

# 2021年度 一般前期入学試験 英 語

注意：第1問から第3問まではマークシートに解答しなさい。  
第4問と第5問は記述用解答用紙に解答しなさい。

## マークシートの記入について(注意事項)

1. 解答の作成には、H、F、HBの鉛筆を使用して正しくマークすること。  
よい解答例 ● (正しくマークされている)  
悪い解答例 ⊙ ⊖ (マークが部分的で解答とみなされない)
2. 解答を修正する場合は、必ず「プラスチック製消しゴム」であとが残らないように完全に消すこと。  
鉛筆の色が残っていたり、「~~✕~~」のような消し方などをした場合は、修正したことにならないので注意すること。
3. 解答用紙は、折り曲げたりメモやチェック等で汚したりしないよう特に注意すること。
4. 受験番号欄の記入方法《 受験番号記入例(右図)参照 》  
① 受験番号を数字で記入する  
② 受験番号の数字を正しくマークする  
正しくマークされていない場合、採点できないことがあります。

— 受験番号記入例 —  
受験番号1001の場合

受 験 番 号 欄			
千位	百位	十位	一位
1	0	0	1
○	●	○	○
●	○	○	●
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

注：選択する数字は『0』から順番に並んでいます。

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空白ページ

第 1 問から第 3 問では、問題文の中の [     ] 内の数字はマークシートの間番号を示している。該当する間番号の解答記入欄に答をマークしなさい。

第 1 問 次の問 1～6 の空所 [ 1 ]～[ 6 ]に入れるのに最も適切なものを(1)～(4)から 1 つ選び、その番号をマークしなさい。

問 1. Owing to the powerful typhoon landing last night, not a [ 1 ] was to be found in the street.

- (1) brain                      (2) heart                      (3) mind                      (4) soul

問 2. If you [ 2 ] your favorite activity excessively, other aspects of your life may suffer as a result.

- (1) fall on    (2) indulge in  
(3) tear down    (4) use up

問 3. Jane didn't want to talk about her father, and [ 3 ].

- (1) Kate did either    (2) Kate didn't neither  
(3) neither did Kate    (4) nor didn't Kate

問 4. Let me have a few more minutes to finish this, [ 4 ] you? I'm nearly done.

- (1) are                      (2) do                      (3) shall                      (4) will

問 5. Increasingly, people think that they are [ 5 ] off financially because of the recent economic decline.

- (1) better                      (2) less                      (3) more                      (4) worse

問 6. The company's hiring policy is now [ 6 ] review following the third critical report in a row.

- (1) for                      (2) of                      (3) under                      (4) within

第2問 次の問1～4においては、それぞれ日本語の意味に合うように下の(1)～(7)の語句を並べかえて空所を補い、適切な文を完成させなさい。解答は[ 7 ]～[ 14 ]に入れるものの番号のみをマークしなさい。ただし文頭にくる文字も小文字にしてある。

問1. 彼女はどうかっても同僚に本当のことを言えないだろう。

\_\_\_\_\_ [ 7 ] \_\_\_\_\_ [ 8 ] the truth.

- |                |           |          |         |
|----------------|-----------|----------|---------|
| (1) colleagues | (2) could | (3) her  | (4) not |
| (5) possibly   | (6) she   | (7) tell |         |

問2. 君の犬以外の何がうちの庭を掘り返しているというんだ。

\_\_\_\_\_ [ 9 ] \_\_\_\_\_ [ 10 ] \_\_\_\_\_ digging up my garden?

- |          |           |          |          |
|----------|-----------|----------|----------|
| (1) be   | (2) but   | (3) dog  | (4) else |
| (5) what | (6) would | (7) your |          |

問3. その時には、彼はそれがどれほど深刻な問題か気付いていなかった。

At that time, he had not yet \_\_\_\_\_ [ 11 ] \_\_\_\_\_ [ 12 ] \_\_\_\_\_.

