

令和3年度 入学試験問題

英語（後期）

試験時間	90分
問題冊子	1～16頁

注意事項

1. 指示があるまで問題冊子は開かないこと。
2. 問題冊子および解答用紙に落丁，乱丁，印刷の不鮮明な箇所があったら，手を挙げて監督者に知らせること。
3. 解答が終わっても，または試験を放棄する場合でも，試験終了までは退場できない。
4. スマートフォン等の電子機器類は電源を必ず切り，鞆の中にしまうこと。
5. 机上には，受験票と筆記用具（鉛筆，シャープペンシル，消しゴム）および時計（計時機能のみ）以外は置かないこと。（耳栓，コンパス，定規等は使用できない。）
6. 問題冊子および解答用紙に受験番号と氏名を記入すること。
7. 解答はすべて解答用紙の所定の解答欄に記入すること。欄外には何も書かないこと。
8. この問題冊子の余白は自由に用いてよい。
9. 質問，トイレ，体調不良等で用件のある場合は，無言のまま手を挙げて監督者の指示に従うこと。
10. 中途退室時は，問題冊子および解答用紙を裏返しにすること。
11. 受験中不正行為があった場合は，試験の一切を無効とし，試験終了時間まで別室で待機を命じる。
12. 試験終了後，解答用紙は裏返し，問題冊子は持ち帰ること。

受験番号	
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氏名	
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受験番号	
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氏名	
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令和3年度(後期)

英語

解答用紙(記述用)

採点欄	1	2

[I]	問1	A	B	C	
		D	E		
	問2	番号			
	問3	番号			
問4	記号				
	記号				
問5					
問6	1	2	3		

[II]				

[I] 次の英文を読み、設問に答えよ。解答用紙(記述用)に記入すること。

1. At the start of his latest clinical trial in 2018, National Institutes of Health researcher Kevin Hall was sure he wouldn't see a difference. His study offered its participants one of two nearly identical menus. Both contained the same number of calories, and comparable amounts of carbohydrates, fats, and proteins. Even the diets' fiber, sugar, and sodium contents were matched. Nutrient-wise, they were about as similar as two meal plans could get.
2. But as the days ticked by, Hall quickly began to see how wrong his initial hunch had been. Despite the superficial similarities, one group was eating much more of the food they were offered. And by the end of two weeks, the members of that same group had gained an average of two pounds, while their counterparts had lost two pounds. The only explanation was the one factor Hall had thought would have no effect at all: while one menu was made up mostly of whole, unprocessed foods, the other—the one tied to weight gain—was almost entirely of ultra-processed foods.
3. Compared to unprocessed foods like fresh fruits and nuts, ultra-processed foods like cookies and chips tend to have more calories, sugar, fat, and salt, all of which have been linked to on weight. But the findings from Hall's team, published in 2019 in the journal *Cell Metabolism*, are the first to show there's something inherent to ultra-processed foods, independent of nutritional makeup, that seems to overeating.
4. Technically, any food that's been mechanically or chemically altered from its original state can be considered "processed." That label to milk, tofu, frozen spinach, and countless other foods that appear in our diets, and doesn't automatically designate a product as unhealthy. Ultra-processed foods, on the other hand, take things one step further by including ingredients that provide cheap, "industrial" sources of dietary energy and nutrients—like added sugars, fats, and chemical preservatives—that enhance an item's flavor, texture, or shelf life. Some offenders in the ultra-processed arena are familiar, like candy and chicken nuggets; others, like sweetened yogurts, reduced-fat salad dressing (or reduced-fat anything, for that matter), and packaged soup, may be a little more surprising.
5. For years, scientists have been linking ultra-processed foods to a variety of poor health outcomes, including cancer, obesity, and even an increased risk of death. Most of these studies, however, have been limited to questionnaires and diet records that rely on people to accurately report what they've eaten, and can't establish direct cause and effect. So Hall and his team decided to do what no other group had done before: round up 20 people, house them at the National Institutes of Health Clinical Center, and prepare, serve, and track every single morsel of food they ate for a month. Each person was randomly assigned to either an ultra-processed or unprocessed menu for the first two weeks, then switched. Both diets included three meals and plenty of snacks, providing almost 4,000 calories each

day, and participants were told to eat as much or as little as they wanted.

