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   It sounds like something out of a science fiction movie about making super-soldiers. Scientists have turned shy, low-ranking mice into aggressive fighters who almost always win in dominance competitions. And they did it by stimulating a part of the mouse brain that controls "effortful" behavior.

2   Mice are social animals, and male mice [31](1. embody 2. establish 3. eradicate) a pecking order amongst themselves by displaying aggressive behavior. Though this aggression can take many forms, neuroscientist Zhou Tingting of the Chinese Academy of Sciences, Shanghai, joined with his colleagues to measure mouse dominance using what's called the "tube test." The tube test creates a scenario [32](1. in which 2. in that 3. in so far as) there's not enough room for the mice to pass each other in the tube. Mice have to shove one another aside to get out. The mouse who shoves the most other mice out of its way will "win" the dominance game.

3   In a recent article for *Science*, Zhou and his colleagues write that "winner mice initiated significantly more pushes, and with a longer duration per push, than loser mice." Winners weren't stronger than losers; they were [33](1. simply 2. also 3. even) more persistently aggressive. The researchers also found that the winner mice showed brain activity in a cluster of neurons called the dorsomedial prefrontal cortex (dmPFC), which is associated with "effortful behavior" and "social dominance." Mice whose dmPFC was quiet during tube tests always lost.

4   Zhou and his colleagues wondered whether they could create "winner" mice by stimulating the dmPFC. Using a brain stimulation technique called "optogenetics" that [34](1. rides 2. triggers 3. considers) neural activity with proteins and light, they stimulated the dmPFC region of a low-ranking mouse's brain. Then the low-ranking mouse took the tube test with a high-ranking mouse. [35](1. Unfortunately 2. As expected 3. Immediately), the loser mouse began to shove the winner mouse vigorously, winning almost every contest.

5   There are a lot of interesting implications here for further research. [36](1. However 2. First of all 3. In this way), winning social dominance contests is clearly not just a matter of physical strength. Having an aggressive attitude is key to winning. And second, there is the question of whether this kind of technique would work on other animals and perhaps even humans. Mouse brains are similar to human brains in some ways, but our brains are far more complicated. That makes it

[37](1. assured 2. impossible 3. unlikely) that a shy person could be transformed into the Incredible Hulk with just one squirt of photons from a brain implant.

6   Perhaps more interesting is how researchers found they could permanently transform loser mice into winners, just by stimulating their brains six or more times in tube tests. "We observed that not all the mice returned to their original rank," Zhejiang University neuroscientist Hu Hailan reported to the Guardian. "Some mice did, but some of them had this newly dominant position." Hu and the other researchers refer to this as the "winner effect," in which one [38](1. triumph 2. defeat 3. fluke) can lead to more victories, due to a change in outlook.

7   Put in more scientific terms, the winner effect is the result of "neuroplasticity," or the way neural connections in our brains are constantly changing. Each time the mouse wins due to brain stimulation, the [39](1. undercutting 2. underwhelming 3. underlying) structure of its brain changes a little bit. Over time, the mouse has essentially been [40](1. rewired 2. relegated 3. relaxed) to be more aggressive in dominance games. Light stimulation isn't the only way to do this; animals can undergo changes in their brains through new experiences or learning. But brain stimulation works remarkably fast.

8   For now, this research could only lead to a more aggressive mouse army. But in the future, it could help people overcome social anxiety by giving them a little boost of assertiveness at just the right moment. Or it could create an army of hyper-aggressive super-soldiers. What could go wrong?

—Based on Newitz, A. (2017). "A brain implant turns 'loser' mice into aggressive fighters," *Ars Technica*.

[41] What is meant by the phrase "pecking order" in the 2nd paragraph?

1. Social ranking based on physical characteristics.

2. Aggressive eating habits in animals.

3. Status in a community as determined by assertiveness.

4. The order in which mice escape from tubes.

[42] According to the 3rd paragraph, the results of the "tube test" revealed that

1. stronger mice were more likely to be aggressive than weaker mice.

