英語 I（選択）

次の文章に関して、空欄補充問題と読解問題の二つがあります。まず、[31]から[40]の空所を埋めるのに、文脈的に最も適切な語を 1 から 3 の中から選び、その番号を解答欄（31）から（40）にマークしなさい。次に、内容に関する[41]から[45]の設問には、1 から 4 の選択肢が付されています。そのうち、文章の内容からみて最も適切なものを選び、その番号を解答欄（41）から（45）にマークしなさい。

1 Though the "open plan" modern office, with its sea of desks, might look like the offspring of a newsroom or a trading floor, it can also trace its heritage to 1960s Germany. There, two brothers who worked in their father's office-furniture business kicked off the Bürolandschaft, or "office landscape", movement, which sought to boost communication and efficiency and de-emphasize status. As the idea [31](1. grabbed on 2. ran loose 3. took hold) in North America in the decades that followed, employers switched from traditional offices with one or two people per room to large, wall-less spaces. By the turn of the century, [32](1. roughly 2. smoothly 3. moderately) two-thirds of U.S. workers spent their days in open-plan offices.

2 But as the layout became commonplace, problems emerged. A 2002 longitudinal study of Canadian oil-and-gas-company employees who moved from a traditional office to an open one found that on every [33](1. trial 2. aspect 3. instance) measured, from feelings about the work environment to co-worker relationships to self-reported performance, employees were significantly less satisfied in the open office. One explanation for why this might be is that open offices prioritize communication and collaboration but sacrifice privacy. In 1980, a group of psychology researchers published a study suggesting that this sacrifice might have unintended consequences. They found that "architectural privacy" (the ability to close one's door, say) went hand in hand with a sense of "psychological privacy" (feeling "control over access to oneself or one's group"). And a healthy [34](1. measurement 2. dose 3. sample) of psychological privacy correlated with greater job satisfaction and performance.

3 [35](1. Beside 2. With 3. Upon) a lack of privacy comes noise – the talking, typing, and even chewing of one's co-workers. A 1998 study found that background noise, whether or not it included speech, impaired both memory and the ability to do mental arithmetic, while another study found that even music [36](1. hindered 2. improved 3. accompanied) performance. There's also the question of lighting. Open offices tend to cluster cubicles away from windows, and a forthcoming study shows that on workdays, employees without windows get an average of 47 fewer minutes of sleep than those with windows, and have worse sleep quality overall. Artificial light has its own [37](1. undertones 2. outcomes 3. downsides). One pair of researchers found that bright overhead light intensifies emotions, enhancing perceptions of aggression and sexiness – which could lead to a lack of focus during meetings if arguments get heated, or co-workers get overheated.

4 To add another tangle to this knot, different personality types respond differently to the conditions of office life. For example, the study on background music found its negative effects to be much more [38](1. pronounced 2. inspirational 3. entertaining) for introverts than for extroverts. Even the office coffee machine could be hurting some employees. [39](1. Because 2. Although 3. When) a moderate amount of caffeine was recently found to enhance long-term information retention, caffeine has previously been shown to hinder introverts' cognitive performance during the workday.

5 Further complicating matters, cubicle dwellers are forever [40](1. shooting down 2. climbing up 3. hunting for) ways to improve their office experience. The latest craze is the standing desk, inspired by the widely reported health risks of sitting all day. One study found that people who sat at least six hours a day had a higher risk of premature death than those who sat three hours or fewer – regardless of physical-activity level. But being on one's feet presents its own health risks: standing for more than eight hours a day has been tied to back and foot pain, as well as preterm birth.

6 So what's a research-minded boss to do? Easy: give employees their own private offices, with plenty of sun, and turn off the overhead lights. Supply the introverts with noise-canceling headphones and decaf, but pump the extroverts full of caffeine and even let them listen to music now and then. And don't let any of us sit too much – or stand too much. Maybe we can crouch.

—Based on Beck, J. (2014). "The optimal office," *The Atlantic.*

[41] In the 2nd paragraph, what can be inferred about the relationship between privacy and job satisfaction?

