

工 学 部

奨学生入学試験問題

英 語

注 意 事 項

1. 試験監督者の指示があるまで、問題冊子を開かないこと。
2. 問題冊子に落丁、乱丁があった場合は、試験監督者に申し出ること。
3. 試験監督者の指示に従って、解答用紙の受験番号欄に受験番号を記入し、その下のマーク欄にもマークすること。
4. 受験番号が正しくマークされていない場合は、採点できないことがある。
5. マーク方式の解答方法は、下の『解答上の注意』をよく読むこと。
6. 試験終了後、問題冊子は持ち帰ること。

解答上の注意

マーク方式での解答例

〔英語〕 解答群より、③をマークするときは、次の〔例〕のように解答欄の③にマークする。

〔例〕

1	①	②	●	④	⑤	⑥	⑦	⑧	⑨	⑩
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# 英 語

I. 次の英文を読み、問A・問Bに答えよ（\*印を付した単語には注がある）。

Seafood lovers who prize the mussel\* for its earthy taste and succulent flesh may be unaware of its growing potential in the fight against water pollution.

The mussel is the vacuum cleaner of the sea, taking in phytoplankton\* for nourishment along with microplastics, pesticides and other pollutants—which makes it an excellent gauge.

One day, it may also be pressed into service to cleanse water.

“It’s a superfilter in the marine world, filtering up  25 liters of water a day,” said marine biologist Leila Meistertzheim.

“It’s a real model of bio-accumulation of pollutants, generally speaking.”

As they pump and filter the water through their grills in order to feed and breathe, mussels store almost everything else that passes through—which is why strict health rules apply for those destined for human consumption.

Like canaries in a coal , mussels have long been used as “bio-indicators” of the health of the seas, lakes and rivers they inhabit.

Little-known pollutants can turn up to join the usual suspects, with increasing attention paid to microplastics containing bisphenol A\* and phthalates\*, both thought to be endocrine disrupters\*.

Meistertzheim heads a study for France’s Tara Ocean Foundation using mussels to gauge the health of the estuaries\* of the Thames, Elba and Seine rivers.

The mussels, placed in fish traps, are submerged in the waters for a month before researchers dissect them to determine what chemical substances are lurking in their tissues.

The idea of deploying mussels across the oceans to absorb ubiquitous microplastics is just a dream  now, but for other pollutants, the bivalves\* are already at work.

“In some places, mussels are used, as well as oysters, to cleanse the sea of pesticides, for example,” Meistertzheim noted.

The mussels are edible because they “excrete the bacteria as feces\* or mucus\*,” Richard Luthy, an environmental engineer from California’s Stanford University, said.

Mussels living in the waterways affected by eutrophication\*—often marked by abundant algae\*—are also fit for human consumption, researchers say.

The phenomenon is often the result of waste dumped into the waterway containing phosphates\* and nitrites\*, such as detergents\*, fertilizers\* and sewage\*.

The nutrients in these substances encourage the proliferation\* of algae, which in turn starves the water of oxygen, upsetting the ecosystem.

Mussels “recycle” these nutrients by feeding on the algae, said Eve Galimany, a researcher of the U.S. National Oceanic and Atmospheric Administration’s Milford Laboratory who has experimented with mussels in the Bronx River in New York.

The Recycling principle is already at work in a pilot project titled the Baltic Blue Growth in Sweden, Denmark and the Baltic countries which grows mussels to be fed to animals such as poultry, fish and pigs.

“Eutrophication ... is the biggest problem of the Baltic Sea, the most urgent one,” said project head Lena Tasse. Mussels “could be part of a .

Why feed them to animals if they are safe for humans? Because Baltic mussels are too small to be  interest to seafood lovers, said Tasse, adding: “Swedes like big mussels.”

Meanwhile, the jury is still out on the effects of microplastics on human health.

A recent report by WWF\* said that humans ingest an average of 5 grams of microplastics a week—about the weight of a credit card.

A 2018 study published in the journal *Environmental Pollution*, based on samples from British coastlines and supermarkets, estimated that every 100 grams (3.5 ounces) of mussels contained 70 tiny pieces of plastic.

Should we be worried? Meistertzheim thinks not.

“I eat them,” she said. “A dish of mussels is not necessarily worse than organic hamburger meat wrapped in plastic.”