6. In terms of their nutritional composition, the two diets were equivalent on almost every front, down to the average number of calories per gram of food. But while ultra-processed foods had no part in the unprocessed menu, they contributed more than 80 percent of the calories in the ultra-processed diet. It was difficult to get the menus to match, while keeping the ratio of carbohydrate to fat to protein within a healthy range, Hall says. The team also had to take great pains to keep the study's results secret as they unfolded, even outfitting participants in loose-fitting clothing to mask any weight gain or loss. But the work E off. In the end, the only real difference between the groups was the proportion of ultra-processed foods in their diets.
7. But even Hall was surprised to discover how quickly changes in eating behavior unfolded. When put on the ultra-processed diet, participants started eating an average of 500 extra calories a day, resulting in several people gaining weight and body fat over the two-week period. The difference had nothing to do with the amount of food they'd been offered, or even how good it tasted (when asked, participants reported the two menus were equally appetizing and satisfying). But the inclusion of ultra-processed food had triggered a subtle, and likely subconscious, shift in behavior. Something in this ultra-processed diet was making people eat more, and it didn't take long to see the effects. What exactly that something was, though, is still an open question. Finding the answer will require a lot more research, but Hall has a few theories.
8. Although both diets were similar in energy density, or the number of calories per gram, these calculations also counted drinks, including juices and lemonade that acted as vehicles for fiber supplements in the ultra-processed diet. But beverages may not make people feel full in the same way that solid food does—and when the researchers took liquids out of the equation, the solid foods on the ultra-processed menu packed in more calories per bite. This might have made it easy for people on this diet to scarf down a lot of calories, Hall says.
9. People also ate much faster when put on the ultra-processed diet, consuming 17 more calories per minute compared to the unprocessed diet. It takes a while for our brains to register the feeling of fullness, and this lag gives our mouths plenty of time to overeat—an easy thing to do with ultra-processed foods, which are often softer and easier to chew and swallow, Hall says.
10. As food production becomes increasingly industrialized, ultra-processed foods have taken over the diets of modern Americans. Even when put on diets at two extremes of a spectrum, study participants experienced a bigger change in their hormone levels when shifting to the unprocessed menu, suggesting that their baseline was more aligned with an ultra-processed diet.

問1 ～ に入れるのに最もふさわしい動詞を次の語群から選び、必要ならば適切な形に直して1語で書け。なお、同じものを2度以上用いてはならない。

apply	become	belong	compose	consist
encourage	keep	lead	pay	put

問2 次の内容は、本文中のどの段落で述べられているか。該当する段落の番号を書き、その内容を日本語で述べよ。

the difference between processed foods and ultra-processed foods

問3 次の内容は、本文中のどの段落で述べられているか。該当する段落の番号を書き、その内容を日本語で述べよ。

a problem Hall had noticed with the methods commonly used in previous research

問4 本文中に言及されている研究に関してその内容に合わないものを(あ)～(か)から2つ選び、その記号を書け。さらにそのように判断した理由を、それぞれ本文および選択肢の具体的な内容に照らして日本語で説明せよ。

(あ) Participants in the experiment showed greater preference for the ultra-processed food.

(い) Participants on the ultra-processed diet showed little change in hormone levels compared to when they were on the unprocessed diet.

(う) Participants were fed their prescribed diets in a research facility for two weeks each.

(え) The ultra-processed diet was matched to the opposite diet for nutritional content and overall calories.

(お) The researchers made it difficult for participants to notice their weight change on the diets.

(か) One factor that might have affected the rate of eating was the degree of familiarity of the diets.

問5 本文中の研究を示す内容として適切なものとなるように、空所に3語の英語を書け。

Although the study was relatively small, Dr Hall found that the weight gain caused by ultra-processed food is due to .

問6 本文中の研究に対するやり取りを示す内容として適切なものとなるように、 1 ~ 3 にあてはまるものを(あ)~(こ)から1つ選び、その記号を書け。なお、同じものを2度以上用いてはならない。

Tracy Burrows, an associate professor of nutrition and dietetics at the University of Newcastle, said 1 the study was “very novel,” the weight differences observed were minimal. But Dr Hall disagreed, and said the duration of the study was the reason more 2 weight change wasn’t observed. “The point is, when we look at the calorie differences between what people are eating, those are persistently different over the course of the month-long experiment, and they’re substantial,” he said. “You would expect if we 3 run this study out for three or four months, these weight differences would have continued to accumulate.”