1. Architectural privacy rather than psychological privacy is required for employee gratification.
2. Architectural privacy and psychological privacy are both related to employee fulfillment.
3. Psychological privacy is as important as a collaborative environment for employee satisfaction.
4. Psychological privacy without communication leads to poor employee performance.

[42] According to the article, what was ***NOT*** identified as a problem with open office working conditions?

1. Drinking coffee can affect concentration depending on personality type.
2. Offices without walls or doors can lead to a feeling of loss of control.
3. Communication among employees can be made more difficult due to background noise.
4. Sound made by chewing, music, and typing can be as distracting as the sound of people talking.

[43] What is the "question of lighting" in the 3rd paragraph?

1. Why does artificial light lead to aggression in the workplace?
2. What are the effects of limited natural light on employee health and mood?
3. How can employers ensure that over-heated workers are closer to windows?
4. Why aren't meetings conducted in areas with more windows?

[44] What does "this knot" refer to in the 4th paragraph?

1. The effect of personality on workplace environments.
2. The layout of desks and space in an open office.
3. The relationship between music, caffeine, and personality.
4. The presence of existing problems facing open offices.

[45] Why does the author conclude the passage with the phrase "maybe we can crouch"?

1. To highlight that health problems can occur from standing or sitting during the day.
2. To suggest that there are several easy fixes for creating better office environments for workers.
3. To remind us that a single set of solutions for making office life better for employees is impractical.
4. To argue that open offices are the solution for bosses hoping to make their employees productive.

英語Ⅱ（全員解答）

次の文章に関して、空欄補充問題と読解問題の二つがあります。まず、[46]から[55]の空所を埋めるのに、文脈的に最も適切な語を 1 から 3 の中から選び、その番号を解答欄（46）から（55）にマークしなさい。次に、内容に関する[56]から[60]の設問には、1 から 4 の選択肢が付されています。そのうち、文章の内容からみて最も適切なものを選び、その番号を解答欄（56）から（60）にマークしなさい。

1 There may be some truth to the saying "getting up on the wrong side of the bed", according to Penn State researchers who say starting your morning by focusing on how stressful your day will be may be harmful to your outlook throughout the day.

2 The researchers found that when participants woke up feeling like the day ahead would be stressful, their working memory – which helps people learn and [46](1. retain 2. convey 3. disclose) information even when they're distracted – was lower later in the day. Anticipating something stressful had a great effect on working memory regardless of actual stressful events.

3 Jinshil Hyun, a doctoral student in human development and family studies, said the findings suggest that the stress process begins long before a stressful event occurs. "Humans can think about and anticipate things before they happen, which can help us prepare for and even prevent certain events," Hyun said. "But this study suggests that this ability can also be harmful to your daily memory function, [47](1. in conjunction with 2. independent of 3. as pertaining to) whether the stressful events actually happen or not."

4 Martin Sliwinski, director of Penn State's Center for Healthy Aging, said working memory can affect many aspects of a person's day, and lower working memory can have a negative impact on individuals' daily lives, especially among older adults who already experience cognitive [48](1. decline 2. evaluation 3. bias).

5 "A reduced working memory can make you more likely to make a mistake at work [49](1. albeit 2. but 3. or) maybe less able to focus," Sliwinski said. "Also, looking at this research in the context of healthy aging, there are certain high stakes cognitive errors that older adults can make. Taking the wrong pill or making a mistake while driving can all have catastrophic impacts."

6 While previous research has examined how stressful events can affect emotion, cognition, and physiology, not as much has been done on the effects of anticipating stressful events that haven't yet happened in the context of everyday life.

7 The researchers recruited 240 racially and economically [50](1. dominant 2. diverse 3. driven) adults to participate in the study. For two weeks, the participants responded seven times a day to

questions [51](1. prompted 2. delegated 3. affirmed) by a smartphone app: once in the morning about whether they expected their day to be stressful, five times throughout the day about current stress levels, and once at night about whether they expected the following day to be stressful. The participants also completed a working memory task five times a day.

8 Hyun said that while laboratory studies have the benefit of controlling the participants' experience during the study, the use of smartphones to collect data as the participants went about their daily lives had benefits as well. "Having the participants log their stress and cognition as they went about their day let us get a [52](1. snapshot 2. filter 3. lens) of how these processes work in the context of real, everyday life," Hyun said. "We were able to gather data throughout the day over a longer period of time, instead of just a few points in time in a lab."