2. dominant mice pushed other mice longer and more often.

3. overall brain activity was weak in mice that lost the test.

4. the dorsomedial prefrontal cortex was composed of a cluster of neurons.

[43] Which of the following was **_NOT_** a result of repeated brain stimulation in low-ranking mice?

1. Decreased proteins.

2. Increased aggression.

3. Permanent neurological changes.

4. Victory over "winner" mice.

[44] In the 7th paragraph, the term "neuroplasticity" is explained as

1. the brain's ability to adapt to new information.

2. the short-term effect of aggressive behavior on the brain.

3. the use of optogenetics to resist social anxiety.

4. learning new skills through repeated failure.

[45] According to the article, which of the following is a limitation of this study?

1. Shy persons aren't able to overcome social anxiety.

2. Stimulating aggression in people may lead to super soldier armies.

3. Research on mice might have different effects when conducted on humans.

4. Brain stimulation can have irreversible effects on mice and other animals.

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1   When science fiction writers first imagined robot invasions, the idea was that bots would become smart and powerful enough to take over the world by force, whether on their own or as directed by some evildoer. In reality, something only slightly less scary is happening. Robots are getting better, every day, at impersonating humans. When directed by opportunists, malefactors, and sometimes even nation-states, they pose a [46](1. false 2. minimal 3. particular) threat to democratic societies, which are premised on being open to the people.

2   Robots posing as people have become a menace. Philip Howard, who runs the Computational Propaganda Research Project at Oxford, studied the deployment of propaganda bots during voting on Brexit, and the recent American and French presidential elections. Twitter is especially [47](1. encouraged 2. distorted 3. trusted) by its millions of robot accounts; during the French election, it was principally Twitter robots who were trying to make #MacronLeaks into a scandal. Facebook has admitted it was essentially hacked during the American election in November. In Michigan, Mr. Howard notes, "junk news was shared just as widely as professional news in the days leading [48](1. up 2. down 3. over) to the election."

3   Robots are also being used to attack the democratic features of the administrative state. This spring, the US put its proposed revocation of net neutrality up for public comment. In previous years, such proceedings attracted millions of commentators. This time, someone with an agenda but no actual public support unleashed robots who impersonated — via stolen identities – hundreds of thousands of people, [49](1. mimicking 2. conquering 3. flooding) the system with fake comments against federal net neutrality rules.

4   To be sure, today's impersonation-bots are different from the robots imagined in science fiction: they aren't sentient, don't carry weapons, and don't have physical bodies. Instead, fake humans just have whatever is necessary to make them seem human enough to "pass": a name, perhaps a virtual appearance, a credit-card number and, [50](1. if necessary 2. therefore 3. in effect), a profession, birthday, and home address. They are brought to life by programs or scripts that give one person the power to imitate thousands.

5　　　　The problem is almost certain to get worse, spreading to even more areas of life as bots are trained to become better at mimicking humans. [51](1. Conferring　2. Given　3. Ignoring) the degree to which product reviews have been swamped by robots, which tend to hand out five stars with abandon, commercial sabotage in the form of negative bot reviews is not hard to predict.

6　　　　So far, we've been [52](1. content　2. excited　3. dissuaded) to leave the problem to the tech industry, where the focus has been on building defenses, usually in the form of Captchas ("completely automated public Turing test to tell computers and humans apart"), those annoying "type this" tests to prove you are not a robot. But leaving it all to industries is not a long-term solution. For one thing, the defenses don't actually deter impersonation bots, but reward whoever can beat them. And perhaps the greatest problem for a democracy is that companies like Facebook and Twitter lack a serious financial incentive to do anything about matters of public concern. Twitter estimates at least 27 million probably fake accounts; researchers suggest the real number is closer to 48 million, [53](1. when　2. so　3. yet) the company does little about the problem.

