

平成 26 年度 金沢医科大学医学部入学試験問題
一般入学試験（英語）

1 次の英文の [1] ~ [9] に入る最も適切な語句を、それぞれ①~⑤から1つ選びなさい。

(1) A: I think I need glasses. My eyes are very dry and itchy.

B: Have you been reading or using the computer a lot lately? You might have dry eyes.

A: You mean my eyes need [1], not glasses?

- ① check ② application ③ moisture ④ satellite ⑤ accuracy

(2) A: May I have your family name please?

B: Certainly. It's Field.

A: [2].

B: Yes. That's right.

- ① Oh, is that where you live? ② How do you spell that? ③ How do you do?
④ As in where grass grows? ⑤ I'm not sure if it's a full name.

(3) According to Mr. Park, several newspapers had printed incorrect information about his company's financial situation before the true facts [3].

- ① were uncovered ② will have been uncovered ③ that have uncovered
④ uncovered ⑤ had uncovered

(4) Over the last few decades, food trends have come and [4], but the standard medical advice on what constitutes a healthy lifestyle has stayed much the same: eat low-fat foods, exercise more and never skip meals.

- ① see ② seen ③ go ④ went ⑤ gone

(5) Is it true that patients about to undergo surgery are generally counseled not to eat or drink anything at least for a few hours [5] the operation?

- ① in front of ② prior to ③ previously ④ in advance ⑤ forwarding

(6) A: The medical English seminar I told you about was cancelled all of a sudden.

B: Oh, that's too bad.

A: Yes, but I [6] it anyway because I was sick.

- ① won't attend ② should have attended ③ might have attended
④ could have attended ⑤ couldn't have attended

(7) Scientific developments are of no benefit [7] they are not shared. The cost of medical training, machinery, institutions, and treatment can be so high that only the rich can afford it. However, increasing numbers of people can get adequate health care through public health programs, health insurance, and various kinds of hospitals.

- ① even though ② if ③ that ④ in which ⑤ whether

(8) Researchers set out to test the popular belief that time seems to go faster [8] people age and when they are busy. They asked three groups of people, divided by age, to estimate when three minutes were up. The results suggest that age-related changes in the brain alter one's sense of time; [9] really does seem to move more quickly with age.

- [8] ① to ② as ③ that ④ for ⑤ whether
[9] ① they ② things ③ it ④ he or she ⑤ everyone

2 次の英文を読み、問いに答えなさい。

Why, in a body of such excellent design, are there a thousand flaws and weaknesses that [10] us vulnerable to disease? If evolution by natural selection can shape sophisticated mechanisms such as the eye, heart, and brain, why hasn't (ア) it shaped ways to prevent cancer, heart attacks, and Alzheimer's disease? If our immune system can recognize and attack a million foreign proteins, why do we still get pneumonia*? If a coil of DNA can reliably encode plans for an adult organism with ten trillion specialized cells, each in its [11] place, why can't we grow a replacement for a damaged finger? If we can live a hundred years, why not two hundred?

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We know more and more about why individuals get specific diseases but still understand little about why diseases exist at all. We know that a high-fat diet causes heart disease and sun exposure causes skin cancer, but why do we (イ) crave fat and sunshine despite their dangers? Why can't our bodies repair clogged arteries and sun-damaged skin? Why does sunburn hurt? Why does anything hurt? And why are we, after millions of years, still prone to infections?

The great mystery of medicine is the presence, in a machine of excellent design, of what seem to be flaws, weaknesses, and makeshift* mechanisms that give rise to most disease. An evolutionary approach transforms this mystery into a series of answerable questions: Why hasn't the Darwinian process of natural selection steadily eliminated the genes that make us vulnerable to disease? Why hasn't it selected for genes that would perfect our ability to resist damage and enhance repairs so as to eliminate aging? The common answer—that natural selection just isn't powerful enough—is usually wrong. Instead, as we will see, the body is a bundle of careful (ウ) compromises.

The body's simplest structures reveal excellent designs unmatched by any human creations. Take bones. Their form maximizes strength and flexibility while minimizing weight. Pound for pound, they are stronger than solid steel bars. Specific bones are shaped to serve their functions—thick at the vulnerable ends and grooved to provide safe pathways for delicate nerves and arteries. The thickness of individual bones increases [12] strength is needed. Wherever they bend, more bone is deposited. Even the hollow space inside the bones is useful: it provides a safe nursery for new blood cells.

