

〔IV〕 次の英文を読み、設問に答えなさい。

Humans are far (あ) the only species that uses technology. One example is the Asian elephant, which repels flies by waving a branch in its trunk. The elephant does not wave (い) branch it finds. It modifies the branch by removing side branches or shortening the stem. Sometimes it strips bark from a vine and uses that instead.

This is the essential difference between tools and, say, rabbit warrens¹ or spider webs. Elephants make their tools by manipulating (or handling) things they (う) out specifically. They do not only use things they happen to find, or only dig holes, or only restrict themselves to bodily secretions².

Branch breaking by elephants is simple compared to the technology used by birds. Birds don't just break branches. They fashion homes out of twigs, grass, and other materials. These homes can be very sophisticated. There is a

species of thorn bird that builds nests up to two meters long with several separate chambers that can survive a fall of many meters with its eggs intact. These nests are also (A) with thorns to deter predators and have concealed ⁽¹⁾ viewing holes so the birds inside can see danger approaching.

The technology used by beavers is perhaps the greatest non-human technology of all. Beavers build homes called "lodges," create dams, and construct canals to transport food and building materials. ⁽¹⁾

All this technology has the same purpose: survival, or more specifically, adaptation for survival. Species use tools to help them adapt to challenging environments without having to wait for evolution to change their bodies. Thorn birds, for example, are a type of bird called a passerine. Passerine nests are more complex than those of other birds and can be constructed wherever the bird (B). This helps passerines multiply in changing environments, most notably in the new world after the mass extinction of dinosaurs and most other species 65 million years ago. The nests contributed to the passerines' rapid subdivision into many different species and, even though the passerines emerged ⁽¹⁷⁾ much later than other birds, about half of all bird species alive today are passerines. Why can't other birds build nests like passerines? Because passerine feet have an independently mobile rear toe, somewhat similar to a human thumb, which enables the bird to grasp small branches and so build nests.

Which came first? Toe or nest? The two developed together, with a small change in one (C) to a small change in the other until all the changes added up to a large difference in both the birds' feet and nests.

Because humans are the most radical tool users, our bodies have undergone the most radical changes because of our tools. The prime ⁽²⁾ example is the hand axe: a perfectly symmetrical teardrop of flaked shaped rock called flint that early humans, predecessors of *homo sapiens*, used as an all-purpose tool for five or more million years.

日本語に
対応する



The hand axe looks like a big tooth. It was used for fighting, feeding, and fabricating more hand axes. The skeletons of hand axe-using humans show something interesting: over long evolutionary time scales, they evolved smaller teeth and weaker jaws, relative (へ) other primates³ and earlier humans. The hand axe removed the need for big teeth and was superior to them. It could be replaced if lost or broken, sharpened when dull, and you could fight with it without (D) your head and neck within biting range of your opponent. Smaller teeth and weaker jaws brought about big biological benefits: they left space in the skull for more brain cells, and changed the weight and balance of the head so that it became easier to stand erect. Hand axes changed our bodies, and also the course of human evolution. They are the reason we were transformed into brainy animals that walk on two legs.

What followed was a rapid growth of technology that led to us exploring, and dominating, the entire planet. If you hear someone talking about “technology” being “bad,” ask them to try this thought experiment:

Imagine you are cast away, naked and without property on a wild island, and you are not capable of creating tools. Unless you can find natural shelter, drinkable water, and food you can chew and digest with your teeth and jaw alone, you will die within days.

Next, imagine having children as well. You will need enough of all of the above to keep your children alive from pregnancy through puberty⁴. ⁽³⁾

Then, imagine doing all these things in competition with other people and species. How long could you survive? How long could the human race survive?

The answer is easy: most of us would die within a few days, and the few that remain would last only weeks or months. Without tools, the human race would become extinct within a year.

⁽⁴⁾ This may come as a shock to those people who see themselves as “all natural” or “anti-technology.” Typically, their first objection to the thought

unnecessary

- 3 purposefully helps other animals transport their own food and building materials
- 4 fundamentally transforms the natural environment where beavers live

(2) この prime とは

- 1 particular 2 pure 3 principal 4 precise

(3) この all of the above とは

- 1 chewing ability good enough to keep you alive
- 2 each child you have, from the youngest to the oldest
- 3 everything that comes from the sky
- 4 food, water, and housing readily usable by humans

(4) この This とは

- 1 the idea that humans would not last long if they lost access to technology
- 2 the statement that indicates that human lifespans cannot be accurately calculated
- 3 the conclusion that states technology will keep only a few humans alive
- 4 the belief that most humans will be dead one year from today's date

問 5 以下の各群について、本文の内容と一致するものを1つ選び、その番号をマークしなさい。

A群

- 1 A hand axe could be made by using another hand axe that had already been made.
- 2 Hand axes that were used by early humans came in various shapes

and sizes.

- 3 Hand axes made by early humans were used only once before being thrown away.
- 4 The hand axe was a tool used by early humans to remove big teeth that were no longer needed.

B群

- 1 Human mastery of the planet ended with the creation of bottle technology.
- 2 Thought experiments show why living naked on wild islands is a good idea.
- 3 Early humans covered in fur eventually developed stronger jaws.
- 4 Early humans with big teeth and strong jaws nevertheless developed human technology.