

平成 17 年度入学者選抜個別(第 2 次)学力検査問題

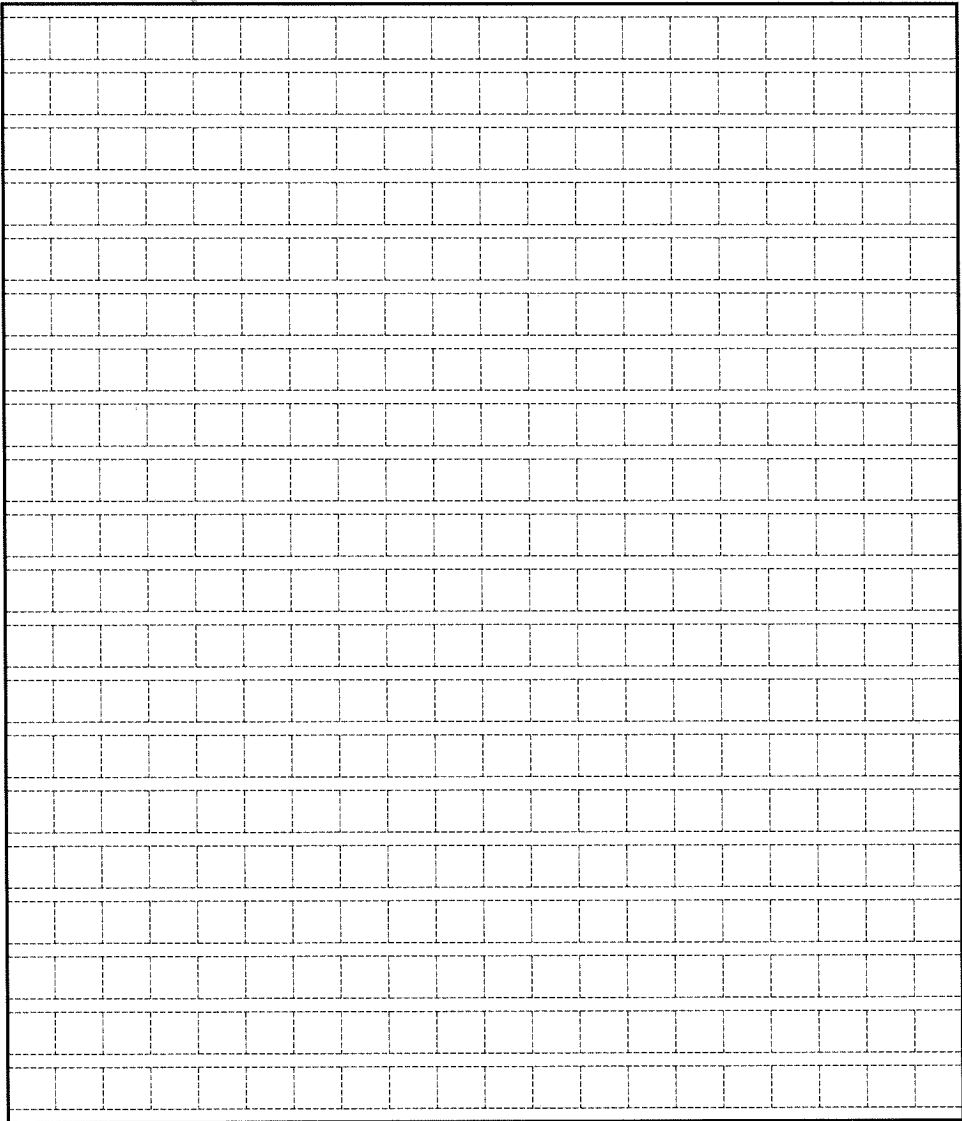
外 国 語

注 意 事 項

1. 解答用紙は、問題冊子と別に印刷されているから、誤らないように注意すること。
2. 解答は必ず解答用紙の指定された欄内に横書きで記入すること。
3. 各解答用紙には受験番号欄が 2 または 4 カ所ある。それぞれ記入を忘れないこと。
4. 解答用紙は、記入の有無にかかわらず、机上に置き、持ち帰らないこと。問題冊子は持ち帰ってよい。
5. 問題冊子は、全部で 8 ページであり、第 1 ～ 3 ページは下書用紙である。下書用紙は切り離してはいけない。
6. 問題および語句の注は第 4 ページと第 5 ページの間にはさみこんである。
7. 落丁または印刷の不鮮明な箇所があれば申し出ること。

