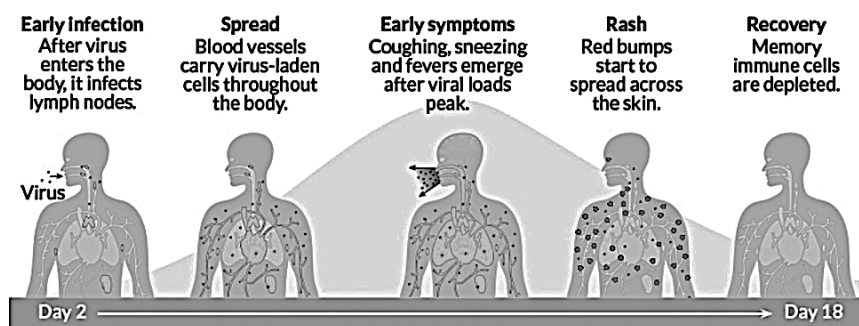


【 I 】 次の英文を読み、空欄のある設問については、英文の内容に合うように①～④から最も適切なものを一つ選び問題文を完成させよ。質問形式の設問については、最も適切な答えを①～④の中から一つ選べ。[1]～[7]はパラグラフ（段落）の番号を表している。

[1] The most iconic thing about measles is its rash. Red, angry splotches make this infection painfully visible. But that rash — and even the fever, cough and sore eyes — distracts from the infection's real harm: an all-out attack on the immune system. The immune system retains memories of the infections it fights. That helps it know what to do when it encounters familiar germs in the future. But measles wipes clean those memories. The resulting "immune amnesia" from measles can leave people at risk of developing infections from other harmful viruses and bacteria for years, scientists are finding. Pneumonia, ear infections and diarrhea are common side-effects.

[2] That makes measles "the furthest thing from benign," says Michael Mina. As a pathologist, he studies infectious diseases at Harvard University in Cambridge, Mass. Measles increases people's susceptibility to everything else, he says. And that has big costs. Scientists now have a better picture of how the measles virus mounts its sneak attack. They know which cells are most at risk and how long the immune system seems to suffer. Studies helped fill in the details. They came from tests in lab animals and in human tissues and from comparing children before and after they had measles.



Once the measles virus invades the body, infected immune cells spread widely — even before symptoms appear. The amount of virus, or viral load (shown as a beige curve behind the bodies), peaks between 7 and 10 days after infection. Afterward, the body is left with fewer memory immune cells. Source: B.M. Laksono, Erasmus MC, Rotterdam, Netherlands

E. OTWELL

[3] This new view may help explain why the measles vaccine seems to have far-reaching effects. The shot prevents deaths — and from more diseases than just measles, says Rik de Swart. He's a virologist at Erasmus University Medical Center in the Netherlands. By shielding the immune system from one virus, the vaccine may help keep other disease-causing germs at bay. After someone with measles coughs or sneezes, their virus can linger in the air and on surfaces for up to two hours. Once inside its next victim, that virus attacks immune cells. It targets those in the nose, throat, lungs and eyes. These immune cells have a protein called CD150 on their surface. This protein allows the virus to invade, experiments on lab animals show.

[4] Inside the cells, the virus quickly makes copies of itself. (①) Then it spreads to places packed with other immune cells, such as the bone marrow, the spleen, tonsils and lymph nodes. (②) The measles virus has an "enormously strong" preference for infecting immune cells, says Bert Rima. He is an infectious-disease researcher at Queen's University Belfast in Northern Ireland. By looking at preserved human tissue, Rima and his colleagues traced how measles invades the immune system. (③) From there they can be coughed out to sicken more people. (④) The researchers described their findings in the May/June 2018 issue of *mSphere*.

[5] A severe measles infection usually lasts several weeks. It can sometimes bring ear infections and pneumonia. In rare cases, a deadly brain swelling may also occur. On their own, those are worrisome side-effects, says Anthony Fauci. He is the director of the National Institute of Allergy and Infectious Diseases in Bethesda, Md. But the loss of immune cells also can leave people prone to infections that the immune system would normally fend off.

