

奈良県立医科大学 一般前期

平成 23 年 度

試 験 問 題

英 語

【注 意】

1. 試験開始の合図があるまで、この問題冊子の中を見てはならない。
2. 監督者の指示に従って、すべての解答用紙の受験番号欄に受験番号を記入せよ。
3. 問題冊子は表紙のほか 9 ページ、解答用紙は 2 枚である。
4. 問題冊子の印刷不鮮明、ページの落丁・乱丁及び解答用紙の汚れ等に気付いた場合には、手を挙げて監督者に知らせよ。
5. 解答はすべて解答用紙の対応する場所に記入せよ。
6. 解答用紙は切り離してはならない。
7. 解答用紙は持ち帰ってはならない。問題冊子は持ち帰ってよい。

I. 次の英文を読んで、設問に答えよ。(*印の語には注がある。)

“Our bodies have become *repositories for dozens of toxic chemicals,” begins a report from Greenpeace. “It is thought that every person on Earth is now *contaminated and our bodies may now contain up to 200 artificial chemicals.”

“Toxic Chemicals Are Invading Our Bodies,” warns a headline on the website of the World Wildlife Fund. When the WWF analyzed the blood of thirteen families in Europe, it discovered seventy-three man-made chemicals, while testing in the United Kingdom “found evidence of DDT and PCBs, two dangerous chemicals banned years ago,” in almost everyone. “Hazardous chemicals are found in the bodies of nearly every person on earth and exposure to them has been linked to several cancers and to a range of reproductive problems, including birth defects,” WWF says in an online article illustrated with a bag of blood stamped CONTAMINATED.

Some see ⁽¹⁾a connection between this pollution and trends in health. In a 2006 Canadian Broadcasting Corporation (CBC) documentary, journalist Wendy Mesley recounted how she was shocked to learn, after having been found to have breast cancer, that a baby born today has a one-in-two chance of getting cancer in its lifetime. “I set out to figure out what on earth is causing that.” Smoking and sun exposure obviously contribute to cancer, she reported, as does the aging of the population. But those factors don’t explain why “childhood cancers have increased over 25 percent in the last 30 years.” Mesley had her blood tested and discovered it was contaminated with forty-four chemicals and heavy metals, including PCBs. “I’m full of cancer-causing agents and apparently that’s normal,” she commented. Mesley interviewed Sam Epstein, a University of Illinois scientist. “Cancer is widespread,” Epstein declared.

Messages like these are reflected in ⁽²⁾popular opinion surveys that Paul Slovic and colleagues conducted in the United States, Canada, and France. In each country, the results were roughly the same: Three quarters of those surveyed said they “try hard to avoid contact with chemicals and chemical products in my daily life”; the same proportion said that “if even a tiny amount of a cancer-producing substance were found

in my tap water, I wouldn't drink it"; seven in ten believed that "if a person is exposed to a chemical that can cause cancer, then that person will probably get cancer some day"; and six in ten agreed that "it can never be too expensive to reduce the risk from chemicals."

We really don't like chemicals. We don't even like the word. In surveys of the American public, Slovic asked people to say what comes to mind when they hear the word *chemical*. The results were "dominated by negative imagery," he says. "Death." "Toxic." "Dangerous." In Canadian surveys carried out by Daniel Krewski, an *epidemiologist at the University of Ottawa, people were asked what thought pops into their minds when they hear the word *risk*. One common answer was "chemical."

Water is a chemical, and so is mother's milk. But that's not how people use the word today. Chemicals are invented in laboratories and manufactured in giant industrial plants. And they are essentially dangerous, something to be avoided whenever possible. It is ⁽³⁾this cultural redefinition of "chemical" that has transformed organic produce from a *niche market into a booming multibillion-dollar industry, and why the word *natural* has become the preferred adjective of corporate marketers, no matter what they're selling. "The tobacco in most cigarettes contains additives drawn from a list of 409 chemicals commonly used in tobacco products," reads an advertisement that appeared in American magazines in 2006. "Natural American Spirit is the only brand that features both cigarettes made with 100 percent organic tobacco and cigarettes made with 100 percent additive-free natural tobacco."