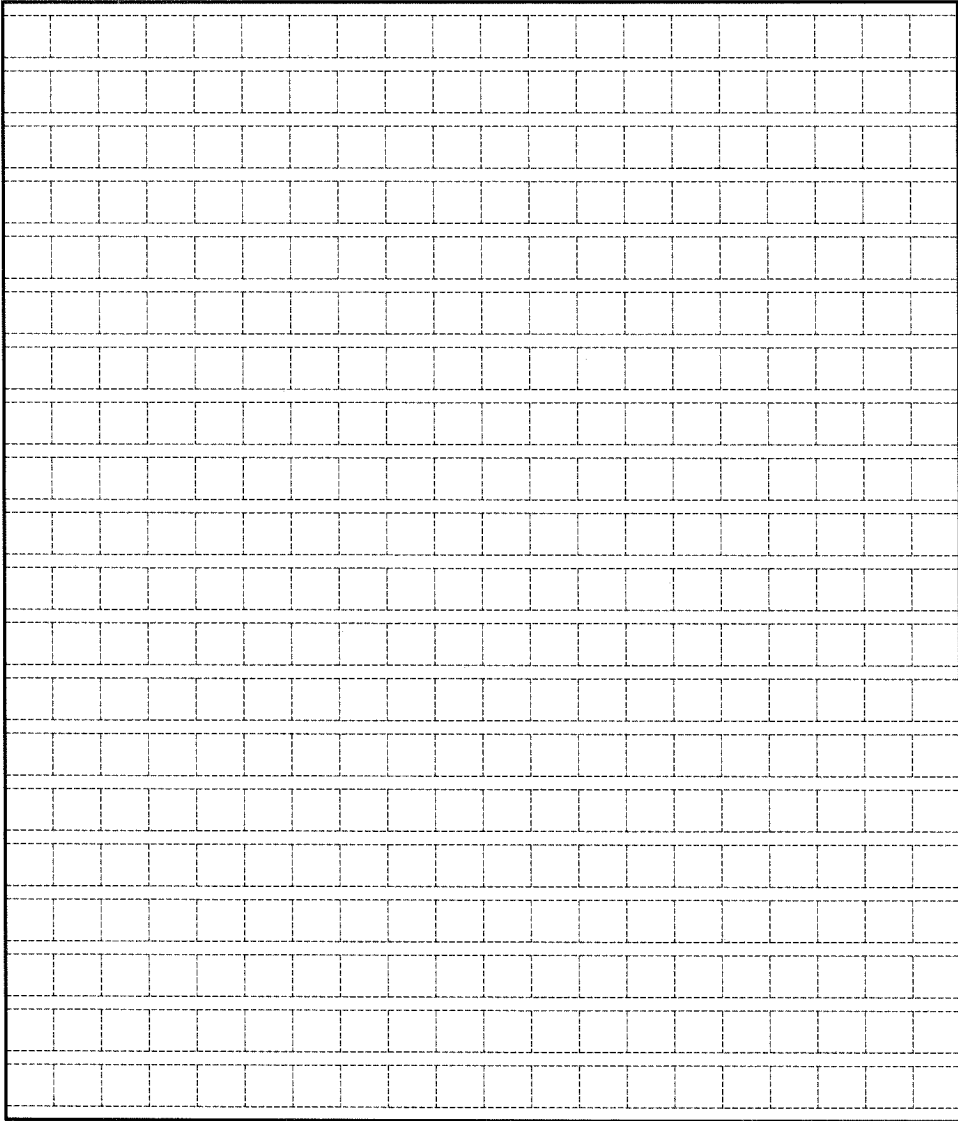
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外 国 語

次の英文は *Popular Science* 2004 年 8 月号に掲載された Theodore Gray 氏の“*For that Healthy Glow, Drink Radiation!*”を一部改変したものです。この文章をよく読んで、問題 **1** から **5** に答えなさい。

解答は解答用紙の指定された欄に記入すること。

*印のついている語句の注は問題のあとに示されています。

A century ago radioactivity was new, exciting and good for you — at least if you believed the people selling radium* pendants for rheumatism*, all-natural radon* water for vigor, uranium* blankets for arthritis* and medicines containing thorium* for digestion.

Do you think this is crazy? Until I ran into the fascinating book *Living with Radiation, the First Hundred Years*, self-published by Paul Frame and William Kolb, I had no idea that radiation was the basis for a huge fake-medicine industry that lasted for decades and took in millions of dollars.