[6] In 2013, de Swart and colleagues had a chance to study the immune effects of the measles virus in children. These kids were part of a closed-off community of Orthodox Protestants in the Netherlands. Parents in this community refuse to let their kids become vaccinated. As a result, bouts of measles have been common. The community's last measles outbreak had

ended in 2000. So it was just a matter of time before the virus took hold again. The researchers got permission from parents to take blood samples from healthy children who never had measles. They wanted to study their immune cells. Then, the researchers waited for an outbreak. They would test the kids again after an infection. And they didn't have to wait long. An outbreak ripped through the community just as the researchers began collecting blood. Classrooms emptied as sick siblings packed into dark living rooms to protect their sensitive eyes.

[7] De Swart's team had blood samples from before and after 77 of those children came down with measles. The measles virus targets immune cells called memory B and T cells, de Swart says. These cells remember threats the body has already fought off. They also help the immune system spring into action quickly if those threats return. After the measles outbreak, the numbers of some types of the memory cells dropped in children who had caught the disease. That created an immune amnesia. De Swart's team reported its findings November 23, 2018 in *Nature Communications*.

出典：Laure Sanders, "Measles can harm a child's defense against other serious infections." *Science News Explores*, August 1, 2019.

問 1 According to paragraph [1], what is the real harm caused by measles?

- ① A painful red rash.
- ② Symptoms such as fever, cough or sore eyes.
- ③ Complications such as pneumonia, ear infections or diarrhea.
- ④ Damage to the immune system.

問 2 In paragraph [1], the phrase "immune amnesia" most closely refers to ().

- ① the immune system causing memory loss in human brains
- ② the immune system forgetting previously encountered infections
- ③ the immune system being strengthened by measles
- ④ the immune system being attacked by the measles virus directly

- 問 3 In paragraph [2], what does Michael Mina mean when he says measles is "the furthest thing from benign"?
- ① Measles has no long-term effects.
 - ② Measles is harmless and mild.
 - ③ Measles does sneak attacks.
 - ④ Measles is anything but harmless.
- 問 4 According to Michael Mina in paragraph [2], what effect does measles have on people?
- ① It makes people more vulnerable to other diseases.
 - ② It strengthens the immune system against future infections.
 - ③ It forces people to undergo expensive treatments.
 - ④ It causes benign effects on the immune system.
- 問 5 Which of the following statements is NOT true according to the illustration and its explanation below paragraph [2]?
- ① The measles virus first infects the lymph nodes after entering the body.
 - ② Symptoms such as coughing and fever occur after the viral load peaks.
 - ③ The number of memory immune cells increases after recovery from measles.
 - ④ The virus spreads through the body via blood vessels.
- 問 6 According to paragraph [3], one of the "far-reaching effects" of the measles vaccine is that it ().
- ① helps protect people from other infections as well
 - ② makes it easier for other diseases to spread
 - ③ attacks immune cells in the nose, throat, lungs and eyes
 - ④ reduces exposure to airborne measles viruses lingering in the environment

問 7 In paragraph [3], the phrase "keep other disease-causing germs at bay" is closest in meaning to ().

- ① to keep germs inside the body
- ② to help germs grow
- ③ to prevent germs from entering the body
- ④ to pass germs on to the next victim

問 8 According to paragraph [3], how does the measles virus enter the immune system?

- ① It enters through the lungs and spreads to the bloodstream.
- ② It hides in human tissue before invading.
- ③ It attaches to oxygen molecules in the air.
- ④ It uses a protein called CD150 on immune cells.

問 9 Where would the following sentence fit best in paragraph [4]?
Choose (①), (②), (③) or (④).

Eventually, newly made viral particles move to the respiratory tract.

問 10 Which of the following statements about what the measles virus does after entering the cells is NOT mentioned in paragraph [4]?

- ① The measles virus prefers to infect weak immune cells.
- ② The measles virus makes copies of itself.
- ③ The measles virus spreads to organs like the spleen and tonsils.
- ④ The measles virus searches for other immune cells to infect.