Physiology is still more impressive. Consider the artificial kidney machine, bulky as a refrigerator yet still a poor substitute that performs only a few of the functions of (エ) its natural counterpart. Or take the best man-made heart valves. They last only a few years and crush some red blood cells with each closure, while natural valves gently open and close two and a half billion times over a lifetime. Or consider our brains, with their capacity to encode the smallest details of life that, decades later, can be [13] in a fraction of a second. No computer can come close.

The body's regulatory systems are equally admirable. Take, for instance, the scores of hormones that coordinate every aspect of life, from appetite to childbirth. Controlled by level upon level of feedback loops, they are far more complex than any man-made chemical factory. Or consider the intricate wiring of the sensorimotor* system. An image falls onto the retina*; each cell transmits its signal via the optic nerve to a brain center that interprets shape, color, and movement, then to other brain centers that link with memory banks [14] that the image is that of a snake, then to fear centers and decision centers that motivate and initiate action, then to motor nerves that move exactly the right muscles to take the hand away—all this in a fraction of a second.

注*: pneumonia 肺炎; makeshift 間に合わせの; sensorimotor 知覚運動の; retina 網膜

(1) 文章中の [10] ~ [14] に入る最も適切な語句を、それぞれ①~⑤から1つ選びなさい。

- | | | | | | |
|------|------------------|-------------------|-------------|------------------|----------------|
| [10] | ① make | ② makes | ③ made for | ④ is making | ⑤ are made for |
| [11] | ① random | ② moderate | ③ combined | ④ proper | ⑤ embarrassing |
| [12] | ① however | ② their | ③ wherever | ④ whose | ⑤ that |
| [13] | ① put | ② recalled | ③ resulted | ④ occurred | ⑤ assured |
| [14] | ① are determined | ② are determining | ③ determine | ④ to determining | ⑤ to determine |

(2) 下線部(ア) it が指しているものを、①~⑩から1つ選びなさい。 [15]

- | | | | | |
|-------------|----------|-----------|-------------|-----------------|
| ① body | ② design | ③ disease | ④ evolution | ⑤ selection |
| ⑥ mechanism | ⑦ eye | ⑧ heart | ⑨ brain | ⑩ immune system |

(3) 文脈から下線部(イ) crave に意味の上で最も近い語句を、①~⑤から1つ選びなさい。 [16]

- | | | | | |
|-------------|--------------------|-----------|-----------|----------|
| ① look into | ② take for granted | ③ attract | ④ reflect | ⑤ desire |
|-------------|--------------------|-----------|-----------|----------|

(4) 下線部(ウ) compromises で最も強く発音される部分を、①~④から1つ選びなさい。 [17]

- com·pro·mis·es
① ② ③ ④

(5) 下線部(エ) its natural counterpart が指しているものを、①~⑤から1つ選びなさい。 [18]

- | | | | | |
|--------------|----------|-----------|----------------|--------------|
| ① physiology | ② kidney | ③ machine | ④ refrigerator | ⑤ substitute |
|--------------|----------|-----------|----------------|--------------|

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(6) 本文に書かれていることと一致する英文を、①～⑤から1つ選びなさい。 [19]

- ① The author believes that human beings will live up to 200 years of age in the near future.
- ② The Darwinian process of natural selection answers all the questions the author is raising here.
- ③ Steel bars are not only stronger but also more flexible than any human bone.
- ④ The structures of the human body are so complex that no machines can match them.
- ⑤ Motor nerves move the muscles of our right hand first, and then the left hand.

(7) 本文の主要なテーマを最も適切に表しているものを、①～⑤から1つ選びなさい。 [20]

- ① The development of medicine
- ② Why can't humans have replacements?
- ③ The mystery of human disease
- ④ Darwin answers important mysteries of medicine
- ⑤ Machines vs. human bodies

3 次の英文を読み、問いに答えなさい。

The term "stress" refers to any reaction to a physical, mental, social, or emotional stimulus that requires a response or alteration to the way we perform, think, or feel. Change is stressful—whether the change is good or bad. Worry produces stress. Indeed, stress is an unavoidable part of life. It can result from many things, both physical and psychological. Pressures and deadlines at work, problems with loved ones, the need to pay the bills, and getting ready for the holidays are obvious sources of stress for many people. Less obvious sources include everyday encounters with crowds, noise, traffic, pain, extremes of temperature, and even (ア) welcome events such as starting a new job or the birth or adoption of a child. Overwork, lack of sleep, and physical illness put stress on the body. Excessive alcohol consumption and smoking are usually increased as a reaction to stress and yet create more stress for the body. Some people create their own stress; whether there is anything objectively wrong in their lives or not, they find things to worry about. For such people, stress becomes almost an addiction.