- | | | | |
|--------------|-------------|-----------------|------------------|
| (あ) although | (い) can | (う) clearly | (え) considerable |
| (お) indeed | (か) notably | (ぎ) should have | (く) significance |
| (け) than | (こ) were to | | |

[II] 下記の指示にしたがって英文を書け。解答用紙(記述用)に記入すること。

The text in [I] describes research on ultra-processed foods. Do you think that ultra-processed foods are a problem in Japan? Write your answer to this question in academic style, in one or two paragraphs. Use specific reasons and examples to support your opinion.

(下書き用紙)

[III] 以下の設問に答えよ。

解答用紙(マークシート)に記入すること。各問の末尾に示された,
内の数字に対応する欄に解答せよ。

問1 encyclopedia という名詞について, 設問に答えよ。

(1) 第1アクセントが置かれる部分を下線部(a)～(e)から1つ選べ。 1

en - cy - clo - pe - di - a

(a) (b) (c) (d) (e)

(2) 次のa～eの語句のうち, (1)で選んだ下線部と同じ発音をもつものをすべて選べ。 2

- a. convenience store
- b. mass media
- c. mattress feather
- d. pandemic influenza
- e. process of metabolism

問2 次のa～eの下線部のうち, homeの下線部と同じ発音をもち, しかもその部分に第1アクセントが置かれるものをすべて選べ。 3

- a. feeling of loneliness
- b. highly sought-after jobs
- c. legal ownership
- d. ocean view
- e. tomato sauce

問3 次のa～eのうち, smooth の下線部と同じ発音をもつものをすべて選べ。 4

- a. breath
- b. capitalism
- c. rhythm
- d. southern
- e. thigh

問4 次のそれぞれの意味をもつ単語をa～eから1つずつ選べ。

(1) being forced to live away from one's own country 5

(2) extreme physical or mental pain or suffering 6

- a. agony
- b. bruise
- c. exile
- d. hostage
- e. predator

問5 次のそれぞれの意味をもつ単語をa～eから1つずつ選べ。

(1) to speak or say something very quietly 7

(2) to walk in a slow, relaxed way, especially for pleasure 8

- a. blink
- b. murmur
- c. stroll
- d. weep
- e. worship

問6 次のそれぞれの意味をもつ単語をa～eから1つずつ選べ。

- (1) a comparison that shows how two things are similar
- (2) a set of materials or equipment designed for a particular use
- a. analogy
 - b. apparatus
 - c. descent
 - d. gratitude
 - e. kidney

問7 次のそれぞれの意味をもつ単語をa～eから1つずつ選べ。

- (1) to feel or express bitterness or anger toward someone
- (2) to stop oneself from doing something
- a. refrain
 - b. resent
 - c. restrain
 - d. retain
 - e. revolve

問8 次のそれぞれの意味をもつ単語をa～eから1つずつ選べ。

- (1) relating to a mother
- (2) very small or minor in amount or effect
- a. marginal
 - b. marital
 - c. martial
 - d. material
 - e. maternal

[IV] Read the text and answer the questions that follow.

解答用紙(マークシート)に記入すること。各問の末尾に示された、
内の数字に対応する欄に解答せよ。

A university, a women's clinic and even a minor planet are named after Hungarian doctor, Ignaz Semmelweis, to celebrate his groundbreaking findings. But having his name attached to ⁽¹⁾a frustrating feature of human psychology behavior perhaps best reflects the reality of his short and tortured life.

Semmelweis graduated at a time when medicine still lagged behind other scientific disciplines. The medical establishment's thinking was still stuck in a medieval mindset. That mindset meant doctors still believed, for example, that miasma—or bad air—was often responsible for disease transmission. Semmelweis was lucky enough to study under “new school” proponents who championed experimental methodology. He started his research when he began a stint as an obstetrician at the Vienna General Hospital, one of Europe's leading hospitals at the time and a coveted institution for training.