9 The researchers found that more stress anticipation in the morning was associated with poorer working memory later in the day. Stress anticipation from the previous evening was not associated with poorer working memory. Sliwinski said the findings – recently published in *The Journals of Gerontology: Psychological Sciences* – show the importance of a person's [53](1. hindsight 2. brainpower 3. mindset) first thing in the morning, before anything stressful has happened yet.

10 "When you wake up in the morning with a certain outlook for the day, in some sense the die is already cast," Sliwinski said. "If you think your day is going to be stressful, you're going to feel those effects even if nothing stressful ends up happening. That hadn't really been shown in the research until now, and it shows the impact of how we think about the world."

11 The researchers said the results [54](1. raise the roof 2. open the door 3. lower the ceiling) for possible interventions that can help people predict when their cognition may not be optimal.

12 "If you wake up and feel like the day is going to be stressful, maybe your phone can remind you to do some deep breathing relaxation before you start your day," Sliwinski said. "Or if your cognition is at a place where you might make a mistake, maybe you can get a message that says now might not be the best time to go for a drive."

13 Sliwinski said they're working on additional studies that will use wearable sensors to gather even more [55](1. downsized 2. accessorized 3. in-depth) data on the effect of stress on participants' physiological states. Hyun added that she's also interested in future studies that can help uncover possible psychological or biological mechanisms behind how stress affects cognition.

—Based on Bohn, K. (2018). "Expecting a stressful day may lower cognitive abilities throughout the day," *Penn State News.*

[56] According to the author, what is harmful about anticipating stress?

1. It makes it more likely for stressful events to actually happen.
2. It can make us less prepared for stressful events.
3. It makes it harder to get restful sleep at night.
4. It can make it more difficult to focus during the day.

[57] Why does Sliwinski use the examples of driving and taking pills in the 5th paragraph?

1. To introduce ways to reduce stress during the day.
2. To list common activities for elderly people.
3. To highlight actions that can have serious consequences.
4. To identify things that people often do in the morning.

[58] What does Hyun suggest might be one drawback for her research?

1. The researchers were unable to control the experiences of the individual participants.
2. The study was unable to account for the effects of stressful events on emotion.
3. It was difficult to gather data about stress anticipation at night.
4. Not all participants were able to access the smartphone application.

[59] What does the phrase "the die is already cast" refer to in the 10th paragraph?

1. Too much stress inevitably results in severe or even fatal health problems.
2. Thinking about a stressful event very likely leads to the effects of stress.
3. Avoiding stressful incidents is impossible if you wake up thinking about them.
4. Being stressed before going to bed makes it considerably harder to fall asleep.

[60] Based on the article, which of the following might the author suggest as the best way to prepare for problems due to anticipating stress?

1. Considering possible stressful events the night before.
2. Getting more sleep at night and taking naps during the day.
3. Scheduling stressful events for earlier in the morning.
4. Engaging in memory improving exercises on a daily basis.

英語Ⅲ（全員解答）

次の文章に関して、空欄補充問題と読解問題の二つがあります。まず、[61]から[80]の空所を埋めるのに、文脈的に最も適切な語を 1 から 3 の中から選び、その番号を解答欄（61）から（80）にマークしなさい。次に、内容に関する[81]から[90]の設問には、1 から 4 の選択肢が付されています。そのうち、文章の内容からみて最も適切なものを選び、その番号を解答欄（81）から（90）にマークしなさい。

1 In the biblical story about the Tower of Babel, people conspired to build a city and tower that would reach heaven. Their creator observed, "And now nothing will be restrained from them, which they have imagined to do." According to this story, God thwarted this effort by creating [61](1. disparate 2. shared 3. divine) languages so that they could no longer collaborate.

2 In our modern times, we're experiencing a state of [62](1. unreliable 2. unprecedented 3. unassuming) connectivity thanks to technology. However, we're still living under the shadow of the Tower of Babel. Language remains a barrier in business and marketing. Even though technological devices can quickly and easily connect, humans from different [63](1. backgrounds 2. parts 3. slices) of the world often can't.

