滋賀医科大学

平成 26 年度

医学科一般入試(前期日程)問題

英　　語

(注　意)

1. 問題冊子は試験開始の合図があるまで開かないこと。
2. 問題冊子は表紙のほか 8 ページである。
3. 試験中に問題冊子及び解答用紙の印刷不鮮明，ページの落丁・乱丁等に気付いた場合は，手を挙げて監督者に知らせること。
4. 解答用紙のすべてに受験番号及び氏名をはっきり記入すること。
5. 解答はすべて解答用紙の所定の解答欄に明瞭に記入すること。
6. 解答に関係のないことを書いた答案は，無効にすることがある。
7. 本学受験票を机の右上に出しておくこと。
8. 試験時間は 90 分である。
9. 問題冊子は持ち帰ってもよいが，解答用紙は持ち帰らないこと。

英　　語 （3問題）

Ⅰ．次の英文を読み，その内容に沿って下の設問に日本語あるいは記号で答えよ。右肩に星印のある語には，注がある。（配点　80）

In 2003, I rented a kayak* while vacationing with my wife on an island off the East Coast of the United States. Foolishly, I set off without a map or compass, rowing gently across a two-mile-wide bay with the life jacket under the seat. I was about halfway across when a thick fog rolled in. I could not see the shore. Fighting panic, I managed to calm down and find my position from natural clues. I checked the wind direction, figuring it would act as a natural compass. It was out of the southeast. Good. Which way was the swell coming from? Out of the southwest. Good. I could hear waves grinding against the rocky beach to the northwest. When the fog hid all sight of land, I used these clues to guide myself back to safety.

Two months later, I went kayaking again on a cold fall day, still without a compass. It was early October, and water temperatures were dropping fast. There was a fog bank in the distance. Having learned from my earlier, scary experience, I noted the wind and wave directions before departing. As the fog rolled in, I stayed close to the shore, and anytime the fog hid landmarks, I knew how to turn toward land. I had a relaxing time. The next day, I learned that two young women in kayaks had gotten lost in the fog. One died, and the other went missing. They were on the water at the same time as I was, and within a half-mile of me.

I was haunted by survivor's guilt.(1) Why were there two such different outcomes(2) to the same situation? The only answer was the simple observation of the wind direction before I left the shore.

Over the next year I dedicated myself to the study of navigation through environmental clues used by ancient navigators. During the day, I used shadows cast by trees to find which way was north, and I memorized the positions of major stars well enough to orient myself in the dark. Rather than relying on weather forecasts, I could tell from the formations of clouds and wind patterns whether it would rain that day. It required getting outside, gathering my observations and making sense of them by creating a mental framework.

In this sense, we might say that ancient navigators were all practicing a kind of science in their eras. This is not a science as we understand it today, but the systems these navigators developed possess the science-like elements of sense-based evidence and a framework to sort out perceptions. In this framework, no one sign works every time, but multiple signs create a navigational tool with a lower chance of failure. For example, in ancient times some South Pacific islanders combined information hidden in winds, waves, stars and even birds to find their way.

After a year of this endeavor, I realized that the way I viewed the world had clearly changed. The sun looked different, as did the stars. Also, the wave patterns were no longer simply patterns of waves but now conveyed to me the presence of winds, shoals*, coastlines and distant storms. (3) From separate signs emerged a more comprehensible and personal perception. This, perhaps, is similar to the experience of improvising* music with others, in which individual notes no longer take prominence, but a larger meaning emerges in a wordless communication among the performers. Sadly, though, we often "atom-ize" knowledge into pieces that do not have a home in a larger framework of ideas. When this happens, we surrender meaning to the experts and it loses its personal value.