- |             |          |             |              |
|-------------|----------|-------------|--------------|
| (1) a       | (2) how  | (3) problem | (4) realized |
| (5) serious | (6) that | (7) was     |              |

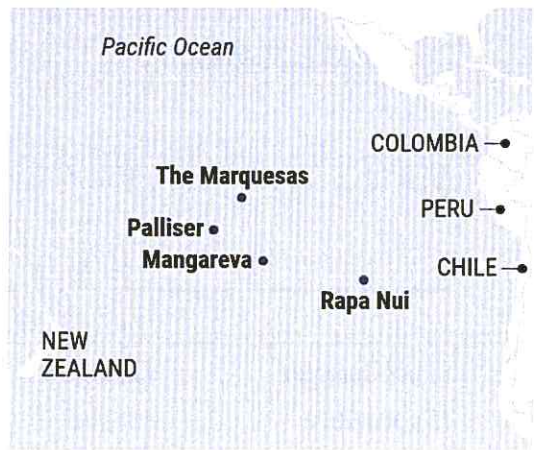
問4. ハイキングブーツを持ってきているなら、帰りは履いた方がいいよ。

If you have brought along your hiking boots, you \_\_\_\_\_ [ 13 ] \_\_\_\_\_  
\_\_\_\_\_ [ 14 ] \_\_\_\_\_.

- |          |          |          |                |
|----------|----------|----------|----------------|
| (1) back | (2) for  | (3) on   | (4) should put |
| (5) the  | (6) them | (7) walk |                |

第3問 Read the article and answer the questions that follow.

By about 1200 C.E., Polynesians were masters of oceanic exploration, roaming 7,000 kilometers across the Pacific Ocean in outrigger canoes. Guided by subtle changes of wind and waves, the paths of migrating birds, bursts of light from bioluminescent plankton, and the position of the stars, they reached and settled islands from New Zealand to Rapa Nui, or Easter Island, the closest Polynesian island to South America.



So it's natural to wonder: Did these world-class explorers make it the last 3,800 kilometers to South America? A genomic study of more than 800 modern Polynesians and Native Americans suggests they did, possibly before the arrival of the first Europeans.

The work ( あ ) earlier evidence that the two groups met and mixed well before the era of European colonialism. And it shakes up the most popular model of where Native American genes first took root in Polynesia, shifting the focus from Rapa Nui to islands farther west.

“This is an excellent, exciting study,” says Lars Fehren-Schmitz, an anthropological geneticist at the University of California (UC), Santa Cruz. Expanding genomic research to islands beyond Rapa Nui “was what was missing from the whole picture.”

Earlier hints of contact between the two groups included the sweet potato, which was domesticated in the Andes but grown and eaten all over Polynesia for hundreds of years before Europeans arrived. And a 2014 study of 27 modern people from Rapa Nui found they had Native American ancestry dating back to between 1300 C.E. and 1500 C.E. — at least 200 years before the first Europeans landed there in 1722 C.E. But a 2017 ancient DNA study, led by Fehren-Schmitz, found no sign of Native American ancestry in five people who lived on Rapa Nui before and after European contact.

Population geneticist Andrés Moreno-Estrada and anthropologist Karla Sandoval, both at Mexico's National Laboratory of Genomics for Biodiversity, traveled to Rapa Nui in 2014 and invited the community to participate in a study. They analyzed genome-wide data from 166 people from the island. Then they combined those data with genomic analyses of 188 Polynesian people from 16 other islands, whose genetic samples had been collected in the 1980s.

“It's an amazing data set,” says Anna-Sapfo Malaspinas, a population geneticist at the University of Lausanne who led the 2014 work that found evidence for contact.

Moreno-Estrada, Sandoval, and their team found that people on many islands had both Polynesian and European ancestry, reflecting their colonial histories. But they were also able to detect a small amount of Native American ancestry in people from the eastern Polynesian islands of Palliser, the Marquesas, Mangareva, and Rapa Nui. The Native American sequences were short and nearly identical — seemingly a legacy of one long-ago meeting with a Native American group, rather than sustained contact over

generations, Moreno-Estrada says.

