurvy is caused by **spoiled** meat!"

*sec 7* Early polar explorers did not prepare correctly to prevent scurvy and suffered severe consequences. It was this thinking that sent expeditions to the South Pole in the early 1900s without any sources of vitamin C. They were very concerned about scurvy, so they obsessively ensured that all their preserved and canned meat was in great condition. Of course, this didn't work, and scurvy ensued, much to the men's despair.

*sec 8* Indeed, scientists didn't figure it all out until 1932, when vitamin C, or ascorbic acid, was finally discovered and its role in preventing scurvy was confirmed (in fact, ascorbic basically means "no scurvy"). After centuries and literally millions of deaths, at last we truly understood how to prevent and cure this terrible and deadly sickness. The cure really [ B ] eating an orange (or another good source of vitamin C).

**Vocabulary**

(1) **wretched:** terrible, horrible

*Excerpt adapted from "Pass the OJ, mate: Why it took more than 400 years to stop scurvy" (2014)  
<http://blog.orangesonline.com/2014/02/pass-oj-mate-why-it-took-more-than-400.html>*

**PASSAGE 1 QUESTIONS**

1. In *sec 1*, which of the following is closest in meaning to “fatigue”?

- ① congestion
- ② contusion
- ③ tingling
- ④ tiredness

2. In *sec 1*, what is “this crucial nutrient”?

- ① fresh vegetables
- ② fruit
- ③ scurvy
- ④ vitamin C

3. According to *sec 2*, what happened to more than half of the crew on some long sea journeys before 1800?

- ① they died
- ② they drowned
- ③ they mutinied
- ④ they recuperated

4. In *sec 2*, which of the following is the best fit for [ A ]?

- ① prevent
- ② preventative
- ③ prevention
- ④ prevents

5. In *sec 3*, which of the following is true about James Lind’s 1747 clinical trial?

- ① It aimed to cure two sailors of scurvy by giving them two lemons and an orange every day.
- ② It compared the effectiveness of possible cures for scurvy.
- ③ It evaluated whether lemons were more effective than oranges as a cure for scurvy.
- ④ It proved that sulphuric acid the best cure for scurvy.

6. According to *sec 4* and *sec 5*, why did the British Navy switch from lemon juice to lime juice rations?

- ① Limes are easier to transport than lemons.
- ② Limes contain more vitamin C than lemons.
- ③ Limes were easier to obtain than lemons.
- ④ Sailors preferred the taste of lime juice.

7. In *sec 6*, which of the following is closest in meaning to “spoiled”?

- ① curdled
- ② over indulged
- ③ pampered
- ④ rotten

8. According to *sec 6* and *sec 7*, why were the early polar explorers poorly prepared for their expeditions?

- ① They did not expect to get scurvy in a cold climate.
- ② They did not understand the actual cause of scurvy.
- ③ They packed too much fresh meat.
- ④ They thought that their expedition would be too short for scurvy to be a problem.

9. According to *sec 6* and *sec 7*, why did the polar explorers get scurvy?

- ① because fresh meat does not contain vitamin C
- ② because preserved meat does not contain enough vitamin C
- ③ because scurvy is caused by eating spoiled meat
- ④ because they did not have enough preserved meat

10. In *sec 8*, which of the following is the best fit for [ B ]?

- ① as simple as
- ② has been as simple
- ③ is simply as
- ④ was as simple as

**PASSAGE 2**

Use the content from this passage, separated into 7 sections (*sec 1 - sec 7*), to answer the **PASSAGE 2 QUESTIONS**.

*sec 1* I had seen him the night before the operation. When I talk to my patients the night before surgery, I try not to dwell on the risks of the operation ahead, which I will already have discussed in detail at an earlier meeting. I try to reassure them and lessen their fear, although this means that instead I make myself more [ A ]. It is easier to carry out difficult operations if you have told the patient beforehand that the operation is terribly dangerous and quite likely to go wrong - I will perhaps then feel a little less painfully responsible if it does.

*sec 2* His wife was sitting beside him looking quite sick with fear. 'This is a straightforward operation,' I reassured them, with false optimism. 'But the tumour<sup>1</sup> could be cancerous, couldn't it?' she asked.

