

1 Answer questions (1) ~ (5).

(1) Choose the sentence that best fits the blank to make a concluding sentence for the following passage.

A team of German and Kurdish\* archaeologists\* have uncovered a 3,400-year-old Mittani Empire-era city once located on the Tigris River. The settlement emerged from the waters of the Mosul reservoir\* early this year as water levels fell rapidly due to extreme drought\* in Iraq.

[中略]

To avert\* further damage to the important site by the rising water, the excavated\* buildings were completely covered with tight-fitting plastic sheeting and covered with gravel fill\* as part of an extensive conservation project funded by the Gerda Henkel Foundation. This is intended to protect the walls of unbaked clay and any other finds still hidden in the ruins during times of flooding. \_\_\_\_\_

注) \*Kurdish: クルド人

\*archaeologists: 考古学者

\*reservoir: a large lake used as a source of water

\*drought: a shortage of water often caused by not enough rain

\*avert: prevent

\*excavated: dug up from the ground

\*gravel fill: small rocks that are used to fill in a space

- a. A gold crown was also found among the ruined buildings.
- b. The buildings will be destroyed when the water rises again.
- c. The cause of the low water level is not yet fully understood.
- d. The site is now once more completely submerged.

(2) Choose the sentence that makes the best summary for this passage.

Jrasnatt Vongkampun and Marisa Arjananont first tasted crickets\* while roaming an outdoor market near their home. As food lovers, they agreed the insect treats were delicious. This led the 18-year-olds to seek out a cricket farm. Here they learned about a major problem faced by the cricket farmers.

Those farmers tend to rear\* groups of these insects in close quarters\*. Bigger crickets often attack the smaller ones. When attacked, a cricket will amputate\* its own limb to escape the clutches\* of that predator\*. But after surrendering a limb, this animal will often die. And even if it doesn't, losing a leg makes the animal less valuable to buyers.

Now, these two seniors from Princess Chulabhorn Science High School Pathumthani\* in Lat Lum Kaeo\* report finding a simple solution. They house their animals in colored light. Crickets living in a green glow are less likely to attack each other. The insects also suffer lower rates of limb amputations and death, the young scientists now report.

注) \*crickets: insects that are similar to grasshoppers

\*to rear: to raise

\*close quarters: a very small space

\*amputate: cut off and remove

\*clutches: grasp

\*predator: an animal or insect that eats other animals or insects

\*Princess Chulabhorn Science High School Pathumthani: the name of a school

\*Lat Lum Kaeo: the name of a city

- a. Crickets that are kept in small cages tend to attack, and even kill, each other.
- b. Insects can repair damage to their bodies using a newly discovered light.
- c. Insects farmed under green light have fewer injuries and lower rates of death.
- d. Two high-school students have discovered a delicious new source of protein.

(3) Choose the sentence that best represents the main idea of the following passage.

The United Nations chief on Wednesday launched a five-point plan to jump-start broader use of renewable energies, hoping to revive world attention on climate change as the U.N.'s weather agency reported that greenhouse gas concentrations, ocean heat, sea-level rise, and ocean acidification\* reached record highs last year. “We must end fossil fuel pollution and accelerate the renewable energy transition before we incinerate\* our only home,” U.N. Secretary-General Antonio Guterres said. “Time is running out.” His latest stark\* warning about possible environmental disaster comes after the World Meteorological Organization\* issued its State of the Climate Report for 2021, which said the last seven years were the seven hottest on record. The impacts of extreme weather have led to deaths and disease, migration\*, and economic losses in the hundreds of billions of dollars — and the fallout\* is continuing this year, WMO said.

注) \*acidification: 酸性化

\*incinerate: burn something until it is destroyed

\*stark: clear and scary

\*World Meteorological Organization: 世界気象機関

\*migration: moving from one place to another

\*fallout: the bad results of a situation or an action

- a. We are beginning to see the benefits of using renewable energy.
- b. We cannot fix the destruction caused by extreme weather.
- c. We must act soon to stop environmental disasters.
- d. World economies are suffering because of extreme weather patterns.

(4) Choose the sentence that best fits the blank to introduce the paragraph.