7　　　　The ideal anti-robot campaign would employ a mixed technological and legal approach. Improved robot detection might help us find the robot masters or [54](1. inadvertently　2. potentially　3. secretly) help national security unleash counterattacks, which can be necessary when attacks come from overseas. There may be room for deputizing private parties to hunt down bad robots. A simple legal remedy would be a "Blade Runner" law that makes it illegal to deploy any program that hides its real identity to pose as a human. Automated processes should be required to state, "I am a robot." When dealing with a fake human, it would be nice to know.

8　　　　Using robots to fake support, steal tickets, or crash democracy really is the kind of evil that science fiction writers were warning us about. The use of robots takes advantage of the fact that political campaigns, elections, and even open markets make humanistic assumptions, [55](1. ensuring　2. providing　3. trusting) that there is wisdom or at least legitimacy in crowds and value in public debate. But when support and opinion can be manufactured, bad or unpopular arguments can win not by logic but by a novel, dangerous form of force — the ultimate threat to every democracy.

　　　　　　—Based on Wu, T. (2017). *The New York Times*.

[56] What is meant by the term "robot" in the article?

1. People faking their identity to post on the Internet anonymously.

2. Computers that can independently think.

3. Scripted programs claiming to be human.

4. Physical machines developed to spread propaganda.

[57] What is an example of "commercial sabotage" as mentioned in the 5th paragraph?

1. Attacks by foreign nations to influence international trade.

2. Businesses promoting their brand by using bot accounts.

3. Using the tech industry to speak out against robots.

4. Companies employing robots to write bad reviews of rival products.

[58] Why haven't tech industries been successful in solving the robot problem as described in the 6th paragraph?

1. Tools like Captchas are easy for robots to beat.

2. Their solutions only detect robots rather than prevent their use.

3. Companies like Twitter and Facebook make money off robot accounts.

4. It is difficult to create laws against using fake accounts.

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

1. Robots are People, too

2. Is Your Next Door Neighbor a Robot?

3. The Ideal Anti-Robot Campaign

4. Please Prove You're Not a Robot

[60] Based on the article, which of the following best exemplifies the danger posed by robots?

1. Computer hackers altering election results to change the outcome.

2. Governments denying people an equal opportunity to express their opinions.

3. A company posting an anonymous review of its own product to boost sales.

4. Researchers collecting private data from participants without their consent.

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1   The rise and fall of popular positions in the field of philosophy is not governed solely by reason. Philosophers are generally reasonable people but, as with the rest of the human species, their thoughts are heavily influenced by their social settings. Indeed they are perhaps more influenced than thinkers in other fields, since popular or 'big' ideas in modern philosophy change more frequently than ideas in, say, chemistry or biology. Why?

2   The relative instability of philosophical positions is a result of how the discipline is practised. In philosophy, questions about methods and limitations are [61](1. under the table   2. on the table   3. tabled) in a way that they tend not to be in the physical sciences, for example. Scientists generally acknowledge a 'gold standard' for validity – the scientific method – and, for the most part, the way in which investigations are conducted is more or less settled. Falsifiability [62](1. rules   2. enriches   3. contradicts) the scientific disciplines: almost all scientists are in agreement that, if a hypothesis isn't testable, then it isn't scientific. There is no counterpoint of this in philosophy. Here, students and professors continue to ask: 'Which questions can we ask?' and 'How can we ask, [63](1. much more   2. much less   3. more or less) answer, those questions?' There is no universally agreed-upon way in which to do philosophy.

3   Given that philosophy's foundational questions and methods are still far from settled – they never will be – it's natural that there is more [64](1. invariability   2. tenacity   3. flux), more volatility, in philosophy than in the physical sciences. But this volatility is not like the paradigm shifts described by the US historian of science Thomas Kuhn. A better analogy, in fact, would be changes of fashion.

4   When thinking about fashion in philosophy, there are four basic categories under which texts, thinkers, and ideas can be grouped. By considering the interrelation of these groups, we can begin to glean how an idea becomes fashionable. The four categories are the fashionable, the foundational, the prohibited, and the unfashionable.