*sec 3* A little reluctantly, I said that it might be. I explained that I would get a frozen section during the operation - a specimen to be examined immediately by a pathologist. If he reported that the tumour was not cancerous, I would not have to try to get every last little bit of tumour out. And if it was a tumour called a germinoma, I wouldn't have to remove it at all and her husband could be treated - and probably cured - with radiotherapy.

*sec 4* 'So if it's not cancer and not a germinoma then the operation is safe,' she said, but her voice tailed off uncertainly. I hesitated, not wanting to frighten her. I chose my words carefully. 'Yes - it makes it a lot less dangerous if I don't try to take it all out.' We talked for a little longer before I wished them good night and went home.

*sec 5* Early the next morning, I lay in bed thinking about the young woman I had operated on the previous week. She had had a tumour in her spinal cord, between the 6th and 7th cervical vertebrae<sup>2</sup>, and - although I do not know why, since the operation had seemed to proceed uneventfully - she awoke from the operation paralyzed down the right side of her body. I had probably tried to take out too much of the tumour. I must have been too sure of myself. I had been insufficiently fearful. I [ B ] for this next operation, the operation on the pineal<sup>3</sup> tumour, to go well - for there to be a happy ending, for everybody to live happily ever after, so that I could feel at peace with myself once again.

*sec 6* But I knew that however bitter my regret, and however well the pineal operation went, nothing I could do would undo the damage that I had done to the young woman. Any unhappiness on my part was nothing compared to what she and her family were going through. There was no reason for this next operation on the pineal tumour to go well just because I hoped so desperately that it would, or because the previous operation had gone so badly. The outcome of the pineal operation - whether the tumour was malignant<sup>4</sup> or not, whether I could remove the tumour or whether it was hopelessly stuck to the brain and everything went horribly wrong - was largely outside my control. I also knew that as time went by, the grief I felt at what I had done to the young woman would fade. The memory of her lying in her hospital bed, with a paralysed arm and leg, would become a scar rather than a painful wound. She would be added to the list of my disasters - another headstone in that cemetery<sup>5</sup> which the French surgeon Leriche once said all surgeons carry within themselves.

*sec 7* As soon as an operation begins, I usually find that any such morbid<sup>6</sup> fear disappears. I take up the scalpel - no longer from the scrub nurse's hand but, in accordance with some health and safety protocol, from a metal dish - and, full of surgical self-confidence, press it precisely through the patient's scalp. As the blood rises from the wound, the thrill of the chase takes over and I feel in control of what is happening. At least, that is what usually happens. On this occasion, the disastrous operation of the preceding week meant that I came to the theatre suffering from severe stage fright. Instead of chatting as I usually do with the scrub nurse and Mike, one of the trainee surgeons known as specialist registrars who was assisting me, I cleaned the patient's skin and positioned the drapes in silence.

**Vocabulary**

(1) **tumour**: abnormal growth of cells; (2) **cervical vertebrae**: neck bones; (3) **pineal**: related to a small gland in the brain; (4) **malignant**: cancerous; (5) **cemetery**: burial ground for the dead; (6) **morbid**: related to death

*Excerpt adapted from "Do No Harm: Stories of Life, Death and Brain Surgery" (2015) by Henry Marsh  
Macmillan*

**PASSAGE 2 QUESTIONS**

11. In *sec 1*, which of the following is closest in meaning to “dwell”?

- ① decide
- ② focus
- ③ rely
- ④ take

12. In *sec 1*, which of the following is the best fit for [ A ]?

- ① anxiety
- ② anxious
- ③ anxiously
- ④ anxiousness

13. In *sec 2*, which of the following is closest in meaning to “false optimism”?

- ① dishonest knowledge
- ② fake positivity
- ③ unsound analysis
- ④ untrue anticipation

14. In *sec 3*, which of the following is closest in meaning to “specimen”?

- ① remains
- ② replacement
- ③ sample
- ④ supplement

15. According to *sec 3*, under what circumstances is complete removal of the tumour required?

- ① if it is a cancerous tumour
- ② if it is a germinoma
- ③ if it is a non-cancerous tumour
- ④ in all circumstances

16. In *sec 5*, what does the surgeon identify as the cause of the patient’s paralysis?

- ① The operation was uneventful.
- ② The patient awoke during the operation.
- ③ The surgeon cannot definitively identify the cause.
- ④ The tumour was not fully removed.