著作権の関係で問題文は掲載できません。

注) \*contaminated: dangerous or carrying disease

\*landfill: an area where waste is buried under the earth

\*elimination: complete removal

- a. Most people are too lazy to put plastic bottles into recycling bins.
- b. Recycling plastic bottles may be the best way to solve our climate crisis.
- c. Companies should increase their use of single-use containers.
- d. When you toss a plastic bottle into a recycling bin, it probably doesn't get recycled.

(5) Choose the sentence that best represents the main purpose of the study described in this article.

On her deep-sea dives, wildlife biologist Angela Ziltener of the University of Zurich often noticed Indo-Pacific bottlenosed dolphins\* doing something intriguing\*. The dolphins (*Tursiops aduncus*) would line up to take turns brushing their bodies against corals or sea sponges\* lining the seafloor. After more than a decade as an “adopted” member of the pod\* — a status that let Ziltener get up close without disturbing the animals — she and her team may have figured out why the animals behave this way: The dolphins may use corals and sea sponges as their own private pharmacies.

The invertebrates\* make antibacterial compounds\* — as well as others with antioxidant\* or hormonal\* properties — that are probably released into the waters of the Northern Red Sea when dolphins make contact, Ziltener and colleagues report May 19 in *iScience*\*. So the rubbing could help dolphins maintain healthy skin.

注) \*Indo-Pacific bottlenosed dolphins: ミナミバンドウイルカ

\*intriguing: very interesting because it is unusual

\*sea sponges: 海綿動物

\*“adopted” member of the pod: accepted member of the group

\*invertebrates: any animal with no backbone

\*compounds: something made of two or more things combined together

\*antioxidant: 酸化防止剤

\*hormonal: ホルモンの

\**iScience*: the name of a science magazine

- a. To demonstrate how humans can get close to wildlife without disturbing them.
- b. To explain how some wildlife look after their skin.
- c. To report what chemicals are released by dolphins.
- d. To show how humans can learn from bottlenosed dolphins.

[出典]

- (1) “A 3,400-year-old city emerges from the Tigris River”, University of Tübingen, May 30, 2022, Phys.org, <https://phys.org/news/2022-05-year-old-city-emerges-tigris-river.html>
- (2) “Here's why cricket farmers may want to go green—literally”, Anna Gibbs, May 23, 2022, Science News Explores, <https://www.snexplores.org/article/heres-why-cricket-farmers-may-want-to-go-green-literally>, Used with permission.
- (3) “UN Floats Plan to Boost Renewables as Climate Worries Mount”, Associated Press, May 18, 2022, Voice of America, <https://www.voanews.com/a/un-floats-plan-to-boost-renewables-as-climate-worries-mount-6578368.html>
- (4) “Refill, Please!”, Jamie Ducharme, April 6, 2022, TIME for Kids, <https://www.timeforkids.com/g56/refill-please-resusable-packaging/?rl=en-960>
- (5) “These dolphins may turn to corals for skin care”, Erin Garcia de Jesús, May 19, 2022, Science News, <https://www.sciencenews.org/article/dolphin-coral-antibacterial-skin-care-health-infection>, Used with permission.

2 Read the following article and answer questions (1) ~ (5).

- [1] For the first time, scientists have grown plants in moon soil collected by NASA’s Apollo astronauts. The scientists had no idea if anything would grow in the moon dirt. They wanted to see if it could be used to grow food by the next generation of moon explorers. The results surprised them. Robert Ferl of the University of Florida’s Institute of Food and Agricultural Sciences was surprised with the results. “Plants actually grow in lunar stuff. Are you kidding me?” he said.
- [2] Ferl and other researchers planted thale cress\*, a small flowering plant, in moon soil returned from the Apollo missions. The good news was that all of the seeds grew. The bad news was that after the first week, the lunar soil stressed the plants so much that they grew slowly. Most of the moon plants ended up stunted\* – meaning small or not fully developed.
- [3] Results of the study appeared recently in the publication *Communications Biology*. The longer the soil was exposed to radiation and solar wind on the moon, the worse the plants seemed to do. The soil collected by the Apollo 11 mission was the least helpful for growth. It was exposed a couple billion years longer to the elements, the scientists said. Simon Gilroy of the University of Wisconsin-Madison was not part of the study. He said, “This is a big step forward to know that you can grow plants.” Gilroy added, “The real next step is to go and do it on the surface of the moon.”
- [4] Moon dirt is full of glass particles from micrometeorite\* impacts. These particles got in the Apollo lunar landers and wore down the moonwalkers’ spacesuits. One solution might be to use younger geologic spots on the moon, like lava\* flows, for digging up soil. The environment also could be changed by adding special nutrient\* mixtures or artificial lighting.
- [5] Only 382 kilograms of moon rocks and soil were brought back by the six Apollo crews that landed on the moon. Most of them are still locked away, forcing researchers to experiment with soil made of volcanic ash on Earth. Early last year, NASA finally gave out 12 grams of soil to the University of Florida researchers for the planting experiment. NASA said the timing for such an experiment was finally right, with the space agency looking to put astronauts back on the moon in a few years.
- [6] The best situation would be for future astronauts to use local dirt for indoor planting instead of setting up a hydroponic\*, or all-water, system, scientists said. Sharmila Bhattacharya is NASA’s program scientist for space biology. Bhattacharya used the term optimize – meaning to make something as good or as effective as possible – to describe