⁽⁴⁾This is new. Prior to the 1960s, "chemical" was associated with the advancement of science. It meant progress and prosperity, an image the DuPont Corporation sought to capitalize on in 1935 with the help of a new slogan: "Better things for better living...through chemistry." New products came to market with little or no testing and were used in massive quantities with scarcely a thought for safety. ⁽⁵⁾It was an era in which children were caught in the mist of agricultural chemicals dropped by airplane and then had their faces washed by mothers who had no idea it would take more than a damp washcloth to make their children clean again.

The end of that era came in 1962, when Rachel Carson, a marine biologist with the U.S. Fish and Wildlife Service, published a book called *Silent Spring*. “For the first time in the history of the world,” Carson wrote, “every human being is now subjected to contact with dangerous chemicals, from the moment life begins in the womb until death.”

(注)

*repositories 貯蔵庫

*contaminated 汚染されている

*epidemiologist 疫学者

*niche market 隙間市場(在来の製品・サービスでは満たされなかった潜在需要をもつ小さな市場)

設問

1. 下線部(1)は何を指しているのか、具体的に日本語で記せ。
2. 下線部(2)の“surveys”の結果を具体的に日本語で記せ。
3. 下線部(3)は何を指しているのか、具体的に日本語で記せ。
4. 下線部(4)はどういうことか、具体的に日本語で記せ。
5. 下線部(5)を和訳せよ。

[下書き用紙]

II. 次の英文を読んで、設問に答えよ。(*印の語には注がある。)

The V-shaped bone turned out to be the lower jaw of a fish, but not any fish Neil Shubin had ever seen. The University of Chicago *paleontologist had been chipping his way through an ancient rock formation in an icy drizzle near Bird Fjord on Canada's Ellesmere Island last July when one of his colleagues pointed to a wall of red rock and exclaimed, "What's that?"

That, as Shubin and his colleagues reported last week in a pair of articles in *Nature*, was part of a creature that grew to at least 9 feet in length and lived some 375 million years ago, just at the point in evolutionary history when fish were giving rise to the four-legged animals known as tetrapods. And indeed, ⁽¹⁾the creature was a little of each, for along with a fish's scales, fangs and *gills, it had physical features usually found only in animals that spend at least some of their time on land. It is, in short, exactly the sort of transitional animal Darwinian theory predicts, with new physical traits gradually emerging to help it thrive in a novel environment. And it has become scientists' No. 1 example in their long-running debate with *creationists and other anti-evolutionists who have been using the lack of such missing-link organisms to argue that Darwin's theory is wrong.

It will be hard to explain away the "fishapod," as Shubin and his team nicknamed their find. Unlike a true fish, it had a broad skull, a flexible neck, and eyes mounted on the top of its head like a crocodile. It also had a big, interconnected rib cage, suggesting that it had lungs and did at least part of its breathing through them, as well as a trunk strong enough to support itself in the shallows or on land. And most startling of all, when technicians cut apart its frontal fins, they found the beginnings of a tetrapod hand, complete with a primitive version of a wrist and five finger-like bones. "This is not some ancient branch of the animal kingdom," says Shubin. "⁽²⁾This is *our* branch. You're looking at your great-great-great-great cousin!"

What really fascinates scientists about the fishapod is that ⁽³⁾it fits so neatly into one of the most exciting chapters in the history of life—when creatures that swam in seas

and rivers gave rise to things that walked, ran and crept on land. The fishapod appears to be a crucial link in the long chain that over time led to *amphibians, *reptiles, dinosaurs, birds and mammals. Indeed, *Tiktaalik roseae*, the official name given to the fishapod (in the language of the local Inuit, *tiktaalik* means “large fish in stream”), falls structurally between the fleshy-finned fish *Panderichthys*, found in Latvia in the 1920s, and primitive tetrapods like *Acanthostega*, whose full fossil was recovered in Greenland not quite two decades ago.

