

〔問1〕 次の英文を読んで、下記の設問に答えなさい。

Within the school, a range of environmental conditions may enhance health, well-being, and academic performance, or if not well designed and managed, they can undermine these goals. ⁽⁷⁾() () () () () as lighting, temperature and humidity, and noise.

Adequate, even, glare-free, balanced-spectrum lighting is an important environmental asset in schools. Good lighting ⁽¹⁾() () () () (), improve health and learning, enhance safety, reduce vandalism, and help students connect visually to their environment. Optimal lighting provides daylight and outdoor views in all classrooms and work areas, combines daylight and electric lighting to prevent shadows and areas of poor illumination during dark or cloudy periods, and offers flexible lighting controls. A well-designed approach to lighting may improve general health and well-being; prolonged periods of low light levels such as those occurring in winter at high latitudes ⁽⁷⁾() () () () () performance (*seasonal affective disorder*) for some people. Good lighting also appears ^(x)() () () () (). In one series of studies, students with more daylight in their classrooms progressed more than 20 percent faster in math and reading skills ^(*)() () () () () without daylight did.

Maintaining appropriate temperature and humidity indoors is important for the health and comfort of building occupants. ⁽²⁾() () () () () the range of 21 to 23°C, and optimal humidity is between 40 and 60 percent. Excessively dry air can increase the ^(*)() () () () (), a problem corrected by humidifying the air, but excessive humidity promotes the growth of mold and the persistence of both cockroach and dust mite allergens. ^(*)The term sick building syndrome has been used to describe a set of symptoms reported by people living or working in buildings with indoor air problems. These symptoms include irritation of the nose, eyes, and mucous membranes; fatigue; dry skin; and headaches. Although sick building syndrome has not been widely described in schoolchildren, its occurrence in other ⁽⁷⁾() () () () () the importance of good indoor air quality.

Noise is any unwanted sound that interferes with classroom communication and is both disturbing and detrimental to learning. Noise can be generated by many sources, including other students (both inside and outside the classroom), band practice, ventilation systems, and nearby vehicular traffic. ⁽⁷⁾() () () () () student learning and staff productivity and well-being. Both acute and chronic noisy conditions undermine learning. ⁽⁷⁾Noise not only interferes with teacher-student and student-student communication; it also reduces students' attention and memory, and thus motivation and academic achievement, and produces stress, as manifested by increased blood pressure and heart rates. Teachers in noisy conditions can experience mental and voice fatigue. To reduce noise exposure, learning spaces should be located away from noise sources such as cafeterias and athletic areas. Appropriately designed walls, floors, ceilings, and roofs, in conjunction with acoustical treatments, can

(=) () () () () () spaces significantly.

出典 : Ed. by Andrew L. Dannenberg, Howard Frumkin, and Richard J. Jackson.
Making Healthy Places. Washington: Island Press, 2011.

(1) 下線部(ア)～(コ)に入るように各語群にある語句を並べ替えなさい。但し、文頭に
来る語句も小文字で示してある。

(ア) 語群: examples / factors / include / physical / such

(イ) 語群: can / design / energy / expenditures / reduce

(ウ) 語群: and / can / cause / depression / reduced

(エ) 語群: academic / improved / performance / predict / to

(オ) 語群: classrooms / counterparts / in / than / their

(カ) 語群: in / indoor / is / optimal / temperature

(キ) 語群: infections / of / respiratory / risk / upper

(ク) 語群: a reminder / as / of / serves / settings

(ケ) 語群: excessive / in / noise / schools / threatens

(コ) 語群: adjacent / noise / reduce / to / transmission

(2) 下線部(サ)を和訳しなさい。

(3) 下線部(シ)を和訳しなさい。

[問2] 次の英文を読んで、下記の設問に答えなさい。

Not so long ago, it seemed like the fight against infectious diseases was nearly won. The discovery of penicillin in 1929 gave clinicians their first weapon to combat common ailments (ア) pneumonia, gonorrhea, and rheumatic fever. In the decades that followed, medical researchers discovered (イ) 150 other types of antibiotics. These widely hailed “wonder drugs” were so successful that U.S. Surgeon General William Stewart announced in 1967, “^(ク)The time has come to close the book on infectious diseases.”

