

英 語

2024年度 理学部 一般選抜試験

受験 番号		氏 名	
----------	--	-----	--

【注 意 事 項】

- 1 試験監督による解答始めの指示があるまで、この問題冊子の中を見てはいけません。
- 2 試験時間は60分です。
- 3 この問題冊子は1ページから16ページまであります。
- 4 解答は解答用紙（マークシート）の所定欄に記入しなさい。
- 5 解答は所定欄に鉛筆で濃くはっきりとマークしなさい。その際、ボールペン・サインペン・万年筆等は使用してはいけません。その他マークの仕方に関しては、解答用紙（マークシート）の注意事項をよく読むこと。
- 6 試験監督の指示に従って問題冊子に受験番号および氏名を記入しなさい。
- 7 試験監督の指示に従って、解答用紙（マークシート）に氏名、フリガナおよび受験番号を記入し、さらに受験番号をマークしなさい。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ります。
- 8 解答用紙（マークシート）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に注意しなさい。マークを訂正する場合は、消しゴムできれいに消し、中途半端な消し方をしないこと。不正確なマークは採点の対象外となります。解答用紙（マークシート）に消しゴムのかすが残っていると、採点が不可能となる場合があります。解答用紙の両面の消しゴムのかすは、回収前に取り除いておくこと。
- 9 問題冊子の余白は適宜使用してかまいませんが、どのページも切り離してはいけません。
- 10 試験中に問題冊子の印刷不明瞭、ページの落丁・乱丁および解答用紙（マークシート）の汚れ等に気づいた場合は、手を高く上げて試験監督に知らせなさい。
- 11 試験終了後、問題冊子と解答用紙（マークシート）はともに回収します。試験室から持ち出した場合は、不正行為となります。

余 白

[I] 次の英文を読み、下記の設問に答えなさい。

The sea provides a significant ⁽⁶⁾ proportion of the protein humanity consumes. In 2020, fisheries captured around 112 million tonnes of aquatic organisms according to the US (1) and Agriculture Organisation. As global demand for (1) rises, serious questions remain about our (1) supplies.

Some scientists, such as Stefano Piraino, a zoologist and evolutionary biologist at the University of Salento in Lecce, Italy, believe one solution is broadening our palates^{*1}. He suggests that since the world is in urgent need of sustainable (1) resources, one way to achieve this is to attempt to integrate new (1)s into traditional recipes and local cuisine. “Maybe the time has come to add a new item to our own menu: jellyfish^{*2},” says Piraino.

Jellyfish is already eaten across Asia, but it is still rare to find it in a Western restaurant. In China, jellyfish have been eaten for more than 1,000 years, with jellyfish salad a popular dish. Not only are they high in protein, but the microalgae^{*3} inside the cells of some jellyfish are rich in fatty acids. The practice has not quite caught on in the Western world, but some restaurants are pushing their diners to embrace the unknown.

The mood in the kitchen at Benu, San Francisco, is like that in most other restaurants in the city. But unlike most other fine dining establishments, there’s something special on the menu—and that’s jellyfish. On one astonishing dish, the jellyfish is ⁽⁷⁾ delicately wrapped around a single shrimp, wearing a caviar and horseradish coat. It’s a “very approachable way” to enjoy jellyfish, says Corey Lee, the founder of Benu. Lee, who originates from South Korea, grew up eating jellyfish. He says it was something that he wanted to share with his diners because it was “delicious and underappreciated.” It’s been served in various forms since Lee opened the three-Michelin-star restaurant in 2010.

However, despite their appeal to adventurous Western diners, jellyfish are not an appropriate straight substitution for fish, or other (2)s of protein, when considering what is best for the environment. It’s true that expanding our palates to include (3) (2)s of protein is vital in helping reduce (4) change, but jellyfish may not be the answer.

For one thing, jellyfish are 95% water, with the remaining 5% containing the nutritious essentials. Their nutrition to mass proportions means they’re a fairly inefficient (2) of protein. “They’re very high effort to eat,” says Monty Graham, the director of the Florida Institute of Oceanography in St. Petersburg. “There’s a lot

of energy used in the process just because they're so watery. They're also not all great to eat.”

“There is probably more ⁽⁸⁾ utility in them as a type of collagen rather than protein,” says Jonathan Houghton, a senior lecturer in marine biology at Queen's University Belfast in Northern Ireland. “But certainly not as a replacement for fish, as that is much greater as a potential (1) (2).”

There are a number of companies already using jellyfish as a substitute for cow and pig collagen, which is often used in medical treatments for humans. Jellagen, a company based in Cardiff, Wales, says collagen from jellyfish offers a better (3), because their collagen is compatible with a wide variety of human cell types.