問 11 According to paragraph [5], which of the following statements is true about a severe measles infection?

- ① It usually ends within two weeks.
- ② Brain swelling is a common symptom.
- ③ It strengthens the immune system.
- ④ It can cause pneumonia and ear infections.

問 12 In paragraph [5], the phrase "fend off" is closest in meaning to ().

- ① give away ② fight off ③ damage ④ stay away from

問 13 According to paragraph [6], why did de Swart and his team have a good opportunity to study the immune effects of the measles virus in an Orthodox Protestant community?

- ① Because no other communities allowed vaccinations either.
② Because measles was spreading throughout the entire country.
③ Because the children in the community had not been vaccinated.
④ Because parents tried to protect their children from getting sick.

問 14 According to paragraph [6], what did de Swart and his team plan to study in the children?

- ① Whether they could naturally avoid measles.
② Why their parents refused vaccinations.
③ How quickly measles could spread across the country.
④ How their immune cells changed after measles infection.

問 15 The following is a summary of paragraph [7]. Each of the blanks (1), (2), (3) and (4) corresponds to one of the options ①, ②, ③ or ④. Each option is only used once. Which option best fits blank (3)?

Memory B and T cells are important immune cells that remember past (1) and help the body respond faster if those infections return. The (2) virus attacks these cells, causing their numbers to decrease after infection. The resulting (3) leads to immune amnesia, weakening the body's (4) to fight previously encountered diseases.

- ① ability ② measles ③ loss ④ infections

【Ⅱ】 次の英文を読み、空欄のある設問については、英文の内容に合うように①～④から最も適切なものを一つ選び問題文を完成させよ。質問形式の設問については、最も適切な答えを①～④の中から一つ選べ。[1]～[8]はパラグラフ（段落）の番号を表している。

[1] Taylor Swift has scores of newsworthy achievements, from dozens of music awards to several world records. But last January, the mega-star made headlines for something much worse and completely outside her control. She was a target of online abuse. Someone had used artificial intelligence, or AI, to create fake images of Swift. These pictures flooded social media. Her fans quickly responded with calls to #ProtectTaylorSwift. But many people still saw the fake pictures.

[2] That attack is just one example of the broad array of bogus media — including audio and visuals — that non-experts can now make easily with AI. Celebrities aren't the only victims of such heinous attacks. Last year, for example, male classmates spread fake sexual images of girls at a New Jersey high school. AI-made pictures, audio clips or videos that masquerade as those of real people are known as deepfakes. This type of content has been used to put words in politicians' mouths. In January, robocalls sent out a deepfake recording of then President Joe Biden's voice. It asked people not to vote in New Hampshire's primary election. And a deepfake video of Moldovan President Maia Sandu last December seemed to support a pro-Russian political party leader.

[3] AI has also produced false information about science and health. In late 2023, an Australian group fighting wind energy claimed there was research showing that newly proposed wind turbines could kill 400 whales a year. They pointed to a study seemingly published in *Marine Policy*. But an editor of that journal said the study didn't exist. Apparently, someone used AI to mock up a fake article that falsely appeared to come from the journal.