( い ) those sequences with genomes from people from 15 Indigenous groups from the Pacific coast of Latin America, researchers found most similarity to the Zenu, an Indigenous group from Colombia, the team reports today in *Nature*.

Analyses of the length of the Native American sequences show this ancestry appeared first on Fatu Hiva in the South Marquesas roughly 28 generations ago, which would date it to about 1150 C.E. That's about when the island was settled by Polynesians, raising the possibility the contact happened even earlier. The genetic legacy of that mixing was then carried by Polynesian voyagers as they settled other islands, including Rapa Nui.

Where exactly the first encounter took place, the team can't say. Modern Latin American fishermen lost at sea have been known to drift all the way to Polynesian islands. "It could have been one raft lost in the Pacific," Moreno-Estrada says.

But it's more likely that Polynesians traveled to the northern coast of South America, says Keolu Fox, a genome scientist at UC San Diego. Polynesian voyagers frequently traveled between islands and could have journeyed to South America and back, perhaps multiple times, Fox says. "In the process, these Polynesians bring back the sweet potato, and they also bring back a small fragment of Native American DNA" from relationships on the mainland. "The ocean is not a barrier" for Polynesians, he says.

Fehren-Schmitz and other researchers agree contact is likely, but stress that only ancient DNA can provide direct evidence of an encounter. But DNA degrades quickly in the tropics — and Polynesian communities that remember being disrespected by Western scientists in the past may be reluctant to grant permission for genetic studies of their ancestors, says Fox, who is Kānaka Maoli (Native Hawaiian). To move forward, he says, researchers need to deeply engage on an ongoing basis with descendant communities on many islands.

For now, "This study shows us a new path to follow," says Francisco Torres Hochstetter, an archaeologist at the Father Sebastian Englert Anthropological Museum in Hanga Roa on Rapa Nui. "It opens our minds."

<https://www.sciencemag.org/news/2020/07/polynesians-steering-stars-met-native-americans-long-europeans-arrived> (改変あり)

注 Polynesia: 太平洋の島々のうち、北はハワイ、南はニュージーランド、東はイースター島を頂点とする一辺およそ 8,000 km の巨大な三角形に含まれる島々の総称。(『世界大百科事典』)

outrigger canoe: 舷外浮材付きカヌー

bioluminescent: 生物発光性の

anthropological geneticist: 人類学的遺伝学者

voyager: 冒険的航海者

raft: 筏

問 1. Choose the most appropriate word to fill in the blank for ( あ ). Write the number of your answer in [ 15 ].

- (1) contradicts      (2) generates      (3) questions      (4) strengthens

問 2. Choose the most appropriate word to fill in the blank for ( い ). Write the number of your answer in [ 16 ].

- (1) Comparing      (2) Concealing      (3) Constructing      (4) Continuing

問 3. Which of the following is the closest to what the article states as a possible clue that there was contact between Polynesians and Native Americans before the time of European colonialism? Write the number of your answer in [ 17 ].

- (1) Evidence showed that Polynesians and Native Americans cohabited for hundreds of years before European contact.  
(2) One study found signs that Native Americans have ancestors who lived on Rapa Nui before European contact.  
(3) Polynesian and Native American ancestry both appear to have originated from the Kānaka Maoli people.  
(4) Sweet potatoes, which were domesticated in South America, were prevalent in Polynesia before the arrival of Europeans.

問 4. Which of the following is the closest to what the article states about the first encounter between Native Americans and Polynesians? Write the number of your answer in [ 18 ].

- (1) It is possible that rather than a South American raft drifting to Polynesian islands, Polynesians first went to South America.  
(2) It seems likely that Polynesians first landed in the northern section of the area that is currently UC San Diego.  
(3) Native American ancestry first appeared in the South Marquesas according to a document dated 1150.  
(4) The location of the initial encounter was accidentally discovered by modern Latin American fishermen.



