浜松医科大学

平 成 28 年 度

医 学 科

外 国 語(英語)

注意事項

1. 問題は 1 頁から 12 頁に掲載されています。

2. 解答に用いる言語(日本語あるいは英語)は各設問の指示に従って選びなさい。

 ただし，記号で答えるように求められている場合は記号で答えること。

3. 解答は解答用紙に記入しなさい。

次の英文を読んで，設問に日本語あるいは記号で答えなさい。

Why Robots Will Always Need Us

"HUMAN BEINGS are ashamed to have been born instead of made," wrote the philosopher Günther Anders in 1956. Our shame has only deepened as our machines have grown more adept.

Every day we're reminded of the superiority of our computers. Self-driving cars don't fall victim to distractions or road rage. Robotic trains don't speed out of control. Algorithms don't suffer the cognitive biases that [(1)*]cloud the judgments of doctors, accountants and lawyers. Computers work with a speed and precision that make us look like bumbling slackers.

It seems obvious: the best way to get rid of human error is to get rid of humans.

But ①that assumption, however fashionable, is itself erroneous. Our desire to liberate ourselves from ourselves is founded on a fallacy. We exaggerate the abilities of computers even as we underestimate our own talents.

It's easy to see why. We hear about every disaster involving human fallibility — the chemical plant that exploded because the technician failed to open a valve, the plane that fell from the sky because of pilot error — but what we don't hear about are all the times that people use their expertise to avoid accidents or [(2)*]defuse risks.

Pilots, physicians and other professionals routinely navigate unexpected dangers with great aplomb but little credit. Even in our daily routines, we perform feats of perception and skill that lie beyond the capacity of the sharpest computers. Google is quick to tell us about how few accidents its autonomous cars are involved in, but it doesn't trumpet the times the cars' backup drivers

have had to take the wheel. Computers are wonderful at following instructions, but they're terrible at improvisation. Their talents end at the limits of their programming.

Human skill has no such constraints. Think of how Captain Chesley B. Sullenberger Ⅲ landed that Airbus A320 in the Hudson River after it hit a flock of geese and its engines lost power. Born of deep experience in the real world, such intuition lies beyond calculation. If computers had the ability to be amazed, they'd be amazed by us.

While our flaws loom large in our thoughts, we view computers as infallible. Their scripted consistency presents an ideal of perfection far removed from our own clumsiness. What we forget is that our machines are built by our own hands. When we transfer work to a machine, we don't eliminate human agency and its potential for error. We transfer that agency into the machine's workings, where it lies concealed until something goes awry.

Computers break down. They have bugs. They get hacked. And when let loose in the world, they face situations that their programmers didn't prepare them for. They work perfectly until they don't.

Many disasters blamed on human error actually involve chains of events that are initiated or aggravated by technological failures. Consider the 2009 crash of Air France Flight 447 as it flew from Rio de Janeiro to Paris. The plane's airspeed sensors iced over. Without the velocity data, the autopilot couldn't perform its calculations. It shut down, abruptly shifting control to the pilots. Investigators later found that the aviators appeared to be taken by surprise in a stressful situation and made mistakes. The plane, with 228 passengers, plunged into the Atlantic.

The crash was a tragic example of what scholars call the ②<u>automation paradox</u>. Software designed to eliminate human error sometimes makes human error more likely. When a computer takes over a job, the workers are left with little to do. Their attention drifts. Their skills, lacking exercise, atrophy. Then,

when the computer fails, the humans are at a loss.

In 2013, the Federal Aviation Administration noted that overreliance on automation has become a major factor in air disasters and urged airlines to give pilots more opportunities to fly manually. The best way to make flying even safer than it already is, the research suggests, may be to transfer some responsibility away from computers and back to people. Where humans and machines work in concert, more automation is not always better.

We're in this together, our computers and ourselves. Even if engineers create automated systems that can handle every possible contingency — far from a sure bet — it will be years before the systems are fully in place. In aviation, it would take decades to replace or retrofit the thousands of planes in operation, all of which were designed to have pilots in their cockpits. The same goes for roads and rails. Infrastructure doesn't change overnight.

We should view computers as our partners, with [3]*complementary abilities, not as our replacements. What we'll lose if we rush to curtail our involvement in difficult work are the versatility and wisdom that set us apart from machines.

The world is safer than ever, thanks to human ingenuity, technical advances and thoughtful regulations. Computers can help [4]*sustain that progress. Recent train crashes, including the Amtrak derailment this month, might have been prevented had automated speed-control systems been in operation. Algorithms that sense when drivers are tired and sound alarms can prevent wrecks.