(出典：AFP-JIJI, “Can mussel power cleanse the seas?,” *The Japan Times*, August 19, 2019 一部改変)

注：mussel ムール貝（食用の二枚貝） phytoplankton 植物プランクトン  
 bisphenol A ビスフェノールA phthalate フタル酸塩  
 endocrine disrupters 内分泌攪乱物質 estuaries 河口 bivalves 二枚貝  
 feces 排泄物 mucus 粘液 eutrophication 栄養汚染 algae 藻  
 phosphates リン酸塩 nitrites 亜硝酸塩 detergents 洗剤  
 fertilizers 化学肥料 sewage 下水 proliferation 増殖  
 WWF 世界自然保護基金

問A. 文中の  ～  に入れるのもっとも適当なものを、①～④の中から選び、解答欄にマークせよ。

- |                                |                |           |            |           |
|--------------------------------|----------------|-----------|------------|-----------|
| <input type="text" value="1"/> | ① of           | ② to      | ③ from     | ④ at      |
| <input type="text" value="2"/> | ① meal         | ② method  | ③ military | ④ mine    |
| <input type="text" value="3"/> | ① for          | ② against | ③ to       | ④ in      |
| <input type="text" value="4"/> | ① satisfaction | ② sense   | ③ solution | ④ storage |
| <input type="text" value="5"/> | ① into         | ② without | ③ of       | ④ by      |

問B. 6.～15. の各文が本文の内容に合っていれば解答欄の①にマークし、合っていなければ解答欄の②にマークせよ。

6. The mussel is expected to be an effective measure against water pollution.
7. Mussels pump and filter the water so that they may feed and breathe.
8. It is believed that mussels can tell us about the situation of the water where they live.
9. It takes researchers a month to explain what chemical substances remain in mussels' tissues after they raise mussels out of the waters.
10. It's possible to make use of not only mussels but also oysters so as to purify the sea of pesticides.
11. It is reported that phosphates and nitrites are destroying mussels in the waterways in France.
12. Some of the Baltic countries cultivate algae to be fed to mussels.
13. Baltic mussels are not fit to be eaten because they are contaminated with pesticides.
14. The U.S. National Oceanic and Atmospheric Administration has determined the effects of microplastics on our health.
15. Leila Meistertzheim has no hesitation in eating mussel dishes.

II. 次の1.～5.の日本語の意味の英文を、書き出しの語句に続けて下にある語句を並べかえて作るとした場合、に入れるべきものはどれか。解答欄にマークせよ。

1. 2022年のサッカーワールドカップはカタールで開催される。

The 2022 Soccer World cup \_\_\_\_\_ 16\_\_\_\_\_ 17\_\_\_\_\_ Qatar.

① in ② going ③ is ④ place ⑤ to ⑥ take

2. 母親の誕生祝いの準備で大忙しだ。

We \_\_\_\_\_ 18\_\_\_\_\_ 19\_\_\_\_\_ our mother's birthday party.

① making ② busy ③ are ④ for ⑤ very ⑥ preparations

3. このコピー機は調子がおかしい。

There \_\_\_\_\_ 20\_\_\_\_\_ 21\_\_\_\_\_ .

① photocopier ② this ③ is ④ wrong ⑤ with ⑥ something

4. 『フランクリン自伝』を読んで私は奮起すると猛勉強した。

*The Autobiography of Benjamin Franklin* \_\_\_\_\_ 22\_\_\_\_\_ 23\_\_\_\_\_ .

① me ② study ③ stimulated ④ hard ⑤ to ⑥ very

5. 猛暑日に生徒たちは次々と気を失った。

The students \_\_\_\_\_ 24\_\_\_\_\_ 25\_\_\_\_\_ a severely hot day.

① one ② out ③ after ④ on ⑤ another ⑥ passed

III. 次の1.～5.の英文の意味が通じるためには、の中にどのような語を入れたらよいか。下の語群から選んでマークせよ。

1. They are 26 first name terms.

2. Personal computers were not common 27 those days.

3. My father has suffered 28 high blood pressure for 10 years.

4. Jeff will get well 29 long.

5. She is going to Yokohama 30 way of Tokyo.

[ 語群 : ① from ② to ③ on ④ by ⑤ before ⑥ in ]

IV. 1. ~ 5. の英文の説明に該当する英単語を下の語群〔①~⑩〕から選び、解答欄にマークせよ。

1. money or property, especially when it is used to start a business or to produce more wealth

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2. a piece of writing about a particular subject in a newspaper or magazine

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3. a person who steals another person's property, especially by stealth and without using force or threat of violence

=

4. the arrangement of musical notes in a way that is pleasant

=

5. someone who swims or works under water using special equipment to help them breathe

=

[ 語群 : ① duration                      ② tablet                      ③ article                      ④ melody  
          ⑤ capital                              ⑥ diver                        ⑦ admission                ⑧ microbe  
          ⑨ thief                                ⑩ circle ]

V. 36. ~ 40. の英単語のいちばん強く発音する個所はどこか。解答欄にマークせよ。

36. cal · en · dar  
      ①     ②     ③

37. in · dus · try  
      ①     ②     ③

38. e · lec · tri · cal  
      ①     ②     ③     ④

39. com · mu · ni · cate  
      ①     ②     ③     ④

40. gen · er · os · i · ty  
      ①     ②     ③     ④     ⑤