5   The thinkers and texts that fall into the foundational category are those that a student 'must know'. Their thought is [65](1. bedrock   2. expendable   3. trifling). Plato, perhaps, is the best example of a foundational thinker. The English philosopher Alfred North Whitehead said in 1929 that 'the European philosophical tradition … consists of a series of footnotes to Plato'. Of course, when there is something

that everyone 'must know', it is often the case that very few people know it very well. Rigorous readings [66](1. benefit from 2. give way to 3. interfere with) widespread assumptions and generalisations.

6   Ideas that fall into the fashionable category are those that a student in a given period and place will be told 'should be known' for their content and their influence. Fashionable ideas are the ones that 'get people excited', the ones that are perceived to be 'breaking new [67](1. surface 2. ground 3. earth)'. Fashionistas have Milan and Paris and Giorgio Armani, while philosophers have the Ivy League and Oxbridge and John Searle. There is a deep connection, too, between the foundational and the fashionable. Philosophers often become fashionable by asking interesting questions and proposing novel theories about 'the classics' and 'the local canon'. The US philosopher Saul Kripke, for example, studied the work of Ludwig Wittgenstein intensely, and part of his rise into fashion is a result of those readings and his challenge to Wittgenstein's philosophy. The thinkers who produce such ideas often become fashionable [68](1. against their will 2. to spite themselves 3. in their own right) and tend to come from established centres of thought. In this way, philosophy is really [69](1. no different 2. a far cry 3. separated) from the fashion industry.

7   The third category is the prohibited. In the academy, prohibited ideas are like a virus, and they threaten the careers of any who come into prolonged contact with them. Because of this, prohibited ideas resemble the foundational in that hearsay is often accepted [70](1. on behalf 2. because 3. in lieu) of detailed, first-hand analysis. Ideas and thinkers in the prohibited class tend to be associated with reprehensible or 'unjustified' principles and premises. A philosopher of mind, for example, couldn't positively reference Carl Jung's idea of the collective unconscious without earning considerable disdain from his colleagues. Hardly anyone actually reads Jung, but people [71](1. moreover 2. nonetheless 3. reluctantly) believe that he's 'not to be taken seriously'.

8   The last category of fashion is unique to the humanities since there is no permanent unfashionable category in the physical sciences. In philosophy, though, most changes in fashion don't take hold across the entire academy. Unfashionable pockets can [72](1. depart from 2. persist in 3. argue against) sub-disciplines and small departments, while the rest of the field moves on to new fascinations and tastemakers. Unfashionable philosophers are those who are judged by the majority of their peers to be 'asking the wrong questions'. There is no expiration date on [73](1. reputation 2. anecdotes 3. truth), to be sure, but in the field of philosophy there seems to be a limitation on how long certain questions may be asked in certain ways. Many of the fashionable philosophers from two or three generations ago are today considered unfashionable.

9   The gap between the fashionable and the unfashionable, though, is [74](1. deeper 2. smaller 3. wider) than one might assume. Both fashionable and unfashionable philosophers tend to begin with

rigorous readings of the foundational texts, but only those who find something 'new and exciting' or 'long lost' are welcomed into the fashionable camp. Philosophy is a [75](1. capricious   2. laudable 3. cerebral) field, and if an idea isn't new, it tends not to be fashionable.

10   With this [76](1. costume   2. glitch   3. taxonomy) of philosophy in mind, one might make predictions about the sorts of philosophers and theories that will continue to be fashionable: those that display mastery of 'the canon' and encourage us to read and see with new eyes, or to ask new sorts of questions, will continue to be the [77](1. toast   2. bread   3. bacon) of the academic community. Fashionable positions will continue to expand and be applied to a variety of topics until, after some time, they begin to be seen as 'worn out'. Mass enthusiasm invariably [78](1. builds   2. sustains   3. wanes) after so many conferences and books and imitations. Science changes, according to Kuhn, when a series of questions that cannot be answered satisfactorily within the dominant paradigm build up until a 'break' occurs and members of the profession embrace a new paradigm. Philosophy moves 'forward' when fashionable ideas become tiresome. Fashionable texts and ideas, then, must eventually become either foundational or unfashionable.