The danger in dreaming of a perfectly automated society is that it makes such modest improvements seem less pressing — and less worthy of investment. Why bother taking small steps forward, if utopia lies just around the bend?

The New York Times, May 20, 2015

http://nyti.ms/1 KjbTcZ

(with small changes)

Notes

adept：good at something that needs care and skill

slacker：someone who is lazy and does not do all the work they should

fallacy：false idea or belief

aplomb：self-confidence

infallible：always right and never making mistakes

go awry：do not happen in the way that was planned

aggravated：made worse

atrophy：become weak

contingency：event that might happen in the future

retrofit：provide a machine with a new part

curtail：limit

設問 1　*印のついた語は，本文の文脈ではそれぞれどのような意味で使われている
　　　　か，最も近いものを選んで記号で答えなさい。

　　1．*cloud
　　(a)　share
　　(b)　clarify
　　(c)　darken
　　(d)　confuse

　　2．*defuse
　　(a)　face
　　(b)　reduce
　　(c)　enhance
　　(d)　multiply

3. *complementary
(a) free
(b) potential
(c) flattering
(d) interdependent

4. *sustain
(a) block
(b) observe
(c) evaluate
(d) continue

設問 2　下線部①はどのようなことを指しているか，本文の内容にしたがって説明しなさい。

設問 3　下線部②はどのようなことを指しているか，本文の内容にしたがって説明しなさい。

設問 4　本文の内容と合致するものを 3 つ選んで記号で答えなさい。
(a) Computers work in accordance with human commands without fail.
(b) Günther Anders is one of the people who consider computers to be superior to humans.
(c) Recent advances in technology have dramatically improved computers' ability to improvise.
(d) The Federal Aviation Administration assumes that relying too much on computers could be dangerous.
(e) Captain Sullenberger III landed his aircraft safely in the river although its engine had ceased to work well.
(f) The author asserts that we should eliminate the possibility of accidents by increasing the ratio of automation.
(g) Train crashes could have been prevented if the versatility and wisdom of humans had replaced some computer functions.

Reading A

Read the passage, then fill in the blanks from the words given below.

This I Believe: Health Is a Human Right

Dr. Paul Farmer is a founding director of Partners In Health (PIH), an international organization that provides health care to people living in poverty. The following essay is taken from an interview with Dr. Farmer on Dec. 21, 2008.

I believe in health care as a human right. I've worked as a doctor in many places, and I've seen where to be poor means to be (①) of rights. I saw early on, still just a medical student, the panicky dead end (②) by so many of the destitute sick — a young woman dying in childbirth, a child (③) in the spasms of a terrible disease for which a vaccine has existed for more than a century, a friend whose guts were irreparably shredded by (④) from impure water, an 8-year-old caught in cross-fire.

'Li mouri bet'— what a stupid death, goes one Haitian response. Fighting such stupid deaths is never the work of one or even of a small group. I've had the (⑤) of joining many others providing medical care to people who would otherwise not be able to get it. The number of those (⑥) to serve is impressive, and so is the amount that can be (⑦).

I believe that stupid deaths can be (⑧). We've done it again and again. But this hard and painful work has never yet been an urgent global (⑨). The fight for health as a human right, a fight with real promise, has so far been plagued by failures — failure because we are chronically short of resources, failure because we are too often at the mercy of those with the power and money to decide the (⑩) of hundreds of millions, failure because ill health, as we

have learned again and again, is more often than not a symptom of (⑪) and violence and inequality, and we do little to fight those when we provide just vaccines or only (⑫) for one disease or another.

Every premature death, and there are millions of these each year, should be considered a (⑬). I know it's not enough to attend only to the immediate needs of the patient in front of me. We must also call attention to the (⑭) and inadequacy of our own best efforts.

The goal of (⑮) human suffering must be linked to the task of bringing others, many others, into a movement for basic (⑯). The most vulnerable, those whose rights are trampled, those rarely invited to summarize their convictions for a radio audience, still believe in human rights, in spite of — or perhaps because of — their own (⑰). Seeing this in Haiti and elsewhere has (⑱) me deeply and taught me a great deal.

I move uneasily between the obligation to intervene and the troubling knowledge that much of the work we do, praised as (⑲) or charitable, does not always lead us closer to our goal. That goal is nothing less than the (⑳) of our world into one in which no one starves, drinks impure water, lives in fear of the powerful and violent, or dies ill and unattended. Of course such a world is a utopia, and most of us know that we live in a dystopia. But all of us carry somewhere within us the belief that moving away from dystopia moves us towards something better and more humane. I still believe this.