17. In *sec 5*, which of the following is the best fit for [ B ]?

- ① belonged
- ② elongated
- ③ longed
- ④ longingly

18. In *sec 6*, which of the following common idioms best reflects the surgeon’s feelings about past failed operations?

- ① a blessing in disguise
- ② a taste of your own medicine
- ③ costs an arm and a leg
- ④ time heals all wounds

19. In *sec 7*, which of the following is true about this specific surgery?

- ① blood came out from the patient’s wound
- ② the surgeon cleaned the patient’s skin
- ③ the surgeon feels confident
- ④ the surgeon feels excited and in control

20. In *sec 7*, which of the following is closest in meaning to “stage fright”?

- ① being scared of competition
- ② gradually increasing worry
- ③ irrational fear
- ④ performance anxiety

## PASSAGE 3

Use the content from this passage, separated into 14 sections (*sec 1 - sec 14*), to answer the **PASSAGE 3 QUESTIONS**.

*sec 1* For nine frustrating years, Lesley and John Brown tried to conceive a child but failed because of her blocked fallopian tubes<sup>1</sup>. Then in late 1977, this English couple put their hopes in the hands of two men of science. Thus, began their leap into the unknown, and into history.

*sec 2* On July 25, 1978, the Browns got what they had long wished for with the arrival of a daughter, Louise, a baby like no other the world had seen. She came into being through a process of In Vitro Fertilization (I.V.F.) developed by Robert G. Edwards and Patrick Steptoe. Her father's sperm was mixed with her mother's egg in a petri dish<sup>2</sup>, and the resulting embryo was then implanted into the womb for normal development.

*sec 3* Louise was widely, glibly<sup>3</sup> and incorrectly called a "test-tube baby." The label was enough to throw millions of people into a moral panic. Are these welcome advances that can only benefit civilization? Or are they incursions<sup>4</sup> into an unholy realm, one of "designer babies," with potentially frightening consequences?

*sec 4* In vitro fertilization, or I.V.F., is by now broadly accepted, though it still has objectors, including the Roman Catholic Church. Worldwide, the procedure has produced an estimated six million babies, and is believed to account for 3 percent of all live births in some developed countries.

*sec 5* P.G.D. is shorthand for pre-implantation genetic diagnosis, developed more than two decades ago and an offshoot of I.V.F. Couples with family histories of serious diseases — cystic fibrosis, Tay-Sachs and Down syndrome are among the more common — can have their lab-created embryos tested for the probability of passing the flaws to their offspring. Technology in effect gives them a measure of control over their genetic fate. An embryo that looks O.K. under a microscope can be implanted in the mother's uterus for normal development. (Typically, the others are discarded, itself a morally fraught<sup>5</sup> practice for some people).

*sec 6* "The technology was out there — it was being applied only to diseases," Dr. Steinberg (director of The Fertility Institutes in New York), told Retro Report. He continued: "I've decided to open the door and expand it and say, 'Listen, this is something that people are interested in, causes no harm, and makes people happy. Let's expand it.'" Though many doctors are strongly skeptical, he also offers P.G.D. to improve the odds that a baby will have a desired eye color.

*sec 7* Still other gene-altering techniques are now in play. Mitochondrial transfer, for one, is intended for a woman whose genetic makeup makes it likely she will bear a child with a severe birth defect. DNA is removed from her egg and implanted in an egg from another woman that contains healthy energy-generating components known as mitochondria. This has given rise to the discomfiting term "three-parent baby."

*sec 8* Then there is a gene-editing method called Crispr, the acronym for: Clustered Regularly Interspaced Short Palindromic Repeats. A team led by Shoukhrat Mitalipov, an American reproductive biologist, announced last year that it had applied the technique to change a human genome. With an enzyme called Cas9 acting as a scalpel, Crispr snipped away a mutated gene that can lead to thickened heart muscles and cause sudden death in young athletes.

*sec 9* In theory, it meant that if this embryo were implanted in a womb — it wasn't in this team's research — the child eventually born would not carry the mutation, and nor would any grandchildren. In short, that family's germ line, the genetic material governing cellular lineage from one generation to the next, would have been permanently altered.

*sec 10* Some ethicists see only good in the prospect of eliminating diseases that condemn families to misery. After all, don't childhood vaccinations amount to using technology for that very same purpose? Yet few people regard measles or polio shots as unacceptable fiddling with the natural world.