Stewart and most of his contemporaries greatly underestimated the ability of bacterial pathogens to adapt to these life-saving medicines. Almost (ウ) clinical use of penicillin began in 1946, the first drug-resistant pathogens appeared. During the golden age of antibiotic development (the 1940s to the 1960s), the spread of antibiotic resistance was balanced by the continued discovery and deployment of new classes of antibiotics. (エ) starting in the 1970s, a dwindling interest and ability of the pharmaceutical industry to develop new antibiotics resulted in a 40-year period when virtually no new broad-spectrum classes of antibiotics were brought to the market. (オ), companies focused on modifying the chemical scaffolds of already approved classes of antibiotics.

During this innovation gap, bacterial evolution did not cease. Consequently, drugs that were (カ) effective in treating a broad spectrum of infectious bacteria are now useful for fewer and fewer infections. Certain bacteria, including strains of *Escherichia coli* and *Klebsiella pneumoniae*, are now resistant to all major antibiotics—even carbapenems, which have long been the drug of last resort to treat afflictions such as lung infections. (キ) dwindling treatment options, the mortality rate from those infections in the United States is (ク) 50 percent. In effect, for some diseases we are now living in a post-antibiotic age.

According to a September 2013 report from the U.S. Centers for Disease Control and Prevention (CDC), treatment of antibiotic-resistant infections adds \$35 billion in health care costs and 8 million hospital days per year in the United States. A recent drug-resistant *Salmonella* outbreak (ケ) contaminated chicken meat was linked to nearly 300 illnesses across 18 states, sickening infants and nonagenarians alike. At least 23,000 Americans die each year from infections, many caused by the superbug methicillin-resistant *Staphylococcus aureus* (MRSA), because doctors have run (コ) drugs with which to treat them.

Government agencies are (サ) considering incentives to support renewed antibiotic drug development, but these initiatives have not yet had a direct impact on the drug development pipeline. As a result the number of antibiotics approved by the Food and Drug Administration (FDA) (シ) a record low of one new antibiotic in the five-year period from 2008 to 2012, down from 16 new drugs in the years from 1983 to 1987. CDC Director Tom Frieden recently warned, “If we don’t act now, our medicine cabinet will be empty and we won’t have the antibiotics we need to save lives.” In reality, the development of new antibiotics is only (ス) the solution, as pathogens will inevitably develop resistance to even the most promising new compounds.

To save the era of antibiotics, scientists must figure out (セ) it is about bacterial pathogens that makes resistance inevitable. By studying the suite of genes—collectively known as the *resistome*—that can turn a susceptible pathogen (ソ) a superbug, (チ) researchers may be able to uncover the Achilles heel of these multiple drug-resistant strains.

出典：Gautam Dantas and Morten O. A. Sommer, “How to Fight Back Against Antibiotic Resistance.” *American Scientist* January-February 2014.

(1) 文中の(ア)～(ソ)それぞれに入る最もふさわしい語句はどれか、①～⑮のうちから1つずつ選びなさい。但し、文頭に来る単語も小文字で示してある。同じ語句を2度使うことはない。

- | | | | | |
|---------------|--------------|--------------|--------|-------------|
| ① approaching | ② as soon as | ③ belatedly | ④ but | ⑤ due to |
| ⑥ hit | ⑦ instead | ⑧ into | ⑨ like | ⑩ more than |
| ⑪ out of | ⑫ part of | ⑬ previously | ⑭ what | ⑮ with |

(2) 下線部(タ)を和訳しなさい。

(3) 下線部(チ)を和訳しなさい。

〔問3〕 空所に入る最もふさわしい語句を①～⑤から1つ選びなさい。

(1) I owe a () of gratitude to my colleagues who helped me through the tough times.

- ① debt ② life ③ success ④ token ⑤ word

(2) We were worried that she would suffer respiratory arrest at () moment.

- ① all ② any ③ other ④ short ⑤ very

(3) () enough, every parent is protective of their children.

- ① Having ② Only ③ Saying ④ Sure ⑤ Well

(4) It didn't take () for the freshmen students to find their way around campus.