問 5. Which of the following is NOT stated in the article about Moreno-Estrada and Sandoval's research? Write the number of your answer in [ 19 ].

- (1) They analyzed genomic data of over 150 people from Rapa Nui.
- (2) They analyzed genomic data of people from seventeen Polynesian islands.
- (3) They detected European ancestry in people on many Polynesian islands.
- (4) They found evidence of sustained contact between Polynesians and Native Americans.

問 6. Which of the following is the closest to what the article states about confirming contact between Polynesians and Native Americans? Write the number of your answer in [ 20 ].

- (1) Because DNA breaks down quickly in tropical climates, more current DNA samples are necessary to provide direct evidence of the contact.
- (2) Polynesian people may hesitate to allow Western scientists to conduct genetic studies of their ancestors.
- (3) Rapa Nui and many other Polynesian islands are uninhabited, so it is difficult to test DNA of modern Polynesian people.
- (4) When studying Polynesian ancestry, it is difficult to distinguish between the DNA of Native Americans and Europeans.

*[Faint, illegible text]*

この後の第4問と第5問は記述用解答用紙に解答しなさい。

第4問 次の英文を読み、後の問いに答えなさい。

For centuries, Tikal was a bustling Maya city in what is now northern Guatemala. But by the late 800s CE, its plazas and temples stood silent, surrounded by mostly abandoned farms. A recent study suggests a possible explanation for its decline: mercury and toxic algal blooms poisoned the water sources that should have carried the city through dry seasons.

Tikal's Maya rulers built the city's reservoirs to store water from rain and runoff during the winter months. The pavement of the large plazas in the heart of the city sloped slightly, helping funnel rainwater into the reservoirs. Over the centuries, dust and litter settled into the bottom of the reservoirs, too, providing a record of what the environment around Tikal was like — and what was washing into the city's water supply. University of Cincinnati biologist David Lentz and his colleagues sampled sedimentary layers dating back to the mid-800s, and they found that two of Tikal's central reservoirs would have been too polluted to drink from.

【 あ 】

An X-ray fluorescence spectrometer (XRF) revealed that the sediment on the bottom of the reservoirs was laced with dangerous amounts of mercury. Lentz and his colleagues also found ancient DNA from blue-green algae, or cyanobacteria, which can produce deadly toxins.

But how did the reservoirs get so polluted in the first place?

“Color was important in the ancient Maya world,” said University of Cincinnati anthropologist Kenneth Tankersley, a co-author of the study. The Maya were especially fond of paint made from a blood-red mineral pigment called cinnabar. Painters used it in colorful murals, and builders painted the plaster walls of palaces and temples with it.

Unfortunately for the Maya, cinnabar is poison. The pretty red mineral produces such lovely shades when mixed with iron oxide. And Lentz and his colleagues say that over the centuries, mercury leached out of the brightly painted walls of Tikal's most magnificent buildings and flowed straight into its reservoirs.

【 い 】

“We were able to find a mineral fingerprint that showed beyond a reasonable doubt that the mercury in the water originated from cinnabar,” said Tankersley.

Most of the time, polluted urban water supplies are a problem for the poor — think of the London cholera outbreak that kickstarted modern epidemiology, or modern lead pollution in the water supply of Flint, Michigan. But the reservoirs in Tikal watered the political and ceremonial heart of the city, as they resided next door to a palace complex and major temples.

“The drinking and cooking water for the Tikal rulers and their elite entourage almost certainly came

from the Palace and Temple Reservoirs,” wrote Lentz and his colleagues. “As a result, the leading families of Tikal likely were fed foods laced with mercury at every meal.”

【 う 】

And ironically, the wealth and power that surrounded the reservoirs poisoned their waters but left the rest of the city’s water supply untouched. The plazas that drained into the Palace and Temple Reservoirs were surrounded by palaces, temples, ballcourts, and cemeteries, all decorated with murals and cinnabar-painted plaster. Two other large reservoirs in less prestigious areas of the city were mercury-free, according to Lentz and his colleagues.