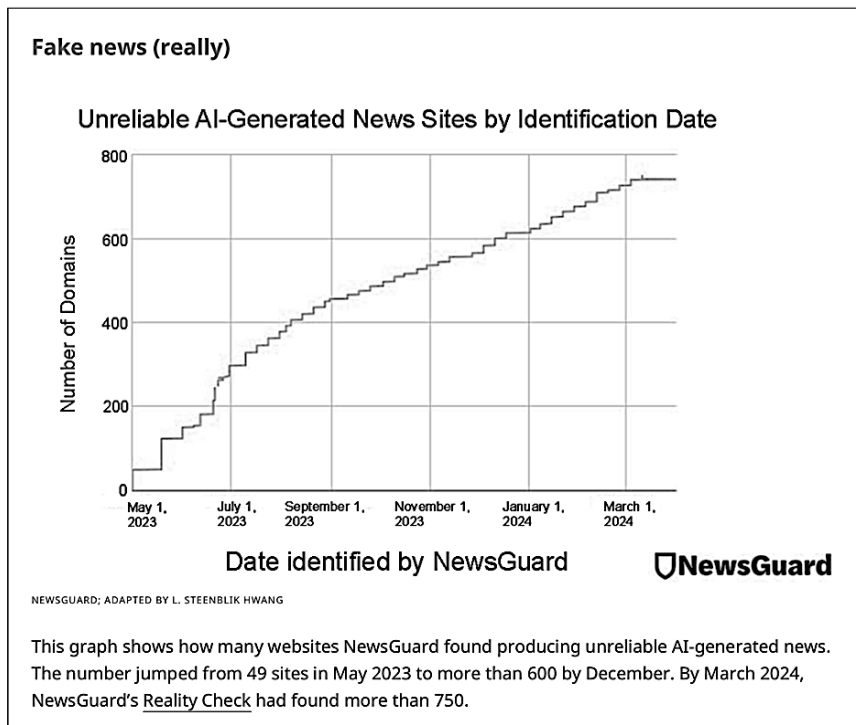
[4] Many people have used AI to lie. But AI can also misinform by accident. One research team posed questions about voting to five AI models. The models wrote answers that were often wrong and misleading, the team

shared in a 2023 report for AI Democracy Projects. Inaccurate information (misinformation) and outright lies (disinformation) have been around for years. But AI is making it easier, faster and cheaper to spread unreliable claims. And although some tools exist to spot or limit AI-generated fakes, experts worry these efforts will become an arms race. AI tools will get better and better, and groups trying to stop fake news will struggle to keep up.

[5] The stakes are high. With a slew of more convincing fake files popping up across the internet, it's hard to know who and what to trust. (①) Making realistic fake photos, news stories and other content used to need a lot of time and skill. (②) That was especially true for deepfake audio and video clips. (③) Now almost anyone can use generative AI to fabricate texts, pictures, audio or video — sometimes within minutes. (④)

[6] A group of healthcare researchers recently showed just how easy this can be. Using tools on OpenAI's Playground platform, two team members produced 102 blog articles in about an hour. The pieces contained more than 17,000 words of persuasive false information about vaccines and vaping. "It was surprising to discover how easily we could create disinformation," says Ashley Hopkins. He's a clinical epidemiologist — or disease detective — at Flinders University in Adelaide, Australia. He and his colleagues shared these findings last November in *JAMA Internal Medicine*.

[7] People don't need to oversee every bit of AI content creation, either. Websites can churn out false or misleading "news" stories with little or no oversight. Many of these sites tell you little about who's behind them, says McKenzie Sadeghi. She's an editor who focuses on AI and foreign influence at NewsGuard in Washington, D.C. By May 2023, Sadeghi's group had identified 49 such sites. Less than a year later, that number had skyrocketed to more than 750. Many have news-sounding names, such as Daily Time Update or iBusiness Day. But their "news" may be made-up events.



[8] Generative AI models produce real-looking fakes in different ways. Text-writing models are generally designed to predict which words should follow others, explains Zain Sarwar. He's a graduate student studying computer science at the University of Chicago in Illinois. AI models learn how to do this using huge amounts of existing text. During training, the AI tries to predict which words will follow others. Then, it gets feedback on whether the words it picked are right. In this way, the AI learns to follow complex rules about grammar, word choice and more, Sarwar says. Those rules help the model write new material when humans ask for it.

出典：Kathiann Kowalski, "Artificial intelligence is making it hard to tell truth from fiction." *Science News Explores*, May 9, 2024

問 1 Which of the following statements about Taylor Swift is NOT mentioned in paragraph [1]? 16

- ① She won multiple music awards.
- ② She used AI to create images for her fans.
- ③ She was the victim of AI-generated online abuse.
- ④ She made headlines after fake AI images of her spread on social media.

問 2 According to paragraph [1], how did Taylor Swift's fans respond to the fake images of her? 17

- ① They created and shared AI-generated images of their own.
- ② They reported it to social media platforms.
- ③ They expressed negative opinions on social media.
- ④ They showed support for her publicly.