the work that lies ahead. She said, “The fact that anything grew means that we have a really good starting point, and now the question is how do we optimize and improve.” The Florida scientists hope to reuse their lunar soil later this year, planting more thale cress before possibly moving on to other plants.

注) \*thale cress: a type of plant

\*stunted: not fully grown

\*micrometeorite: 流星塵

\*lava: hot liquid rock that comes out of a volcano

\*nutrient: a substance used to help plants grow

\*hydroponic: the process of growing plants in water instead of soil

1. Which paragraph explains why the soil samples brought back from the moon at different times had different results?
  - a. Paragraph 1
  - b. Paragraph 2
  - c. Paragraph 3
  - d. Paragraph 4
  
2. Which paragraph explains why researchers have difficulty finding moon soil for their experiments?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
  
3. In which paragraph does the author give information about where to find soil on the moon that might be better for growing plants?
  - a. Paragraph 3
  - b. Paragraph 4
  - c. Paragraph 5
  - d. Paragraph 6
  
4. According to the article, why may moon soil from younger geological areas be better for growing plants?
  - a. Because it contains water.
  - b. Because it has been exposed to less radiation.
  - c. Because it is full of glass particles.
  - d. Because it has been reused.

5. What is the main idea of this article?
- a. An attempt to grow plants in moon soil showed some success.
  - b. NASA astronauts successfully grew plants on the moon.
  - c. Scientists have optimized a method to grow plants in moon soil.
  - d. The soil on earth is very similar to the soil on the moon.

[出典]

“Scientists Grow Plants in Dirt from Moon”, John Russell, May 16, 2022, Voice of America,  
<https://learningenglish.voanews.com/a/scientists-grow-plants-in-dirt-from-moon/6570403.html>



3 次の英文の要旨を、句読点も含め 80 字以内の日本語でまとめ、解答欄に書きなさい。

著作権の関係で問題文は掲載できません。

注) \*golden retriever: a kind of dog  
\*sophomore: 2nd year university student  
\*NSU: Nova Southeastern University

[出典]

“New campus darlings: Your pets”, March 30, 2016, Newsela,  
<https://newsela.com/read/pet+therapy/id/15992/>

- 4 Read the passage, and explain the main point in your own words. Write your answer in English within 30 words.

Today managers and leaders are considered to be very different. Managers are action-oriented; they spend their days doing, delegating, and deciding. Their eyes are on the present, and they measure success by skilled execution and effective implementation. Consistency and stability are the primary goals. Leaders, on the other hand, focus on the future: they spend their time setting targets, developing strategies, communicating vision, and aligning individuals and departments. Change is the primary objective, and the challenge is to get all parts of the organization moving in the desired direction at a rapid enough rate. Clearly, companies need both managers and leaders to succeed, for together they ensure attention to both short- and long-term goals.

David A. Garvin. *Learning in Action: A Guide to Putting the Learning Organization to Work*. Harvard Business Review Press, 2000, P187.

5 Describe the picture below in English within 50 words.



[出典]

“Unit of ICT in Health Education”, UNESCO Institute,  
<https://iite.unesco.org/unit-of-ict-in-health-education/>

6 Answer the following question in English within 50 words.

Would you prefer to live in a big city or in a small town?