Some people handle stress well, and it has little impact on their emotional or physical health. Others are very negatively influenced by it. Stress can cause (イ) fatigue, chronic headaches, irritability, changes in appetite, memory loss, low self-esteem, withdrawal, teeth grinding, cold hands, high blood pressure, shallow breathing, nervous spasms, changes in sleep patterns, and/or digestive disorders. Stress creates an excellent (ウ) breeding ground for illness. Researchers estimate that stress contributes to many major illnesses, including cardiovascular* disease, cancer, endocrine* and metabolic disease, skin disorders, and infectious ailments of all kinds. Many psychiatrists* believe that most back problems—one of the most common adult ailments in the United States—【エ】. Stress also commonly precedes psychological difficulties such as anxiety and depression.

Stress (オ) 【 _____ 】 effects. The body responds to stress with a series of physiological changes that include increased secretion of adrenaline*, elevation of blood pressure, acceleration of the heartbeat, and greater tension in the muscles. Digestion slows or stops, fats and sugars are released from stores in the body, cholesterol levels rise, and the composition of the blood changes slightly, making it more prone to getting thick and clotting. This in turn increases the risk of stroke or heart attack.

Almost all body functions and organs react to stress. The pituitary gland* increases its production of a hormone, which in turn stimulates the release of other hormones. These have the effect of discouraging the functioning of disease-fighting white blood cells and suppressing the immune response. This complex of physical changes is called the "fight or flight" response and is (カ) apparently designed to prepare one to face an immediate danger. Today, most of our stresses are not the result of physical threats, but the body still 【キ】.

注*: cardiovascular 心血管系の; endocrine 内分泌の; psychiatrists 精神科医; secretion of adrenaline アドレナリンの分泌;
pituitary gland 下垂体

(1) 文脈から下線部(ア)～(ウ)に意味の上で最も近い語句を、それぞれ①～⑤から1つ選びなさい。

21 (ア) welcome ① pleasing ② greeting ③ committed ④ confident ⑤ receiving

22 (イ) fatigue ① sickness ② shortage ③ exhaustion ④ danger ⑤ defect

23 (ウ) breeding ground

- ① a place where wild animals live and raise their offspring
- ② a place where many children are born and taken care of
- ③ a situation in which you find yourself in trouble
- ④ a situation where bad things tend to happen to good people
- ⑤ a situation that promotes the development of something

英語

(5枚のうちの3)

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(2) 【 エ 】に入る最も適切なものを、①～⑤から1つ選びなさい。 [24]

- ① is caused by stress
- ② triggered by stress
- ③ a result of stress
- ④ is associated with stress
- ⑤ are related to stress

(3) (オ) 【 _____ 】の空欄に入る下記の(あ)～(お)の語句を並べかえて文を完成させ、第2番目と第4番目に入る記号の最も適切な組み合わせを、①～⑩から1つ選びなさい。 [25]

(あ) has very real (い) is often viewed (う) physical (え) problem, but it (お) as a psychological

- ① (あ)－(お)
- ② (う)－(え)
- ③ (う)－(あ)
- ④ (う)－(お)
- ⑤ (え)－(あ)
- ⑥ (え)－(お)
- ⑦ (え)－(い)
- ⑧ (お)－(あ)
- ⑨ (お)－(い)
- ⑩ (お)－(え)

(4) 下線部(カ) apparently で最も強く発音される部分を、①～④から1つ選びなさい。 [26]

ap-parent-ly
① ② ③ ④

(5) 【 キ 】に入る最も適切なものを、①～⑤から1つ選びなさい。 [27]

- ① understands what it is
- ② tries to recover from it
- ③ helps even though they aren't
- ④ denies its existence
- ⑤ responds as if they were

(6) 本文に書かれていることと一致する英文を、①～⑩から4つ選びなさい。 [28]

- ① Actually, it is impossible to avoid stress because stress is mostly caused by physical things.
- ② For many people, holiday preparations and problems with family or friends can be stressful.
- ③ Daily encounters such as traffic noise usually do not cause stress because people are used to them.
- ④ It is unlikely that there are people who try to create stress for themselves.
- ⑤ Some people have a hard time dealing with stress while others are capable of coping with it well.
- ⑥ There is a chance that stress influences people's sleeping habits and appetite.
- ⑦ It is not unusual to have stress resulting in psychological problems like anxiety.
- ⑧ Stress may cause muscle tension and high blood pressure but it rarely affects digestion.
- ⑨ Stress could lead to heart attack only when your blood pressure suddenly drops.
- ⑩ The production and release of some hormones may discourage the functioning of red blood cells.