11   Fashion poses a danger to philosophy insofar as it encourages the myths of linear progress and novelty-as-validity. Philosophers are too willing to reward novelty, too attentive to reputations and legacies. Unfashionable philosophy, though, serves as something of [79](1. an antidote   2. a poison 3. a placebo) reminding us that even the most earnest enquiry might not yield novel answers. For academic philosophers, this is a dangerous possibility. In the academy, one must 'publish or [80] (1. suffer   2. perish   3. punish)', and few 'prestigious' journals show interest in publishing pieces on well-surveyed positions. Rapid changes in philosophical fashion thus seem to say more about us and the pressures exerted by our institutions than the content of any particular idea.

—Based on Studemeyer, J. B. (2017). "How fashion moves philosophy forward," *Aeon.*

[81] What is the most likely answer to the question "Why" in the 1ˢᵗ paragraph?

1. There are no established methodologies for how studies are conducted in the field of philosophy.

2. There are idiosyncratic standards in the ways studies are conducted in philosophy.

3. Investigations in philosophy are heavily regulated amongst prominent scholars.

4. Hard sciences ridicule modern philosophical practices because they are not systematic.

[82] What is meant by "gold standard" in the 2nd paragraph?

1. A monetary system based on gold.

2. An award for scientific achievement.

3. A generally accepted benchmark.

4. An assessment of falsifiability.

[83] According to the article, which of the following is **_NOT_** true?

1. Plato is a representative philosopher in the foundational category.

2. Many philosophies from long ago are now considered unfashionable.

3. Foundational teachings tend to inform both fashionable and unfashionable camps.

4. Novel thinking is just as important as falsifiability in philosophy.

[84] The author mentioned Giorgio Armani in the 6th paragraph because

1. he is regarded as foundational and fashionable by fashionistas.

2. he is as widely recognised in fashion as John Searle is in the field of philosophy.

3. he is influential in the field of philosophy as well as the fashion industry.

4. he is the most famous Italian fashion designer.

[85] In the 6th and 10th paragraphs, what is meant by the word "canon"?

1. A widely accepted principle of fashionable philosophy.

2. New ideas taken on by philosophers to replace tiresome topics.

3. Works recognized as authoritative in their respective fields.

4. Foundational philosophical concepts taken up by the unfashionable.

[86] In the 7th paragraph, the author argues that

1. scholars advocating prohibited ideas are not taken seriously in the field of philosophy.

2. it is possible that even a layperson who gets involved in this category can spread the virus.

3. Carl Jung's collective unconscious theory is so well known that there are many followers even in the prohibited category.

4. the prohibited category is similar to the foundational one in that they both reject knowledge based on word of mouth.

[87] According to the article, which of the following is ***NOT*** evident in the field of science?

1. Hypothesis testing while following general conjectures.

2. The existence of longstanding unfashionable camps within the field.

3. Guidelines that scholars in the field can follow.

4. A field that moves on when questions cannot be answered adequately.

[88] What is the main message the author wants to convey to the reader?

1. Science and philosophy are in danger of mistaking novelty for validity.

2. Academic fields should consider the validity as well as the novelty of ideas.

3. In research, one must consider what is fashionable and unfashionable.

4. The need to be fashionable threatens genuine scholarship in philosophy.

[89] What does the title "How fashion moves philosophy forward" refer to?

1. Scholars in philosophy move on to new subject matter when the current theme becomes antiquated.

2. Fashion appears attractive to philosophers as both fashion and philosophy take similar paths in research.

3. Unpredictability in the field of philosophy resembles that of the fashion industry.

4. Fashion fascinates philosophers so much that they are taking steps to cultivate a new approach similar to fashion.

[90] In the 10th paragraph, what does the author think most influences fashionable ideas?

1. Digging up old ideas by renowned scholars and replicating findings.

2. Being sensitive to the wants of a general audience and building theories accordingly.

3. Studying a body of established academic works and positing new theories.

4. Continuing in the pursuit of theories even after a paradigm break occurs.