新潟大学　前期　医学部
歯学部

平成25年度入学試験問題

外　国　語　（英　語）

注　意　事　項

1　この問題冊子は，試験開始の合図があるまで開いてはならない。

2　問題冊子は，全部で10ページある。（落丁，乱丁，印刷不鮮明の箇所などがあった場合は申し出ること。）

3　**解答は，すべて解答用紙の指定された箇所に記入すること。**

4　受験番号は，各解答用紙の指定された2箇所に必ず記入すること。

5　解答時間は，教育学部学校教員養成課程教科教育コース英語教育専修が100分，教育学部（学校教員養成課程教科教育コース英語教育専修を除く）およびその他の学部は90分である。解答すべき問題（○印）および解答用紙の枚数は，下表のとおりである。

受　験　者	解答すべき問題（○印）				解答用紙の枚数
	Ⅰ	Ⅱ	Ⅲ	Ⅳ	
人　文　学　部	○	○	○		3
教育学部（学校教員養成課程教科教育コース英語教育専修を除く）	○	○	○		3
教育学部（学校教員養成課程教科教育コース英語教育専修）	○	○	○	○	4
法　学　部	○	○	○		3
経　済　学　部	○	○	○		3
理　学　部	○	○	○		3
医　学　部	○	○	○		3
歯　学　部	○	○	○		3
工　学　部	○	○	○		3
農　学　部	○	○	○		3

教育学部学校教員養成課程教科教育コース英語教育専修のリスニングテストは，試験開始70分後に約15分間実施する。

6　下書きは，問題冊子の余白を使用すること。

7　問題冊子は，持ち帰ること。

I 〔全学部受験者用〕 次の英文を読んで，下の問いに日本語で答えなさい。

Let's give ourselves a pat on the back — we humans have done well for ourselves. From earliest times, we've managed to survive, and even thrive, under harsh conditions. (a) Our inventions have protected us from the weather, provided us with food, shuttled us from place to place and helped us to be healthy. In our battle to tame nature, we've come out on top. Some might call us the most successful species on Earth.

Look around you, though, and you might begin to wonder if we're going about it the right way. As our cities gobble up the wilderness, we destroy the homes of plants and animals. We power our homes, cars and factories with fuel that can't be replaced. In fact, we use resources for just about everything we do — to grow food, to build houses, roads and schools and to make paper to write on. Even taking a drink of water uses resources. While we can't just stop using resources, we can stop using them so quickly.

Somehow, every other species has made this planet its home without destroying it. If they can do it, why can't we?

More and more, people are realizing how much we can learn from nature. Maybe what works in nature will work for us, too. These ideas lie at the heart of biomimicry — "bios" means life and "mimicry" means imitating.

Biomimicry is a way of thinking that encourages scientists, inventors and ordinary people to study nature and use *its* solutions to solve (b) *our* problems. By applying nature's principles, maybe we can find a way for *all* species to thrive on this planet.

Try to think of a human invention that nature didn't come up with first. Not airplanes — they were modeled after birds. Sonar? Long before we came up with the idea, bats bounced sound waves off objects to locate them, a process called echolocation.

It's not surprising that nature beat us to so many of "our" inventions.

After all, every other living thing faces the same problems that we do: finding food, water and shelter and protecting itself. Birds probably evolved to fly because flying helped them cover larger areas in search of food or move faster to evade enemies. Bats, active at night, evolved echolocation to help them hunt insects in the dark. (c) Adaptations like these took the right circumstances, a little luck and a lot of time to evolve into such perfect solutions. Let's take a look at (d) some of nature's amazing inventions — after all, they've inspired some of our best ideas.

The motor is widely thought to be a uniquely human invention. But when scientists got a close-up view of the inner workings of cells, they got a reality check. Thousands of years before humans even appeared on Earth, nature had already come up with a motor that helped propel bacteria through water. This microscopic motor powers the whipping action of a bacterium's long, thread-like tail. This action pushes water down and behind the bacterium to move it forward.

Today, soldiers wear uniforms and drive vehicles camouflaged to blend in with their surroundings. But animals "invented" camouflage long before we did. For example, an alligator snapping turtle tucks in its limbs to imitate a rock and waves a pink knob of flesh from its tongue like a wiggling worm — perfect for attracting fish at mealtime. Viceroy butterflies look and behave like poisonous monarch butterflies to keep from being eaten. And the spots on baby deer break up the outlines of their bodies, making them hard to "spot."

Velcro is probably the most famous example of biomimicry. More than 40 years ago, Swiss inventor George de Mestral noticed how stubbornly cockleburs clung to his pants. Curious, he examined one of the cockleburs under a microscope. The bur's natural hook-like shape and the way it clung to the fabric loops of his pants inspired him to develop his famous two-sided fastener with loops on one side and hooks on the other.