問 3 In paragraph [2], the word "heinous" is closest in meaning to (18).

- ① wicked ② fierce ③ major ④ emotional

問 4 In paragraph [2], which of the following is used as an example of deepfake abuse? 19

- ① Letting people know a politician's political position.
- ② Deceiving a Russian politician using a deepfake video.
- ③ Misleading voters with a deepfake recording of the president's voice.
- ④ Using a deepfake image in a high school art class.

問 5 According to paragraph [3], how was the study about turbines and whales found to be fabricated? 20

- ① A member of the Australian group admitted the study was fake.
- ② An editor of *Marine Policy* confirmed that the article did not exist.
- ③ An editor of *Marine Policy* was found to have created the study using AI.
- ④ An editor of *Marine Policy* found the article published in the journal to be incorrect.

問 6 According to paragraph [3], which of the following statements is true? 21

- ① AI was used to improve an article in a journal.
- ② A real article was edited by AI and published in a journal.
- ③ A journal asked someone to make a copy of a real article using AI.
- ④ A fake article was made with AI to look like it was published in a journal.

問 7 What does the research mentioned in paragraph [4] suggest about AI models?

- ① They usually answer accurately and reliably.
- ② They can replace human experts.
- ③ They often give wrong or misleading answers.
- ④ They failed to correctly answer complex questions.

問 8 According to paragraph [4], what concerns do experts have regarding AI-generated fakes?

- ① The current tools for detecting them may not remain effective in the future.
- ② AI has made it more difficult to produce fake news.
- ③ There are no tools to detect them.
- ④ Using AI to spread fake information is too costly.

問 9 In paragraph [4], the phrase "an arms race" is closest in meaning to ().

- ① a competition to develop more advanced tools than the other side
- ② a method for identifying fake information
- ③ a sudden conflict between two sides
- ④ a contest of physical arm strength

問 10 Where would the following sentence fit best in paragraph [5]?
Choose (①), (②), (③) or (④).

But AI has come a long way in just the last year.

問 11 According to paragraph [6], what did healthcare researchers discover in their experiment using OpenAI's Playground platform?

- ① That AI cannot create convincing content.
- ② How easy it is to generate persuasive disinformation.
- ③ The ability to create accurate medical blogs about vaccines and vaping.
- ④ The difficulty in detecting fake news.

問 12 In paragraph [6], the word "shared" is closest in meaning to ().

- ① allocated ② co-used ③ posted ④ revealed

問 13 According to paragraph [7], why is it difficult to distinguish unreliable AI-generated news sites from real news sources?

- ① They often clearly state who owns the websites.
② Many have names that sound like real news websites.
③ Most publish only made-up events.
④ They are monitored and controlled by foreign government agencies.

問 14 According to paragraph [7] and the graph below it, which statement is true?

- ① NewsGuard found exactly 600 unreliable AI-generated news websites by December 2023.
② NewsGuard identified over 750 unreliable AI-generated news websites by December 2023.
③ The number of unreliable AI-generated news websites increased by over 12 times in less than 8 months from May 2023.
④ NewsGuard had not yet identified any unreliable AI-generated news websites by May 2023.

問 15 The following is a summary of paragraph [8]. Each of the blanks (1), (2), (3) and (4) corresponds to one of the options ①, ②, ③ or ④. Each option is only used once. Which option best fits blank (3)?

Text generation AI models operate by anticipating the next word in a sequence based on what they have learned from vast (1) of text. During their training, these models make (2) about upcoming words and receive (3) on their choices. This learning (4) helps them understand grammar and vocabulary patterns, allowing them to produce coherent and natural-sounding text when requested.

- ① process ② corrections ③ collections ④ predictions

【Ⅲ】 次の問 1～10 に示された英文は "Linguistic determinism" と題する一続きの文章である。各問において、下線を付した語句①～④のうち、文法・語法上または文脈上の誤りを含むものを一つ選べ。

問 1 31

Linguistic determinism ① refers to the notion that ② language and its structures determine human knowledge. It also assumes thought processes such as categorization, memory, and perception ③ being structured ④ according to language.