3 Translation agencies [64](1. meet halfway 2. step in 3. negotiate terms), making presentations, contracts, instructions, and promotional materials comprehensible to all intended recipients. Some agencies also offer "localization" expertise. For instance, if a company is marketing in Quebec, the [65](1. languages 2. translators 3. advertisements) need to be in Québécois French, not European French. However, risk-averse companies may be reluctant to invest in these translations. Consequently, these ventures haven't achieved full market penetration.

4 Global markets are waiting, but AI-powered language translation isn't ready yet, [66](1. besides 2. following 3. despite) recent advancements in natural language processing and sentiment analysis. AI still has difficulties processing requests in one language, without the additional complications of translation. In November 2016, Google added a neural network to its translation tool. However, some of its translations are still socially and grammatically odd. I spoke to technologists and a language professor to find out why.

5 "[67](1. For 2. To 3. With) Google's credit, they made a pretty massive improvement that appeared almost overnight. You know, I don't use it as much. I will say this. Language is hard," said Michael Housman, chief data science officer at RapportBoost.AI and faculty member of Singularity University. He [68](1. explained 2. planned 3. rejected) that the ideal scenario for machine learning and artificial intelligence is something with fixed rules and a clear-cut measure of success or failure. He named chess as an obvious example, and noted machines were able to beat the best human Go player.

This happened faster than anyone anticipated because of the game's very clear rules and [69](1. infinite 2. limited 3. subsequent) set of moves.

6 Housman [70](1. negotiated 2. contradicted 3. elaborated), "Language is almost the opposite of that. There aren't as clearly-cut and defined rules. The conversation can go in an infinite number of different directions. And then of course, you need labeled data. You need to tell the machine to do it right or wrong." Housman noted that it's [71](1. inadvertently 2. inherently 3. intermittently) difficult to assign these informative labels. "Two translators won't even agree on whether it was translated properly or not," he said. "Language is kind of the wild west, in terms of data."

7 Google's technology is now able to consider the entirety of a sentence, as opposed to merely translating individual words. Still, the glitches [72](1. linger 2. interfere 3. break). I asked Dr. Jorge Majfud, Associate Professor of Spanish, Latin American Literature, and International Studies at Jacksonville University, to explain why consistently accurate language translation has thus far [73] (1. eluded 2. undermined 3. improved) AI. He replied, "The problem is that considering the 'entire' sentence is still not enough. The same way the meaning of a word depends on the rest of the sentence (more in English than in Spanish), the meaning of a sentence depends on the rest of the paragraph and the rest of the text, as the meaning of a text depends on a larger context called culture, speaker intentions, etc."

8 He noted that sarcasm and irony only make sense within this widened context. Similarly, idioms can be problematic for automated translations. "Google translation is a good tool if you use it as a tool, that is, not to substitute human learning or understanding," he said, before [74](1. setting 2. taking 3. offering) examples of mistranslations that could occur. "Months ago, I went to buy a drill at Home Depot and I read a sign under a machine: 'Saw machine.' Right below it, the Spanish translation: 'La máquina vió,' which means, 'The machine did see it.' Saw, not as a noun but as a verb in the preterit form," he explained.

9 Dr. Majfud warned, "We should be aware of the fragility of their 'interpretation.' Because to translate is basically to interpret, not just an idea but a feeling. Human feelings and ideas that only humans can understand – and sometimes not even we, humans, understand other humans." He noted that cultures, gender, and even age can pose barriers to [75](1. his 2. this 3. its) understanding and also contended that an over-reliance on technology is leading to our cultural and political decline. Dr. Majfud mentioned that Argentinean writer Julio Cortázar used to [76](1. refer to 2. explain 3. implicate) dictionaries as "cemeteries". He suggested that automatic translators could be called "zombies".

