Ⅱ　次の文を読んで，問いに答えなさい。

Tī kōuka are [(A)] . These palm-like trees, native to New Zealand, are topped with fibrous[1], sharp leaves. Known as cabbage trees, tī kōuka are the enemy of gardening tools, damaging them with their thick, shiny leaves. But these leaves also resist water and have made great building materials for generations of Māori, the original settlers of New Zealand. “It’s a survival plant,” says Kura Paul-Burke, a marine scientist at New Zealand’s University of Waikato and a member of the local Ngāti Awa and Ngāti Whakahemo tribes[2]. Whether you’re looking to start a fire, build a roof, or construct a leafy raincoat, tī kōuka leaves have seen heavy use throughout Māori history. Now, Paul-Burke is working to develop a new job (あ) for this common plant — one that could address two recent problems affecting her homeland in Ōhiwa Harbour, on the east coast of New Zealand’s North Island. One is a largely local concern: the decline of the green-lipped mussel[3]. The other is a global crisis: marine plastic pollution.

Green-lipped mussels are a popular and nutritious food that people — Māori and non-Māori alike — used to harvest regularly around Ōhiwa Harbour. Some would dive to the harbour floor to grab the shellfish from their beds, [(B)] others would collect them from exposed rocks at low tide. Yet over the past few decades, green-lipped mussel numbers saw a sharp decline. Local Māori tribe leaders were concerned and banned harvesting to see if it made a difference. But in 2009, Paul-Burke and her husband discovered the real reason: an increase of sea stars[4], big eaters of juvenile[5] mussels. Yet it was while studying the mussel population that Paul-Burke discovered how to [(C)] them. Ōhiwa Harbour is crowded with tied-up boats, and she noticed that many juvenile mussels were growing on the boats’ mooring chains[6], where the sea stars could not reach them. She dreamed of building floating restoration stations[7] — safe

spaces where baby green-lipped mussels could attach, grow, and eventually drop off to live on the seafloor.

(D) , getting juvenile mussels to grow on ropes is simple enough. In commercial mussel farming, these ropes are called spat lines — the name of mussels' larval[8] form. So in 2019, Paul-Burke and her colleagues set up their first experimental juvenile mussel restoration stations using commercial plastic spat lines. ㋐It worked. The baby mussels started to grow. But Paul-Burke was feeling unsure; she was putting more plastic in the ocean. "So how do we reduce the impacts of ㋑that on our ocean?"

All along, Māori knowledge has guided Paul-Burke's research. On a harbour-wide boat ride at the start of the project, Māori locals pointed out the spots where mussels used to grow. Their knowledge helped guide the decisions on where to install the mussel restoration lines. (E) , she turned to her community. Paul-Burke sought out Rokahurihia Ngarimu-Cameron, a local weaving expert at Te Wānanga o Aotearoa, a Māori educational institution with more than 80 locations around New Zealand. She learned how to work with natural fibres that had traditionally been used to make strong ropes — ropes that would break down when their job was done.

Together, Paul-Burke, Ngarimu-Cameron, and their colleagues created and tested lines woven from several fibrous native plants. Tī kōuka was the clear favourite. When used as a spat line, it breaks up after about three to six months. (F) , mussels are better able to survive on the seafloor. Paul-Burke found that the lines' ability to break down improved the restoration process. In her earlier attempts with plastic lines, she had to bring them in, then pick off the young mussels and toss them off the boat, where they often got separated and carried away by the current. On the tī kōuka lines, however, the young mussels fell to the seafloor in bunches "as a whānau," she says — as a family. ㋒This minimizes

disturbance and more closely mirrors the way mussels naturally grow in new areas in groups.

Since then, the team has put tī kōuka spat lines to work across all their restoration stations. The work (あ) has captured the interest of tribes and conservation groups around the island, several of which have since begun testing their own biodegradable[9] spat lines using similar methods, though not always with the same plant. Paul-Burke and her husband now travel regularly to other coastal communities to share what they've learned. "We've already seen lots of [(G)] plastic waste from mussel farms on the seafloor," says Jenny Hillman, a marine scientist at the University of Auckland in New Zealand, who was not involved in the work. "So, we're really excited about what this research offers to support better practices in mussel restoration — and in the ocean research industry." Paul-Burke has been approached by several commercial mussel farmers who are curious about using plants instead of plastic. But the plastic lines are still [(H)] than hand-woven[10] alternatives, she says, so in terms of economics, commercial usage seems unlikely unless policies such as tax reductions are introduced to encourage it.

(Adapted from a work by Monica Evans)

（注）

| | | |
|---|---|---|
| 1. | fibrous | 繊維質の |
| 2. | tribe | 部族 |
| 3. | mussel | ムール貝 |
| 4. | sea stars | ヒトデ |
| 5. | juvenile | 若い，未熟な |
| 6. | mooring chain | 係留チェーン |
| 7. | restoration station | 復元する場所 |
| 8. | larval | 幼生の |
| 9. | biodegradable | 生物分解可能な |
| 10. | hand-woven | 手織りの |

〔1〕本文の [(A)] ～ [(H)] それぞれに入れるのにもっとも適当なものを(1)～(4)から一つ選び，その番号を解答欄にマークしなさい。

(A) (1) delicate　(2) delicious
(3) rare　(4) tough

(B) (1) as long as　(2) provided that
(3) unless　(4) while

(C) (1) eliminate　(2) find
(3) help　(4) release

(D) (1) Despite this　(2) Fortunately
(3) Frustratingly　(4) Similarly

(E) (1) As before　(2) In contrast
(3) Surprisingly　(4) Without permission

(F) (1) By then (2) In particular
(3) Similarly (4) Sometimes

(G) (1) failed research about
(2) positive solutions using
(3) the economic gains caused by
(4) the harmful impacts of

(H) (1) far cheaper (2) more complicated
(3) much thicker (4) significantly tougher

〔2〕下線部㋐～㋔それぞれの意味または内容として，もっとも適当なものを(1)～(4)から一つ選び，その番号を解答欄にマークしなさい。

㋐ new job
(1) using its fibrous, sharp leaves as garden tools
(2) making use of tī kōuka leaves to tackle problems that affect Paul-Burke's homeland
(3) helping local Ngāti Awa and Ngāti Whakahemo tribes find work in Ōhiwa Harbour
(4) making protective outdoor clothing for the local Ngāti Awa and Ngāti Whakahemo tribes

㋑ It
(1) Creating a commercial mussel farm
(2) Developing a habitat for young mussels
(3) Increasing the number of adult green-lipped mussels
(4) Adding to the number of boat moorings in Ōhiwa Harbour

㋒ that

(1) the growth of juvenile mussels

(2) the experiments on mussels in their larval form

(3) the damage caused to the 2019 commercial mussel farms

(4) the plastic put into the ocean by the 2019 project

㋓ This

(1) Allowing the mussels to naturally fall from the biodegradable spat lines

(2) Asking local Māori families to share their knowledge with other communities

(3) Taking juvenile mussels off commercial spat lines and throwing them into the ocean

(4) Encouraging the whānau of Paul-Burke, Ngarimu-Cameron, and their colleagues to stay together

㋔ The work

(1) Creating environment friendly equipment to put into the ocean

(2) Teaching the local Māori the best areas to grow mussels in Ōhiwa Harbour

(3) Demonstrating the efforts of the mussels to make new families on the seabed

(4) Designing a series of experiments to encourage mussels to grow within three months