- ① after ② back ③ long ④ them ⑤ up

(5) The practice of washing hands is a major way to control infections in health-care ().

- ① insurance ② medicine ③ nursing ④ pharmacy ⑤ settings

(6) Many people in town wanted to hold a () service in honor of the late mayor.

- ① civil ② community ③ diplomatic ④ memorial ⑤ personal

(7) The story was fascinating with its twists and () until the very end.

- ① characters ② plots ③ suspense ④ tragedy ⑤ turns

(8) You cannot () a price on the great work that is going on to preserve biodiversity.

- ① have ② make ③ pay ④ put ⑤ show

(9) I am () that she will run for president next term.

- ① convinced ② convincement ③ convincible ④ convincing ⑤ convincingly

(10) Life-threatening allergic reactions would require you to get medical help () away.

- ① break ② far ③ get ④ just ⑤ right

〔問4〕 次の英文を読んで、下記の設問に答えなさい。

Air travel has always been rich with conspiracy theories and urban legends. I've heard it all. Nothing, however, gets me sputtering more than the myths and exaggerations about cockpit automation—⁽¹⁾the idea that modern aircraft are flown by computer, with pilots on hand merely as a backup in case of trouble. In some not-too-distant future, we're told, pilots will be engineered out of the picture altogether.

For example, in a 2012 *Wired* magazine story on robotics, a reporter had this to say: "A computerized brain known as the autopilot can fly a 787 jet unaided, but irrationally we place human pilots in the cockpit to babysit the autopilot, just in case."

That's about the most reckless and grotesque characterization of an airline pilot's job I've ever heard. To say that a 787, or any other airliner, can fly "unaided" and that pilots are on hand to "babysit the autopilot" isn't just hyperbole or a poetic stretch of the facts. It isn't just a little bit false. It's totally false. ⁽²⁾And that a highly respected technology magazine wouldn't know better and would allow such a statement to be published shows you just how pervasive this mythology is. Such assertions appear in the media all the time, to the point where they are taken for granted.

One thing you'll notice is that purveyors of this claptrap tend to be journalists or academics—professors, researchers, etc.—rather than pilots. ⁽³⁾Many of these people, however intelligent they are and however valuable their work might be, are highly unfamiliar with the day-to-day realities of commercial flying. Pilots too are occasionally part of the problem. "This plane practically flies itself!" one of us might say. We're often our own worst enemies, enamored of gadgetry and, in our attempts to explain complicated procedures to the layperson, given to dumbing down. We wind up painting a caricature of what flying is really like—in the process undercutting the value of our profession.

Essentially, high-tech cockpit equipment assists pilots in the way that high-tech medical equipment assists physicians and surgeons. It has vastly improved their capabilities, but it by no means diminishes the experience and skill required to perform at that level and has not come remotely close to rendering them redundant. A plane is able to fly itself about as much as the modern operating room can perform an operation by itself. "Talk about medical progress, and people think about technology," wrote the surgeon and author Atul Gawande in a 2011 issue of *The New Yorker*. ⁽⁴⁾But the capabilities of doctors matter every bit as much as the technology. This is true of all professions. What ultimately makes the difference is how well people use technology." That about nails it.

出典：Patrick Smith, *Cockpit Confidential*. Naperville: Sourcebooks, 2013.

- (1) 下線部(1)を和訳しなさい。
- (2) 下線部内にあるsuch a statementを具体的に示しながら、下線部(2)を和訳しなさい。
- (3) 下線部内にある these people を具体的に示しながら、下線部(3)を和訳しなさい。
- (4) 下線部(4)を和訳しなさい。

〔問5〕 次の和文を英訳しなさい。

現在のイギリスの教育の根底を流れている考え方に「子どもは話すことによって学ぶ」という理念がある。自分の理解を確かめるために質問をしたり、互いに議論したりすることが思考を発展させることにつながると考えられているわけである。年齢が進み、議論をするような際には、種々の違った見解をそれぞれ考えてみたり、取捨選択したり、要約したり、証拠となるものを引用したり、説得力のある議論を構築することなどの指導を受けるようになるが、この際も話すことと考えることは関連づけて捉えられている。

出典：山本麻子『ことばを鍛えるイギリスの学校』 岩波書店 2012年。