Together, these fossils have overturned ⁽⁴⁾the old picture of the fish-tetrapod transition, which suggested the image of creatures like the modern lungfish crawling out of water onto land. That picture certainly didn't fit *Acanthostega*, whose short, weak legs were ill equipped for movement on earth. Rather, according to University of Cambridge paleontologist Jennifer Clack, *Acanthostega* was a water-dwelling creature that used its limbs and lungs to make a living in water. And that scenario makes sense because ⁽⁵⁾it sets up conditions for natural selection—the force that powers evolution—to favor transitional life-forms like the fishapod, with its funny wrist and five fingers enclosed in the fleshy part of a fin.

⁽⁶⁾On land, observes Shubin's collaborator Ted Daeschler, chair of *vertebrate zoology at Philadelphia's Academy of Natural Sciences, such a structure would have been worse than useless. But it would have been more than adequate for propping the animal's head above the water so that it could survey its surroundings or for anchoring it underwater as it waited to ambush its prey. The advantage of being able to take in air through lungs as well as gills would likewise have been immediate, given that the fishapod made its home in warm, shallow waters that were frequently rendered unlivable by decaying vegetation.

The fishapod was among the pioneering organisms to take advantage of ⁽⁷⁾an ecological frontier—the marshy *floodplains of large rivers—that opened between 410 million and 356 million years ago during the Devonian period, known as the Age of Fishes. Early in the Devonian, the continents were mostly masses of bare rock with just a fringe of plants “no taller than your ankle,” as Daeschler puts it, growing along the wet

margins of rivers and streams. By the late Devonian, however, thick vegetation had taken hold in marshes, swamps and floodplains, and mosses, ferns and trees had transformed into the world's first forests.

(8) Those ancient plants prepared the way for the tetrapods. The plants created new watery environments by stabilizing the banks of rivers and streams. They pumped oxygen into the atmosphere, making the earth habitable for large, air-breathing creatures. And they shed organic debris that formed the basis of a new food chain. Bacteria, fungi and small *arthropods moved in to feed on the debris; small fish moved in to eat the arthropods; bigger fish moved in to eat the small fish. (9) Among them were the fishapod's fleshy-finned ancestors, which found in the heavily vegetated shallows abundant food and relative safety from other animals which might prey on them.

(注)

*paleontologist 古生物学者

*gills えら

*creationists 物質・生命・世界は神が無から創造したとする(進化論とは対立する)説を信奉する人々

*amphibians 両生類

*reptiles 爬虫類

*vertebrate 脊椎動物

*floodplains 氾濫原(川縁・川中にある陸地で、時に流水に被われる領域)

*arthropods 節足動物

設問

1. 下線部(1)はどのようなことを述べているのか、日本語で具体的に記せ。
2. 下線部(2)のいわんとするところを、文脈に注意して、日本語で記せ。
3. 下線部(3)はどのようなことを述べているのか、日本語で具体的に記せ。
4. 下線部(4)は何を指しているのか、日本語で具体的に記せ。
5. 下線部(5)を和訳せよ。

6. 下線部(6)に示されたDaeschlerの主張を, “such a structure”が指すものを明らかにして, 日本語で記せ。
7. 下線部(7)において, “the marshy floodplains of large rivers”が“an ecological frontier”とされるのは何故か, 日本語で記せ。
8. 下線部(8)はどのようなことを述べているのか, 日本語で具体的に記せ。
9. 下線部(9)を和訳せよ。

III. 次の日本文の下線部(1), (2)を英訳せよ。

洋の東西を問わず、温泉は古くからさまざまな形で人々の健康生活とかかわりをもってきた。⁽¹⁾日本は世界でも温泉の数、湧出量がずば抜けて多く、ほとんどの日本人は温泉に対して強い親近感を抱いている。実際、いまどきの若い人たちでも、仕事で疲れを感じたりすると、「温泉にでも行ってゆったりと湯につかりたい」とつい口に出してしまう。⁽²⁾ひとたび温泉に首までつかり、手足を伸ばすと思わず体中の疲れやストレスが全部吐き出されるような心地になって、至福の時を過ごすことができる。温泉には心身を和ませる不思議な力が宿っている。