The hospital, however, had one of the highest rates of infection and death from puerperal fever, also known as childbed fever. The infection was a leading killer of women at the time, second only to tuberculosis. It rarely afflicted women who gave birth at home, but it was endemic in hospitals. Semmelweis noted that in Division 1 of the obstetrics clinic—headed by himself and staffed by doctors, including trainees—three to four times more women were infected over a five-year period than those admitted to Division 2, which was run strictly by midwives.

Affected women showed symptoms shortly after giving birth, and once the infection made its way to the bloodstream (sepsis), their chances of survival were zero. The mortality rate among new mothers was as high as 50 percent. Women who used hospitals at that time tended to be from the lower classes. At Vienna General they were often single, poor, voiceless women who had become pregnant then been left to fend for themselves in a society that didn't publicly tolerate single motherhood.

Semmelweis's career-defining interest occurred after one of his patients—a young woman—became septic following an abortion and died. “It was such a prevalent thing; the average physician working there just kind of resignedly passed it off as ‘that's just the way it is, and don't worry about it’,” said Dr. Ted Obenchain, historian, retired neurosurgeon and author of *Genius Belaboured*, a book about Semmelweis. “But Semmelweis was different. He was stimulated to want to do something.”

Using the hospital's trove of data, Semmelweis assembled 64 tables that looked at correlations with every possible contributing factor—including age, number of previous

births, even the time of year. His research methods were years ahead of their time.

After the woman's death, he also took it upon himself to perform an autopsy on every woman who died of the disease. The result: he knew more about childbed fever than any of his colleagues—a fact which caused friction with his superiors. His tactlessness also led to tension.

Another factor working against him was that he couldn't pinpoint a scientifically defensible cause for the fever. That inability left him discouraged and wracked by guilt. "Really and truly, I would have preferred to die," he wrote at the time. "The puerperal disease remains a mystery; only the number of the dead is a palpable fact."

A breakthrough came along by way of yet more tragedy. Back from a rare vacation, Semmelweis learned that a friend and colleague, Jakob Kolletschka, who also performed extensive autopsies, had died. During the course of one of his autopsies, Kolletschka's finger was nicked by a scalpel by a medical student, according to some accounts. Kolletschka soon developed signs of infection, then fever, delirium, sepsis; and soon after, he died.

"What was striking to Semmelweis—and this, I think, is the moment that really had the scales fall from his eyes—is that Kolletschka, who had not had a baby, died of childbed fever," said Dr. Jacalyn Duffin, historian, hematologist and professor emerita at Queen's University. "Semmelweis then realized that it wasn't the fact of having had a baby, and it wasn't the miasma. It was what he thought of as cadaveric material, or decaying organic material." Semmelweis understood that doctors, many of whom were still in training, were the ones spreading the infection. It's perhaps shocking to contemplate today, but in the mid-nineteenth century, doctors were routinely performing autopsies and then examining mothers or delivering babies—all without washing their hands.

Semmelweis's ⁽²⁾remorse at this discovery was clear. "God only knows the number of patients who have gone to their graves prematurely by my fault. I have handled cadavers extensively, more than most," he wrote. "As painful and depressing, indeed, as such an acknowledgement is, still the remedy does not lie in concealment, and this misfortune should not persist forever, for the truth must be made known to all concerned."

Semmelweis instituted a new policy that forced doctors to wash their hands in a chlorine solution between their work at the morgue and obstetrics ward duties. And this, says Obenchain, is where Semmelweis went beyond any other scientists trying to tackle this problem at the time: not only did he revolutionize thinking about childbed fever—correctly diagnosing the source of the infection and its mode of transmission—but he also came up with a solution that worked. The meticulously recorded data and graphs are striking: after the washing step was implemented, the number of infections and deaths in Division 1 ⁽³⁾plummeted.

And yet, doctors and scientists at the time rejected, or ignored, Semmelweis's findings and advice. And when it was time to renew his position at Vienna General, he was replaced.

Why? There are a number of factors. “Number one, it’s group think,” said Obenchain. “There’s also a very strict hierarchical order in medicine.”

It was also what would later come to be known as the Semmelweis Reflex at play, the refusal to accept new findings that contradict old beliefs, no matter how strong the evidence. “⁽⁴⁾They were holding on to their social status, because they clung to their practices,” said Duffin. “These were the practices they had been taught. They treasured them; they hated the idea of them being dirty or somehow being inadequately clean when they examined their patients. Because they were gentlemen, and they just couldn’t accept that.”