(Adapted from Dora Lee, *Biomimicry: Inventions Inspired by Nature*, 2011)

〔注〕 sonar　水中音波探知機　　echolocation　反響定位
alligator snapping turtle　ワニガメ　　wiggling　ピクピク動いている
Velcro　ベルクロ(ナイロン製付着テープ)，マジックテープ
cockleburs　オナモミ(キク科の雑草)　　bur　いが(とげの密生した外皮)

問 1. 下線部(a)を和訳しなさい。

問 2. 下線部(b)について，筆者が本文中で指摘していることを，句読点を含め，50 字以内で述べなさい。

問 3. 下線部(c)の具体的な内容を，句読点を含め，100 字以内で述べなさい。

問 4. 下線部(d)について，筆者が挙げている 3 種類の例を，句読点を含め，80 字以内で述べなさい。

Ⅱ は次ページ

Ⅱ 〔全学部受験者用〕 次の英文を読んで，下の問いに日本語で答えなさい。

(a) Some scientific concepts have been so ruined by our education system that it is necessary to explain the ones that everyone thinks they know about and really don't.

We learn about experimentation in school. What we learn is that scientists conduct experiments, and in our high school labs if we copy exactly what they did, we will get the results they got. We learn about the experiments scientists do — usually about the physical and chemical properties of things — and we learn that they report their results in scientific journals. So, in effect, we learn that experimentation is boring, is something done by scientists, and has nothing to do with our daily lives.

(b) And this is a problem. Experimentation is something done by everyone all the time. Babies experiment with what might be good to put in their mouths. Toddlers experiment with various behaviors to see what they can get away with. Teenagers experiment with sex, drugs, and rock and roll. But because people don't really see these things as experiments or as ways of collecting evidence in support or refutation of hypotheses, they don't learn to think about experimentation as something they do constantly and thus need to learn to do better.

Every time we take a prescription drug, we are conducting an experiment. But we don't carefully record the results after each dose, and we don't run controlled experiments, and we mix up the variables by not changing only one behavior at a time, so that when we suffer from side effects we can't figure out what might have been their true cause. We do the same with personal relationships: When they go wrong, we can't figure out why, because the conditions are different in each one.

Now, while it is difficult if not impossible to conduct controlled experiments in most aspects of our lives, it is possible to come to understand that we are indeed conducting an experiment when we take a new job, or try a new tactic in a game, or pick a school to attend — or when we try and figure

out how someone is feeling or wonder why we ourselves feel as we do.

Every aspect of life is an experiment that can be better understood if it is perceived in that way. But because we don't recognize this, we fail to understand that we need to reason logically from evidence we gather, carefully consider the conditions under which our experiment has been conducted, and decide when and how we might run the experiment again with better results. The scientific activity that surrounds experimentation is about thinking clearly in the face of evidence obtained from the experiment. (c) But people who don't see their actions as experiments and don't know how to reason carefully from data will continue to learn less well from their experiences than those who do.

Most of us, having learned the word "experiment" in the context of a boring ninth-grade science class, have long since learned to discount science and experimentation as irrelevant to our lives. If schools taught basic cognitive concepts, such as experimentation in the context of everyday experience, instead of concentrating on algebra as a way of teaching people how to reason, then people would be much more effective at thinking about politics, child raising, personal relationships, business, and every other aspect of their daily lives.

(Adapted from John Brockman (ed.), *This Will Make You Smarter*, 2012)

〔注〕 toddlers よちよち歩きの幼児
variables 変数
algebra 代数
refutation of hypotheses 仮説の反証
cognitive 認識の

問 1. 下線部(a)を和訳しなさい。

問 2. 下線部(b)の具体的な内容を，句読点を含め，60 字以内で述べなさい。

問 3. 下線部(c)を和訳しなさい。

問 4. 処方薬を飲んで副作用が出た場合，その原因を知るために私たちはどのようにすべきだと筆者は考えているか。句読点を含め，60 字以内で述べなさい。

Ⅲ 〔全学部受験者用〕 次の問題Ａ，Ｂに答えなさい。

問題Ａ．下線部(a)，(b)を英訳しなさい。

たどたどしい英語で行われたロシア人の講演に素晴らしいと感動したことがなんどもあった。英語が少々聞き取りにくくても，内容が素晴らしければ皆が真剣に耳を傾ける。(a) 英語の勉強は，英語だけを勉強しても不十分であり，自国の文化を深く知ることも大切であり，それ以上にまず自分がきちんとした考えを持つことが必要であるといつも痛感する。日本語できちんと話すことができなければ，英語で話すことは不可能である。(b) このことが，昨今はとかく忘れられているように思われてならない。

〔出典〕 岩波新書編集部編『英語とわたし』岩波新書

問題Ｂ．次の質問に100語(100 words)程度の英文で答えなさい。解答欄末尾の所定の箇所に語数を「(95 words)」のように記すこと。ただし，ピリオドやコンマなどの句読点は語数に含めません。

If you could change one thing about yourself, what would it be and why?