10 Erik Cambria is an academic AI researcher and assistant professor at Nanyang Technological University in Singapore. He mostly [77](1. advises against 2. focuses on 3. reprimands) natural

language processing, which is at the core of AI-powered language translation. Like Dr. Majfud, he sees the complexity and associated risks. "There are so many things that we unconsciously do when we read a piece of text," he told me. Reading comprehension requires multiple [78](1. interrelated 2. unrelated 3. overrated) tasks, which haven't been accounted for in past attempts to automate translation. Cambria continued, "The biggest issue with machine translation today is that we tend to go from the syntactic form of a sentence in the input language to the syntactic form of that sentence in the target language. That's not what we humans do. We first decode the meaning of the sentence in the input language and then we encode that meaning into the target language."

11 [79](1. Contrastingly 2. Otherwise 3. Additionally), there are cultural risks involved with these translations. Dr. Ramesh Srinivasan, Director of UCLA's Digital Cultures Lab, said that new technological tools sometimes reflect underlying biases. "There tend to be two parameters that shape how we design 'intelligent systems.' One is the values and you might say biases of those that create the systems. And the second is the world, if you will, that they learn from," he told me. "If you build AI systems that reflect the biases of their creators and of the world more largely, you get some, occasionally, [80](1. spectacular failures 2. vertical challenges 3. howling successes)." Dr. Srinivasan said translation tools should be transparent about their capabilities and limitations. He said, "You know, the idea that a single system can take languages that I believe are very diverse semantically and syntactically from one another and claim to unite them or universalize them, or essentially make them sort of a singular entity, it's a misnomer, right?"

—Based on Pring-Mill, D. (2018). *SingularityHub*.

[81] What does the author mean by "we're still living under the shadow of the Tower of Babel" in the 2nd paragraph?

1. Technology continues to impact the way people communicate with each other.
2. Language differences persist as a stumbling block to communication.
3. Religion and culture are still responsible for the variety of languages in the world.
4. Language variation has forced societies to collaborate on translation AI.

[82] According to the article, machine learning and artificial intelligence work best when

1. humans are given control only if machines cannot function autonomously.
2. there is flexibility in identifying solutions for complex tasks.
3. their use involves established guidelines and a definite way to assess outcomes.
4. the resulting translations are influenced by the culture and beliefs of people.

[83] What was the effect of the 2016 change in Google Translate?

1. It is now able to understand the cultural significance of a sentence.
2. It can now analyze the entire context of a passage when translating.
3. It is now able to translate the meaning of each word in a sentence carefully.
4. It can now analyze the whole sentence when translating.

[84] What is meant by "Language is kind of the wild west, in terms of data" in the 6th paragraph?

1. Automated data benefits from inconsistent labels.
2. Language displays simple and lawless behaviors.
3. Western culture dictates most rules for translation.
4. Language is seldom constrained by clear rules.

[85] In the 9th paragraph, Dr. Jorge Majfud argues that

1. machine translation errors will no longer occur in the foreseeable future.
2. excessive dependence on technology will have identifiable consequences.
3. conveying uniquely human feelings and emotions will become easier for machines.
4. divisions between already fragile cultures will be reinforced by technology.

[86] According to the article, sarcasm and idioms are difficult to translate by automated systems because their meaning depends on

1. the logical meaning in the context of the sentence.
2. variables that are not readily apparent based on the text itself.
3. the organizational pattern of the whole text.
4. individual interpretations without any frame of reference.

[87] According to Erik Cambria, what is the biggest problem with machine translation today?

1. It doesn't go beyond the syntax of both languages involved in the translation.
2. It attempts to analyze language in the way the human brain does but fails.
3. It works via the decoding and encoding processes rather than direct translation.
4. It places emphasis on sentence comprehensibility over grammatical accuracy.

[88] What are the "two parameters" that are described in the 11th paragraph?

1. Human intelligence and the conflicting values adopted by machines.
2. Syntactic diversity and semantic clarity in automated translation platforms.
3. The corresponding successes and failures of technological advancements.
4. The personal and societal dispositions that influence AI systems.

[89] For which text type would current automated translation technology be most effective?

1. Classic works of literature.
2. Lyrics from popular music artists.
3. Product descriptions for online sellers.
4. Subtitles for comedies.

[90] Which of the following would be the best title for this article?

1. Why Doesn't AI Get the Recognition It Deserves?
2. Machine Translation Is Ready for the Future
3. Why Hasn't AI Mastered Language Translation?
4. Google Translate Makes Language Translation Easy