A number of years ago, a documentary about how we misperceive the world around us was filmed at Harvard. Twenty-three faculty members, graduates and graduating seniors were asked, "Why is it warm in the summer and cold in the winter?" All but two answered incorrectly, saying the Earth was closer to the sun in the summer than in the winter (it is actually closer in January). Arguably, the students were drawing on fragments of what they had learned in class somewhere — did Earth's orbit not form an ellipse* around the sun? — instead of on what they could perceive themselves as the seasons changed. (4) One "correct" answer has to do with the tilt of the Earth with respect to its orbit. However, a farmer in ancient times might just explain that the sun was low in the winter and high in the summer. The farmer's explanation would be perfectly correct, rooted in experience. In the documentary you can see the sun beaming down from high in the sky, and had the students given their surroundings some thought, the answer would have been obvious. However, for many people, the cause of the seasons has been reduced to an isolated fact taught in school, divorced from daily life.

In a way, we can create our own meanings: our own private frameworks to link events. Too often in the modern era, we rely on specialists to interpret events for us, and they are too happy to step in and tell us what something "means." However, when we do this, we surrender the power of the more direct and personal sensory experience of the world that our ancestors surely possessed. For me, the search for meaning following the tragedy led in an unpredictable direction, but the end result was an enriched view of the world.

(出典　http://meter-svc.nytimes.com/meter.gif から改変引用)

注　kayak = カヤック(革張りの一人乗りカヌー)
shoal(s) = 浅瀬
improvising > (to) improvise = 即興演奏する
ellipse = 楕円

設問 1　筆者が霧の中でカヤックを漕いでいてはじめて怖い目に遭ったのは，何年何月か。

設問 2　最初の旅において，筆者のカヤックの危険に対する注意の欠如は如何なる事柄に表れているか述べよ。

設問 3　最初のカヤックの旅とくらべて，なぜ二番目の旅では筆者は自信を持てたのか説明せよ。

設問 4-1　下線部 (1) の "I was haunted by survivor's guilt." に示される筆者の心情について説明せよ。

設問 4-2　筆者は，その心情からどのような行動をとったか述べよ。

設問 5　下線部 (2) の二つの "outcomes" とは何かを述べよ。

設問 6　筆者にとって，古代の航海者たちが用いた方法のどのような要素が「科学」と考えられるのか述べよ。

設問 7　古代の航海者たちが利用したと記述されている自然界の手がかりのうち，筆者が使ったと明示していないものを以下のうちから一つ選び，記号で答えよ。

A．stars
B．clouds
C．birds
D．shadows
E．salmon

設問 8　下線部 (3) を和訳せよ。

設問 9　ハーバード大学での調査において，多くの人が出した間違った答えは何であったか。

設問10　下線部 (4) 以外のもう一つの正しい答えを書け。

Ⅱ．次の英文を読み，その内容に沿って下の設問に日本語あるいは記号で答えよ。右肩に星印のある語(句)には，注がある。(配点　70)

Already suffering from pollution and invading species, North America's Great Lakes now confront untold millions of plastic bits, some visible only through a microscope. Scientists who have studied huge masses of floating plastic in the world's oceans are now reporting similar discoveries in the lakes that make up nearly one-fifth of the world's fresh water. They gathered the particles from Lakes Superior, Huron and Erie last year. This summer, they are widening the search to Lakes Michigan and Ontario, dragging a very fine net at the surface behind sailing boats.

Experts say it is unclear how long "microplastic" pollution has been in the lakes or how it is affecting the environment. Studies are under way to determine whether fish are eating the particles. The newly identified problem is the latest of many for a Great Lakes fish population that has been hurt by natural enemies introduced to the lakes through human activity like the parasitic* sea lamprey*, which nearly wiped out lake trout, and man-made pollution. Through it all(1), the fishing industry remains key in the region's tourist economy. Until the research is completed, it will not be clear whether the pollution will affect fishing guidelines, the use of certain plastics or city practices of discharging treated wastewater* into the lakes.

Scientists have already made a couple of surprising finds. The number of plastic grains in some samples hauled from Lake Erie, the shallowest and smallest by volume, were higher than in comparable samples taken in the oceans. Also, while it is unknown where the ocean plastic came from, microscopic examination of Great Lakes samples has produced "a smoking gun"(2): many particles are perfectly round. The scientists suspect they are "micro beads" used in personal care products such as facial and body washes and toothpaste, for their polishing function.