Deadly blooms of blue-green algae also struck the reservoirs at the city’s elite center and left more ordinary districts untouched. And that, too, is a problem Tikal’s rulers accidentally created for themselves.

Based on the XRF analysis, the two reservoirs had also contained high levels of chemicals called phosphates; that usually means the waters were fouled with food waste, feces, and other organic matter. That would have made the reservoirs pretty gross, but it also provided nutrients that fueled huge blooms of blue-green algae, like Planktothrix and Microcystis.

Phosphate levels in the Palace Reservoir increased by four times between 600 and 830 CE, and it’s not hard to see why. Archaeologists found the remains of an ancient kitchen at the north edge of the Palace Reservoir, where meals would have been prepared for the royal residents of the Central Acropolis, Tikal’s major palace complex.

【 え 】

The droughts of 820 to 870 CE left the reservoir’s waters receding and stagnant — and thanks to the palace kitchens, also full of phosphates and other organic matter. In other words, the reservoirs became the perfect place for cyanobacteria to thrive in large quantities. In those layers of sediment, Lentz and his colleagues found traces of ancient DNA from Planktothrix and Microcystis species.

Both of those types of blue-green algae produce compounds called microcystins, which get released into the water when the algae cells die. Most microcystins are toxic to the liver, but some are also neurotoxins, and they can also irritate the eyes, skin, and throat. They’re deadly at very low concentrations and impervious to the usual water-purification tricks, like boiling.

【 お 】

“With the presence of microcystins in Tikal’s reservoirs, the water could not have been safely consumed,” wrote Lentz and his colleagues.

The water pollution made life harder for Tikal’s residents, who were already struggling with food shortages and other obstacles. It probably also had political consequences for the city’s rulers, whose

elaborate decorations and kitchen garbage had caused the problem in the first place.

Maya rulers were expected to provide clean water and fertile crops by keeping the gods happy. In the late 800s, the people may have taken the foul, poisoned reservoirs and the decades of drought as a sign that their rulers had failed in that all-important duty. It may have seemed that the city and its rulers had fallen out of favor with the gods, and many people may have decided there was little reason to stick around and plenty of reason to leave. By around 950 CE, Tikal was on its way to becoming picturesque ruins.

<https://arstechnica.com/science/2020/06/mercury-and-algal-blooms-poisoned-maya-reservoirs-at-tikal/> (改変あり)

注	algal: 藻(類)の	bloom: 異常発生	reservoir: 貯水池
	runoff: 地表を流れる雨水	funnel: ~を集めて流し込む	sedimentary: 堆積物の
	lace ~ with ...: ~に…を加える	cyanobacteria: 藍藻類	toxin: 毒素
	pigment: 顔料	cinnabar: 辰砂	mural: 壁画
	plaster: 漆喰	iron oxide: 酸化鉄	leach: 滲み出す
	epidemiology: 疫学	lead: 鉛	entourage: 側近たち
	cemetery: 墓地	phosphate: リン酸塩	foul: ~を汚染する、不潔な
	feces: 糞便	stagnant: よどんでいる	concentration: 濃度
	impervious to: ~の影響を受けない		

- 問 1. 水銀が貯水池を汚染するに至った過程を、本文の内容に即して日本語で説明しなさい。
- 問 2. Tikal の水汚染の影響は、一般的に見られる都市の水汚染とどのような点で異なっていたか、本文の内容に即して日本語で説明しなさい。
- 問 3. 藻類が異常発生するに至った過程を、本文の内容に即して日本語で説明しなさい。
- 問 4. 本文の内容に即し、Tikal の支配者層が権威を失うに至った理由を日本語で述べなさい。
- 問 5. 次の段落は本文のどの位置に置くのが最も適切か、【あ】～【お】の記号で答えなさい。

It had been building up in two of Tikal's reservoirs for centuries before the city's final decline. Lentz and his colleagues found toxic levels of mercury in sediment layers dating from 600 CE to 900 CE, based on radiocarbon dating of bits of organic matter mixed into the sediment.

sediment: 堆積物

radiocarbon dating: 放射性炭素年代測定法

第5問 次の英文を読み、下線部(1)～(4)の日本語の内容を英語にしてください。

For some people, summer is the time to head indoors to exercise. But others welcome the heat as a way to sweat more and get a better workout.