Also working against Semmelweis was his aversion to writing. While he was repeatedly urged to publish his findings, it was his associates and supporters who publicized them. Semmelweis did eventually write a book a decade after his groundbreaking findings: *The Etiology, Concept, and Prophylaxis of Childbed Fever* was a painfully detailed and sometimes angry 543 pages. He also took to writing angry letters to his critics. “The murder must cease, and in order that the murder ceases, I will keep watch, and anyone who dares to propagate dangerous errors about childbed fever will find in me an eager adversary,” he wrote in one such letter.

<Notes>

stint: a period of time spent doing something

midwives: a nurse who is trained to assist women in childbirth

1. Choose ALL the statements that are true about Semmelweis’s earlier life. 15
 - a. He specialized in physics prior to studying medicine.
 - b. He was given a position in the obstetrics clinic at a top teaching hospital in Vienna.
 - c. He lost his sister because of childbed fever.
 - d. He was introduced in school to research methods based on observation and testing.

2. Which one of the following statements is NOT true about childbed fever in the mid-19th century? 16
 - a. It was considered to be induced by bad air.
 - b. It was so common that doctors often took it lightly.
 - c. It was the number one cause of death for women then.
 - d. It was unusual among women who delivered at home.

3. Which one of the following statements is true about Semmelweis's professional life? 17

- a. He continued working at the Vienna General Hospital his entire life.
- b. He developed a new treatment for patients with childbed fever.
- c. He disliked writing research papers about his findings.
- d. He succeeded in gaining recognition for his work from the senior staff at his hospital.

4. In what order are the following mentioned in the text?

- a. Semmelweis lost a close coworker unexpectedly.
- b. Semmelweis decided to examine all the bodies of women with childbed fever after their death.
- c. Semmelweis wrote to those who disagreed with him, expressing his anger.
- d. Semmelweis carefully compared the outcomes before and after he began using his procedure.

1st 18

2nd 19

3rd 20

4th 21

5. Which one of the following is NOT true about Semmelweis's work for childbed disease?

22

- a. He collected data and analyzed the possible causes of the disease.
- b. He identified how the disease was transmitted in the hospital.
- c. He devised a method for preventing the infection and tested it.
- d. He showed the association between the disease and poor circulation of air.

6. Choose ALL of the following that are true about the obstetrics clinic in the hospital, according to the text. 23
- a. There were conflicts between the people working in Division 1 and Division 2.
 - b. There was a difference in the rates of childbed fever infections in Division 1 and Division 2.
 - c. Division 1 and Division 2 had different kinds of staffs.
 - d. Semmelweis was in charge of both Division 1 and Division 2.
7. Which one of the following best describes the “frustrating feature of human psychology behavior,” marked (1) in the text? 24
- a. the tendency to automatically reject new information or knowledge because it disagrees with current thinking or beliefs
 - b. the tendency to judge a decision based on the results of the process rather than the quality of the process itself
 - c. the tendency to completely disregard probability in making a decision when the outcome is uncertain
 - d. none of the above
8. Which of the following is closest in meaning to the word *remorse*, marked (2) in the text? 25
- a. bewilderment
 - b. delight
 - c. regret
 - d. resentment

9. Which of the following is closest in meaning to the word *plummeted*, marked (3) in the text? 26

- a. dropped
- b. improved
- c. increased
- d. stabilized

10. What does the word *they*, marked (4) in the text, refer to? 27

- a. new findings
- b. old beliefs
- c. Semmelweis and his supporters
- d. none of the above

使用著作物：

Adapted from an article by Katherine J. Wu on the website *Nova*
(<https://www.pbs.org/wgbh/nova/article/ultra-processed-foods-weight-gain/>), May 17, 2019 (accessed September, 2020).

Adapted from an article by Olivia Willis on the website *ABC Health and Well-being*
(<https://www.abc.net.au/news/health/2019-05-17/>), May 17, 2020 (accessed September, 2020).

Adapted from an article by Nahlah Ayed on the website *CBC Radio Ideas*
(<https://www.cbc.ca/radio/ideas/the-dirt-on-handwashing-the-tragic-death-behind-a-life-saving-act-1.5587319>), May 27, 2020 (accessed September, 2020).