4 次の英文を読み、問いに答えなさい。

Knowledge is organized, reliable information, and all knowledge is worth having. In this increasingly complicated world, we need to know a lot of different things. It is useful to know about electronics, computers, and automobiles; taxes, laws, and real estate; and banking, investing, and insurance. However, there is more valuable knowledge that is more central to your life. For yourself, how would you answer the question, What is the knowledge most worth having?

After some (ア) reflection, many people answer, "Self-knowledge is the knowledge most worth having." When you have knowledge of yourself, all other knowledge and information takes on the appropriate (イ) significance in your life. While the scope of "self-knowledge" is both too vast and too personal to address easily, we believe that an understanding of your body helps you understand yourself. It helps you understand your role in the world and the destiny of human life on this small, wet planet 93 million miles from the sun. This is a very practical form of knowledge.

In today's complicated technological world, there are tangible benefits to knowing how the human body functions and how (ウ) it changes in health, disease, and aging. More than at any other time in the history of human life on Earth, individuals are faced with personal choices that directly affect the quality and length of their lives. How does exercise benefit your body? What is cardiovascular* fitness? To keep your heart healthy, how much fat should you eat? What can be done to control cancer? How can a bacterium eat flesh? How can you protect yourself against the virus that causes AIDS? Why have antibiotics* become less effective against some bacteria? What is natural aging? How do drugs alter the mind and the emotions? How do threats to biodiversity* affect your life and your future? How can birth defects be avoided? Finding knowledge about the human body helps you answer these questions.

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The human body is a multicellular (multi, “many”; cellular, “consisting of cells”) system that consists of trillions of living cells. 【 ① 】 Cells are the smallest living units. 【 ② 】 There are hundreds of different types of cells in the human body. 【 ③ 】 Tissues are organized to form organs. 【 ④ 】 Organs are larger structures, such as the heart and the stomach, which perform a specific function, such as the pumping of blood and digestion. 【 ⑤ 】 Several organs with closely coordinated functions form an organ system, for example, the digestive system.

Understanding the components of each organ system contributes to an understanding of how the body operates normally, how it operates in disease, and how it ages. Before considering the operation of the body, however, we need to consider the diversity of the different forms of life on the Earth. We do not live by ourselves or only for ourselves. The human body interacts with the outside environment, which includes both living and nonliving things. Each human is part of a population of humans that interacts with populations of other living things to form a community. Communities are organized into ecosystems. Every minute of our lives we are dependent on other living things and on the physical environment for our well-being. All the food we eat is directly and indirectly a product of plants and the chemical processes by which plants use sunlight to construct food from water and the gas carbon dioxide.

注*: cardiovascular 心血管系の; antibiotics 抗生物質; biodiversity 生物の多様性

(1) 文脈から下線部（ア）、（イ）に意味の上で最も近い語を、それぞれ①～⑤から1つ選びなさい。

- 29 (ア) reflection ① consideration ② mirror ③ approach ④ consultation ⑤ sympathy
30 (イ) significance ① confirmation ② behavior ③ meaning ④ evidence ⑤ improvement

(2) 下線部（ウ）itが指しているものを、①～⑧から1つ選びなさい。 31

- ① today ② world ③ benefit ④ human body
⑤ function ⑥ health ⑦ disease ⑧ aging.

(3) 次の文が入る最も適切な箇所を、文章中の【 ① 】～【 ⑤ 】から1つ選びなさい。 32

Groups of similar cells are associated together to form tissues.

(4) 本文に基づき次の英文を完成させるのに最も適切な選択肢を、それぞれ①～④から1つ選びなさい。

33 The author thinks that understanding our body

- ① helps us understand the destiny of human life on Earth.
② is too personal and too vague to help us understand ourselves.
③ will help us find our friends' addresses more easily.
④ does not seem to be helpful in understanding ourselves.

34 Today, people are confronted by many personal choices

- ① but none of them seem to be relevant to their health.
② and one of them is how fresh a bacterium is.
③ such as helping them gain more knowledge about the human body.
④ which have a direct impact on the length of their lives.

35 Humans are dependent on

- ① the outside world whenever they can't live by themselves.
② other organisms and on the outside environment to stay well.
③ the physical environment only when they are in danger.
④ some kinds of food that are directly produced by certain plants.

36 The paragraph that follows the above passage is likely to include a topic such as

- ① the diversity of the different forms of life on the Earth.
② why biodiversity can be extended to out-of-space organisms.
③ the very high cost of living in today's world.
④ how some animals became humans' good friends as pets.