Retrieved from

http://www.npr.org/templates/transcript/transcript.php?storyId = 98460202

(with small changes)

Use the following words to complete the text.

accomplished	averted	bacteria	bereft
eager	faced	failures	fates
humanitarian	moved	poverty	preventing
priority	privilege	rebuke	refashioning
rights	treatment	troubles	writhing

Reading B

Read the passage, then answer the following questions in English.

How Doctors Die

Years ago, Charlie, a highly respected orthopedist and a mentor of mine, found a lump in his stomach. The diagnosis was pancreatic cancer. His surgeon was one of the best: he had even invented a new procedure for this exact cancer that could triple the five-year-survival odds — from 5 percent to 15 percent — albeit with a poor quality of life.

Charlie was uninterested. He focused on spending time with family. He got no chemotherapy, radiation, or surgical treatment. Medicare didn't spend much on him. Several months later, he died at home.

Doctors die, of course, but not like the rest of us. What's unusual is not how much treatment they get compared with most Americans but how little. They have seen what is going to happen, and they generally have access to any medical care they could want. But doctors prefer to go gently.

They know enough about death to understand what all people fear most: dying in pain and dying alone. They've talked about this with their families. They want to be sure, when the time comes, that no heroic measures will happen. They know modern medicine's limits. Almost all medical professionals have seen "futile care" performed. That's when doctors bring the cutting edge of technology to bear on a grievously ill person near the end of life. The patient will get cut open, perforated with tubes, hooked up to machines, and assaulted with drugs.

I cannot count the number of times fellow physicians have told me, in words that vary only slightly, "Promise me if you find me like this that you'll kill me."

Some medical personnel wear medallions stamped NO CODE to tell physicians not to perform CPR on them.

How has it come to this — that doctors administer care that they wouldn't want for themselves? The simple, or not-so-simple, answer: patients, doctors, and the system.

Imagine that someone has lost consciousness and been admitted to an emergency room. When doctors ask family members — shocked, scared, and overwhelmed — if they want "everything" to be done, they answer yes. But often they just mean "everything that's reasonable." They may not know what's reasonable, nor, in their confusion and sorrow, will they ask or hear what a physician may be telling them. For their part, doctors told to do "everything" will do it, whether reasonable or not.

Doctors understand that almost anyone can die in peace at home. Nowadays pain can be managed better than ever. Hospice care, which focuses on providing terminally ill patients with comfort and dignity, offers most people better final days. Studies have found that people in hospice often live longer than people with the same disease who seek active cures.

Several years ago, my older cousin, Tom, had a seizure that turned out to be the result of lung cancer that had spread to his brain. With aggressive treatment, including three to five hospital visits a week for chemotherapy, he would live perhaps four months. Tom decided against treatment and simply took pills for brain swelling. He moved in with me.

We spent the next eight months having fun like we hadn't had in decades. We went to Disneyland, enjoyed watching sports together, and enjoyed each other's company. He had no serious pain and remained high-spirited. One day, he didn't wake up; he spent the next three days in a coma-like sleep, then died.

Tom wanted a life of quality, not just quantity. I believe the best way to die is this: death with dignity. As for me, I have told my physician my choices. I don't want any heroics when it is my time to go. I hope to go gentle into that

good night. Like my mentor Charlie. Like my cousin Tom. Like my fellow doctors.

By Ken Murray, MD

Reader's Digest, July 2014

(with small changes)

Notes

orthopedist：整形外科医

pancreatic cancer：膵臓癌

chemotherapy：化学療法

radiation：放射線

Medicare：アメリカの医療保険制度

1. Why do doctors sometimes do one thing for patients and another for themselves when deciding about dying?

2. What are some of the benefits of doctors doing "everything" for a terminal patient?

Write an essay on the following topic.

Your essay should:

1. be a minimum of 150 words in English,

2. be written using paragraph form,

3. have a minimum of three paragraphs,

4. have a clear introduction, body and conclusion,

5. be written on each line but leave a one-line space between each paragraph.

Do not double-space your essay.

In your essay, your ideas should be clearly expressed in your own words.

Doctors in Japan are increasingly caring for a greater number of non-Japanese patients. Indeed, the increase in foreign tourists from China, South Korea and other Asian countries, as well as the looming Tokyo Olympics in 2020, will require Japanese doctors to treat more foreign patients. Describe how you can best help such patients.