Indeed, I've long regarded the sweatiness of my exercise sessions as a sign of how hard I was pushing myself. But it turns out I've been wrong: How much you sweat doesn't necessarily correlate with how intense your workout is or how many calories you burn.

When your body temperature rises, your eccrine glands secrete sweat, and the evaporation of moisture from your skin helps you cool off. Of course, sweating can occur for other reasons, such as stress or fear.

That type of sweat comes from the apocrine glands, which are located mainly in the underarm and groin.

(1)運動している間にどれくらいの量の汗をかくかは、温度、湿度はもちろんだが、性別、年齢などのいくつかの要因にも因る。

Weight plays a role as well. Larger people tend to sweat more, because their bodies generate more heat.

Another contributor is fitness level. Surprisingly, fit people tend to sweat sooner during exercise and more copiously than those who are less fit.

Research suggests that as your fitness level improves, your body's heat-regulating system becomes more efficient, cooling you down faster and allowing you to work harder.

Don't be misled by the loss of a few pounds after a high-sweat workout. This is simply water weight that you gain back when you rehydrate and doesn't necessarily mean you've burned lots of calories.

On the flip side, don't assume that a low-sweat workout means you aren't working hard enough or burning enough calories. (2)エアコンが効いている中や、扇風機の近くや、あるいは風の強い日に屋外で運動しているので、汗がすぐに蒸発してしまうのかもしれない。 Or, unlike me, you simply may not sweat much.

Whatever the case, wearing clothing made of synthetic fabrics such as polyester or Lycra can help you feel less sweaty. These pull (or wick) sweat from your skin to outer layers of the clothes, where the moisture evaporates.

Cotton, on the other hand, absorbs moisture but doesn't promote evaporation. As a result, your shirt or other clothing can feel soaked and heavy after a workout.

A drawback of polyester is that it tends to stink more than cotton after exercise. In one study, researchers collected the sweaty shirts of 26 subjects after an hour of intensive spinning. The next day, trained sniffers determined that the polyester shirts smelled worse than the cotton ones.

Micrococci, a type of bacteria that break down sweat and cause unpleasant odor, were found to grow only on the polyester garments. (3)汗自体は一般的に無臭であり、不快な臭いを発生させているのはそれに何らかの細菌が混入したものである。

You can find "odor-resistant" synthetic fabrics, which are treated with various antibacterial



compounds. Among the most common is silver, typically applied in tiny amounts known as nanoparticles.

But some research suggests that silver-treated clothing may not work as well as promised to reduce bacteria and odor. What's more, a significant amount of the silver may come out in the wash, reducing the effectiveness of the garments and potentially harming the environment.

(4)肌が銀のナノ粒子にさらされると健康リスクを生じるかもしれないという懸念もあるが、そのことを支持する直接的な証拠はない。

<https://edition.cnn.com/2017/06/13/health/sweating-workout-fitness-exercise-davis/index.html> (改変あり)

注 eccrine gland: エクリン腺

secrete: ～を分泌する

apocrine gland: アポクリン腺

groin: 鼠径部

copiously: 多量に

rehydrate: 水分補給する

on the flip side: 他方では

wick: ～を毛管作用で運ぶ

drawback: 欠点

antibacterial compound: 抗菌化合物

1. The first part of the text is a general introduction to the topic of the paper. It discusses the importance of the research and the objectives of the study. The second part of the text is a detailed description of the methodology used in the study. It includes information about the study design, the participants, the data collection methods, and the statistical analysis. The third part of the text is a discussion of the results of the study. It compares the findings with previous research and discusses the implications of the results. The final part of the text is a conclusion that summarizes the main findings and provides recommendations for future research.