問 2 32

① On the contrary, a major implication is ② that people who speak different languages as ③ their native tongues will have ④ different thought processes.

問 3 33

① Many people ② who are multilingual may feel that they ③ change their thinking about the world ④ according to language they speak.

問 4 34

① Such a view is known as linguistic relativity. In the strong version of ② this hypotheses ③ it means that a speaker's language will determine ④ their cognition and world-view.

問 5 35

① For example, Peter Gordon has studied the Pirahã language which is spoken by natives in South American Amazonia. He found speakers of Pirahã could distinguish ② between the numbers one, two, and three ③ relatively accurately, but any quantity larger than ④ that were indistinguishable to them.

問 6 36

He also found ① the larger ② a number involved, the ③ worse the speaker's performance. Gordon concluded that speakers of Pirahã think of things as small, larger, ④ or many.

問 7 37

Other examples include languages that have words for ① much shades of color or objects where the words do not exist in English. ② For example, there are two words in Russian for different shades of blue, and Russian-speakers are faster ③ at discriminating between the shades ④ than are English-speakers.

問 8 38

A famous cliché is the notion of Eskimo terms for snow where it is claimed Eskimo languages have an unusually high number of words for snow which allows them to perceive the world more minutely than non-native speakers. ① In fiction, authors often create worlds for their characters which have rules ② regarded languages. ③ In this way, the invented language creates meaning for ④ the characters and the audience.

問 9 39

① However, the strong version of linguistic relativity has been refuted. For example, Lenneberg and Brown argue that Eskimo's three distinct terms ② for what English speakers would simply call "snow" ③ not indicating that English speakers cannot perceive these different types and therefore come to know 'snow' differently but rather that they just do not label ④ them.

問 10 40

The language of thought hypothesis (LOTH) ① which is sometimes known as thought ② ordered mental expression (TOME) ③ are also ④ a major refutation of linguistic determinism.

出典：Cristian Bryan, *Theory of Knowledge 2nd Edition*, Independently Published, 2024, pp.45-47

【Ⅳ】 次の問 1～5 は一続きの文章である。それぞれの和文の意味に合うように [] 内の語句を並べ替えて英文を作り、空欄 (41) ～ (50) に入るものを一つ選べ。

問 1 ハンチントン病は、たった一つの遺伝子の異常な型によって引き起こされる神経変性の遺伝性疾患である。

Huntington's disease is a neurodegenerative genetic ()
() (41) () () (42) () () .

[① gene ② disorder ③ of ④ faulty version ⑤ by ⑥ a
⑦ caused ⑧ a single]

問 2 したがって、その疾患を持つ親がいる人は誰でも 50 パーセントの確率で遺伝する。

So anyone who has a () () (43) () ()
(44) () () () () it.

[① percent ② of ③ 50 ④ inheriting ⑤ parent
⑥ chance ⑦ the disorder ⑧ a ⑨ has ⑩ with]

問 3 2017 年、ある女性が、以前に彼女の父親を検査してその病気の陽性反応を確認しながらも彼女に知らせなかった医師たちを訴える権利を勝ち取った。

In 2017, a woman won the right to sue the doctors who had earlier
() () (45) () () (46) ()
() the disease but had not informed her.

[① her ② him ③ for ④ positive ⑤ tested ⑥ found
⑦ father ⑧ and]

問 4 彼らは何もしなかったのは、検査結果を秘密にして欲しいという父親の主張に起因していた。

Their inaction arose () () (47) () ()
(48) () () kept confidential.

[① that ② be ③ from ④ insistence ⑤ the ⑥ test
⑦ result ⑧ the father's]

問 5 あなたなら、どのような問いを投げかけるか。「知ること」に伴うあらゆる責任について、私たちはどのような結論を導き出せるだろうか。

What kinds of questions might you ask? What () ()
(49) () () (50) () ()
'knowing'?

[① responsibilities ② any ③ that ④ about ⑤ can
⑥ conclude ⑦ accompany ⑧ we]