Today we know that exposing yourself to radiation is a bad idea. Even when radiation is used to treat cancer, its deadliness is what does the work, killing cancer cells at a slightly higher rate than normal cells.

But imagine yourself 100 years ago, before many of the first researchers studying radioactivity had died of cancer or other radiation-induced causes. Electricity had been discovered relatively recently, and it turned out to be perfectly safe in moderation, so many people believed the same would be true of radiation.

In fact, early discoveries made plenty of reasonable people think that radiation could be good for you. Natural hot springs have been used as health spas for thousands of years; even today, many vacationers go to their “healing” waters. When scientists went around with radiation detectors, they discovered that the waters from quite a few well-known hot springs were radioactive. (Radon gas

問題および注

問 題

1 *Decide whether the following statements are true (T) or false (F) and circle the correct answer for each question.*

- (1) About one hundred years ago, some people believed that using a radioactive blanket could help treat arthritis.
- (2) Radiation is used to treat cancer since it kills cancer cells but does not harm normal cells.
- (3) Electricity was discovered a long time before radiation was discovered.
- (4) “Radon Water” that was sold to the public probably had little or no radiation in it by the time the customer drank it.
- (5) Competition between competing businesses led to the creation of more dangerous radioactive products.
- (6) According to the article, the government prohibited companies from selling safe products instead of forbidding the sale of dangerous ones.
- (7) Eben Byers died because of his usage of Radithor, a radioactive product.
- (8) The FDA was formed after Byers’s death for the purpose of inspecting radioactive products.
- (9) In the United States, herbal medicines are under the strong regulatory control of the FDA.
- (10) The author believes that people today are more sensible in choosing remedies than people a century ago, who ate radium for their health.

2 *What do the following words, which are underlined in the text, refer to? Answer in English.*

- (1) their
- (2) it
- (3) neither
- (4) we
- (5) the agency

3 Answer the following questions in English.

- (1) In your own words, explain why people thought that radiation was good for health.
- (2) List up to three arguments/points that are used in the advertisement for SlimMaker that were previously used in the advertisement for the Revigator.
- (3) In the second to last paragraph, why does the author put the word *medicine* in quotation marks?

4 下線部(ア)から(ウ)を日本語に訳しなさい。

5 この文章の終わりの silly and dangerous medicines とはどのようなものですか？ 過去と現在の具体的な例に言及しながら、その問題点を 400 字以内で論じなさい。

注

arthritis	関節炎
carnotite	カルノー石(ウラニウム原鉱)
endocrine gland	内分泌腺
ephedra	マオウ(麻黄)科マオウ属の植物の総称。漢方で利用される中国産の植物。
FDA	Food and Drug Administration, 米国食品医薬品局
half-life	半減期。放射性元素が崩壊し、その原子数が半減するまでの時間。
radioactive decay	放射性崩壊, 原子核崩壊
radium	ラジウム(元素記号 Ra)
radon	ラドン(元素記号 Rn)
rheumatism	リウマチ
thorium	トリウム(元素記号 Th)
uranium	ウラニウム, ウラン(元素記号 U)

produced by the decay of thorium and uranium deep in the earth is contained within the water at many natural hot springs.)

Since no one really knew what made them healthful, the springs' radioactivity was as good a guess as any. Business people started bottling the water and selling it as "Radon Water." But rivals soon pointed out a problem: Radon's half-life* is just 3.82 days. By the time the bottle reached the customer, most of the radiation would be gone.

You might go so far as to say that Radon Water was a deception, which is exactly what the Radium Ore Revigator company said to sell its "better," "more scientific" product: a watercooler lined with a serious amount of carnotite*, a rock containing uranium and radium that undergoes radioactive decay*, yielding radon gas. Storing any water in this cooler overnight would give you fresh, potent radon water to drink by morning. Unfortunately for those who used them, Revigators actually worked. (Today, of course, we run as fast as we can from radon; clearing basements of it is a big business.)

Many of the radioactive products marketed at the time, such as uranium⁽¹⁾blankets, contained radioactive materials, but at such low levels that they probably did little harm to consumers. But over time, competition caused companies to produce ever more powerful devices, most of them based on radium, the element with the strongest marketing appeal. The supremely scary product, the Radiendocrinator, was a 2-inch by 3-inch case that contained paper infused with radium, enough to illuminate a screen placed near it. It was meant to be placed over — the very thought makes me shudder — the endocrine glands*⁽²⁾.