*sec 11* In a different camp are those who invoke slippery slopes, fearing unpredictable genies that may be unleashed. What, they ask, is to prevent gene editing from being used someday not to combat disease but, rather, to design people who are stronger or smarter than everyone else, able themselves to produce children programmed genetically for SAT scores of 1,600 or LeBron James point totals<sup>6</sup>?

*sec 12* Then again, selecting genes to produce, say, a star basketball player is hardly a snap; height alone is influenced by tens of thousands of genetic variations. On the other hand (there is almost always another hand) the sheer expense of the procedures threatens to widen an already substantial gap between the wealthy and everyone else.

*sec 13* In 2017, an advisory group formed by the National Academy of Sciences and the National Academy of Medicine endorsed gene editing in principle, but with a provision that it be used only to deal with "serious diseases and disability" and only when no "reasonable alternative" exists.

*sec 14* Some scientists say it is unwise to be paralyzed by fear of the unknown. But Marcy Darnovsky, executive director of the Center for Genetics and Society in Berkeley, California, is more skeptical. "We have to ask where is the stopping point" Ms. Darnovsky said, and she suggested that policy discussions include "a much broader range of voices" than just scientists.

Vocabulary

(1) **fallopian tubes**: female reproductive organ structures; (2) **petri dish**: a special dish used for scientific experiments; (3) **glib**: thoughtless; (4) **incursion**: movement; (5) **fraught**: challenging; (6) **point totals**: points scored (in basketball)

*Excerpt adapted from "Scientists can design 'better' babies. Should they?" (2018) by Clyde Haberman*  
<https://www.nytimes.com/2018/06/10/us/11retro-baby-genetics.html>

**PASSAGE 3 QUESTIONS**

21. In *sec 1*, which of the following best describes the problem faced by Lesley Brown?

- ① She could not be helped by science.
- ② She could not become pregnant.
- ③ She did not want to become pregnant.
- ④ She was blocked by fallopian tubes.

22. According to *sec 2*, what important event happened on July 25, 1978?

- ① An I.V.F. baby was born for the first time.
- ② An unborn baby was implanted inside a woman for the first time.
- ③ Louise Brown left the hospital for the first time.
- ④ Male sperm was combined with a female egg in a laboratory for the first time.

23. According to *sec 4*, which of the following best reflects the Roman Catholic Church's position on I.V.F.?

- ① It does not approve of I.V.F.
- ② It does not offer I.V.F.
- ③ It has no position on I.V.F.
- ④ It supports I.V.F.

24. In *sec 6*, which of the following is closest in meaning to "out there"?

- ① available
- ② complicated
- ③ expandable
- ④ restricted

25. According to *sec 8* and *sec 9*, what does Crispr allow scientists to do?

- ① connect undesirable genes
- ② design undesirable genes
- ③ preserve undesirable genes
- ④ remove undesirable genes

26. According to *sec 10*, which of the following best reflects the views held by some moral philosophers?

- ① Genetic engineering is ethically comparable to vaccination.
- ② Genetic engineering is more dangerous than vaccination.
- ③ Genetic engineering is more effective than vaccination.
- ④ Genetic engineering will eventually make vaccination unnecessary.

27. In *sec 11*, which of the following is closest in meaning to "unpredictable genies"?

- ① unexpected consequences
- ② unforeseen spirits
- ③ unnecessary benefits
- ④ unwanted genius

28. In *sec 12*, which of the following is closest in meaning to "hardly a snap"?

- ① difficult to break
- ② not easy to do
- ③ not hard to avoid
- ④ tough to snap

29. In *sec 13*, which of the following best reflects the conclusion of the National Academy of Sciences and the National Academy of Medicine group?

- ① It is acceptable for serious diseases but only if other choices exist.
- ② It is acceptable, but not for medical matters.
- ③ It is acceptable, but only for severe illnesses when there is no other real option.
- ④ It should be expensive so only some people can afford it.

30. Which of the following best summarizes *sec 14*?

- ① Future discussions on the limits of gene editing should invite more diverse opinions.
- ② Marcy Darnovsky is skeptical about the need for gene editing in the future.
- ③ Scientists say it is unwise to be afraid of new developments.
- ④ The most highly skilled gene editing specialists should head future planning and policy discussions.