They are so tiny that they flow through screens at waste treatment plants and wind up in the lakes, said Lorena Rios Mendoza, a chemist with the University of Wisconsin-Superior. At the urging of scientists and others, some big companies have agreed to gradually stop using them. During a meeting of the American Chemical Society in April, Rios reported the team had collected up to 1.7 million tiny particles last year in Lake Erie, which acts as something of a "sink" because it receives the water flowing from the three lakes to the north — Superior, Michigan and Huron. Sherri Mason, another chemist, said the samples indicate that Lake Ontario is as contaminated as Lake Erie, if not more so.

The Great Lakes are no stranger to ecological disaster. Mussels* have been disturbing food chains, and Asian carp are about to invade. Toxic* algae blooms* that had been brought under control a generation ago have returned. Dozens of harbors and river mouths are fouled with toxic waste.

Now, researchers are stepping up efforts to determine how much damage the plastic could do. While Mason searches Lake Michigan for more plastic, Rios is examining the insides of fish for plastic fragments. In ocean environments, fish and birds are known to feed on microplastics, apparently mistaking them for fish eggs. A more complicated question is whether the particles are soaking up toxins in the water, potentially contaminating fish that eat them — and sending them up the food chain. Rios said lab examination had detected two potentially harmful chemical compounds in the Lake Erie plastic waste that are capable of causing cancer and birth defects.

Everyone agrees the best way to avoid environmental damage from plastics is to keep them out of the water in the first place. (3) Some manufacturers of personal care products are beginning to respond. In the meantime, however, people who regularly catch and feast on salmon and other fish from the lakes' depths most commonly react to the microplastic scare with little concern. They are already used to pollution warnings concerning mercury* and other contaminants*.

(出典　http://www.newsdaily.com/article/3be93649310f625778f0fbf41898864e/masses-of-plastic-particles-found-in-great-lakes から一部改変引用)

注　parasitic = 寄生的な
lamprey = (魚)ヤツメウナギ
wastewater = 廃水，汚水
mussel(s) = (貝)ムラサキガイ，カラスガイ
toxic = 有毒な
algae bloom(s) = 藻の異常発生
mercury = 水銀
contaminant(s) = 汚染物質

設問 1　How are the scientists gathering plastic specimens from the Great Lakes?

設問 2　Which of the following best explains the meaning of the underlined part (1) "it all" in paragraph 2?

A. the ongoing impact on Great Lakes fish owing to human conduct
B. studies conducted to discover more natural enemies besides the parasitic sea lamprey
C. the period of time before plastic bits began to threaten the health of the lakes
D. the process of trout being nearly being wiped out through human activity

設問 3　What is one possible source of the microplastic found in the Great Lakes?

設問 4　Which of the following explains the meaning of the underlined part (2) "a smoking gun"?

A. a quick and deadly result
B. a mysterious pointer
C. a major impact
D. a strong piece of evidence
E. a useless weapon

設問 5　Which two of the Great Lakes are so far known to collect the most microplastic?

設問 6　Give one possible reason why microplastics are being eaten by some animals.

設問 7　Explain the steps by which microplastic waste in the lakes could possibly lead to human disease.

設問 8　Explain the manufacturers' response mentioned in the underlined part (3).

設問 9　List three specific life-forms mentioned in the reading as currently harming Great Lakes ecology.

設問10　Why are many people who fish not very worried about the presence of microbeads in the Great Lakes?

Ⅲ. 問題Ⅰの“Kayaking”の中で著者は，彼の人生において命を脅かすような貴重な経験を描いている。この例にならい，あなた自身の(またはあなたの身近な人の)人生を変えるようなもしくは目を覚まさせるような経験，あるいは教科書的な知識をあなた自身の実体験に結びつけるような経験について，いつ，誰が，どこで，どのような経験をしたかなど，具体的に，150語程度の英文で書け。(配点　50)