As the industry developed, it gave birth to the inevitable wave of fake and misleading products — misleading in the sense that they did not emit the high levels of radiation they claimed to. This led to a couple of the more ironic aspects of the whole episode: advertisements that positively guaranteed that a company's products exposed you to the full dose of radiation promised, and instances of the government shutting down companies selling fake (perfectly safe) products instead

of the real (deadly) items they claimed to be offering.

For example, the Bailey Radium Laboratories of East Orange, New Jersey, offered \$1,000 to anyone who could prove that its “Certified Radioactive Water,” sold under the brand name Radithor, did not contain the large amount of radium and thorium it claimed to. Regrettably, Radithor was the real thing: No one ever claimed the prize. But Radithor did claim at least one life, that of the well-known industrialist, playboy and three-bottle-a-day Radithor user Eben Byers. Byers’s shocking death in 1932 inspired the *Wall Street Journal* headline “The Radium Water Worked Fine until His Jaw Came Off.”

Byers’s death also prompted the newly formed FDA* to take serious action against radioactive health products, insisting on proof of their safety and effectiveness. Since they were neither,⁽³⁾ this had the effect of putting manufacturers out of business. Although low-radioactivity devices continued to escape the FDA restrictions until well into the 1960s, the era of dangerously radioactive fake cures essentially went to the grave with Eben Byers.

The radium mania was a crazy little episode in the world of medicine, but it was not at all out of the ordinary. Pain and suffering have always helped foster an uncritical market for remedies and preventatives. People seeking money are quick to make use of the latest discoveries and promote them to the desperate-for-a-cure market,⁽⁷⁾ regardless of how remote the connection between the discovery and any likely health benefits might be. Exposing yourself to radiation in the hope of feeling better was no more ridiculous than, say, drinking what amounts to a few teaspoons of plain water as medicine, which is called homeopathy and is extremely popular today.

These crazy trends, old and new, tend to make remarkably similar claims, using the same arguments and marketing methods. Take a look, for instance, at the following passage, from a 1928 Revigator pamphlet, and see if it sounds familiar:

Is radio-activity dangerous to health? Most everyone asks this question because it is only natural to regard this as a drug or medicine. The answer is that radio-activity is not a medicine or drug, but a natural element of water, and that since practically all spring and well water that Nature herself gives for drinking purposes contain this highly effective beneficial element, it is but common sense to restore it to water that has lost it just as we restore oxygen to a stuffy room by opening a window. . . . The United States Government says that the radio-activity of natural water is never strong enough to be injurious.

In short, what we are selling is “natural,” unlike those potent medicines your doctor prescribes; maybe you are not getting enough of this natural substance; and the government hasn’t stopped us (yet). Remember, they’re talking about radon gas.

You could find a paragraph almost identical to this one in any health food store today:

Is SlimMaker safe?

Because SlimMaker is an all natural nutritional supplement containing only the finest herbs, there are no harmful side effects when taken as directed. SlimMaker is not a medical drug and contains none of the synthetic chemicals found in prescription medications. It is a safe alternative to prescription drugs, which can sometimes have serious side effects.

Now, I’m not saying herbal medicines are as harmful as radiation, simply that promoting them as “all natural” tells you absolutely nothing about whether they are safe, effective, both or neither. What matters is what’s in the pill, not how it got there. There may be all kinds of herbal medicines that are safe and effective — just don’t expect the industry, or the government, to tell you which ones.

Amazingly, the current U.S. federal law (the Dietary Supplement Health and Education Act of 1994) specifically orders the FDA to keep its hands off virtually all herbal medicines, preventing it from regulating the claims, ingredients or safety of these preparations and forbidding it to require the tracking of side effects and

deaths caused by them. And although the FDA banned ephedra* after several well publicized deaths, it will probably take many more such tragedies before the law is changed to allow the agency to act against many other dangerous products.

⁽⁵⁾ Radon Water was harmless because it contained nothing, the radiation having vanished before it reached customers. Amusingly, this has an exact parallel in modern homeopathic remedies. Homeopathy “works” by mixing an ingredient with water: Preparations of powerful substances are mixed with water, then mixed with water again and again and again until there is almost no chance that even a single molecule of the original substance remains in the final “medicine.” These expensive, fake products are sold to the public, labeled with their original starting-point ingredients as if they still contained any of them, when in fact the final product does not contain a detectable amount of these ingredients.

So don't for a minute think that we're all smarter and more modern than those idiots eating radium 100 years ago: Homeopathy is a huge industry today, and it is every bit as foolish. Once people suspend their critical thinking skills and go for hope over reality, there is no limit to silly and dangerous medicines.

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