The fact remains that, despite the vast consumption of jellyfish across Asia, blooms (large increases in jellyfish population) remain an issue. Graham points out that eating jellyfish may lift some of the pressure off fish populations, but it won't solve the underlying causes of jellyfish blooms, which are (5) of what is going on in our oceans. “If you remove fish from an ecosystem, jellyfish tend to do really well,” he says.

Jellyfish do well in the conditions that humans create. In particular, overfishing, warmer water, pollution, and coastal developments all provide ideal conditions for jellyfish to thrive. The fact that there are more jellyfish arguably just shows that our oceans are in deep trouble.

Jellyfish populations—in the long term—have always naturally changed, because they are driven by natural (4) cycles. “The question is,” Graham adds, “what man-made changes are going to force the ecosystems to change forever?” What also needs to change is our attitude towards (1). Lee says, “I'm not a marine biologist, but if people start consuming jellyfish with the same ⁽⁹⁾ vigor as we consume other seafoods, I assume there will be negative consequences too.”

This point is highlighted in a 2021 study of Mexico's cannonball jellyfish fishery. Over the past 20 years, interest in the species has ⁽¹⁰⁾ exploded after investors identified the area as a hotspot for the species. At its height in 2011, the fishery caught almost 40,000 tonnes of jellyfish, the majority of which was exported to China. But since then, populations have dramatically declined due to overfishing.

The title of a paper written back in 2015 may say it all: “We should not assume that fishing jellyfish will solve our jellyfish problem.” What may help solve it, however, is managing fish stocks more responsibly.

注：*1 palate 「味覚」 *2 jellyfish 「クラゲ」 *3 microalgae 「微細藻類」

問1 本文中の(1)～(5)の空欄に入る最も適切なものを、それぞれ①～⑤の中から一つずつ選びなさい。ただし、大文字で始まる語の書き出しも小文字となっています。

- (1) ① water ② time ③ money ④ food ⑤ blood
- (2) ① use ② proposal ③ source ④ goal ⑤ engagement
- (3) ① actor ② activist ③ actually ④ alternative ⑤ alternator
- (4) ① climate ② earthquake ③ personal ④ business ⑤ fashion
- (5) ① imitators ② improvers ③ indicators ④ indexers ⑤ investigators

問2 本文中の下線部(6)～(10)の語に意味が最も近いものを、それぞれ①～⑤の中から一つずつ選びなさい。

- (6) proportion
① history ② percentage ③ interest ④ cost ⑤ method
- (7) delicately
① privately ② shamefully ③ carefully ④ painfully ⑤ thickly
- (8) utility
① usefulness ② unitedness ③ creativeness
④ cooperativeness ⑤ uniqueness
- (9) vigor
① method ② energy ③ pattern ④ fear ⑤ guilt
- (10) exploded
① slightly increased ② rapidly increased ③ stayed unchanged
④ slightly decreased ⑤ rapidly decreased

問3 次の(11)～(15)の各問いの答えとして最も適切なものを、それぞれ①～④の中から一つずつ選びなさい。

- (11) What does the article say about people's attitudes towards eating jellyfish?
- ① People in East Asia are becoming less interested in eating jellyfish.
 - ② Jellyfish are not eaten in many countries for religious reasons.
 - ③ Many people are scared of eating jellyfish because they are worried about poison.
 - ④ Some people in Western countries have become interested in eating jellyfish.
- (12) In addition to eating them, what else does the article mention people can do with jellyfish?
- ① Make clothing
 - ② Make fuel
 - ③ Make medical goods
 - ④ Make agricultural fertilizers
- (13) What does the article say about jellyfish blooms?
- ① They often occur in areas where the seawater is cold.
 - ② They can be caused by human activity.
 - ③ They are caused by an increase in fish numbers.
 - ④ They never happened before humans started fishing.
- (14) What does the 2021 study of Mexico's cannonball jellyfish fishery show?
- ① Jellyfish fishing does not affect shrimp populations.
 - ② Jellyfish fishing can reduce shrimp populations.
 - ③ Jellyfish fishing can reduce jellyfish populations.
 - ④ Jellyfish fishing can increase jellyfish populations.
- (15) What is the author's conclusion?
- ① People should eat jellyfish regularly to maintain the populations of other sea creatures.
 - ② People should invest in companies that research jellyfish collagen.
 - ③ People should stop eating large sea creatures.
 - ④ People should stop overfishing and take better care of the marine environment.

[II] 次の(16)～(23)の英文の空欄に入る最も適切なものを、それぞれ①～⑤の中から一つずつ選びなさい。

(16) 25 () the 57 participants reported mild discomfort.

- ① at ② under ③ on ④ to ⑤ of

(17) The participants were asked about pain levels () the second day of the study.

- ① at ② under ③ on ④ to ⑤ of

(18) If the participant reported pain, they () not have to continue.

- ① were ② did ③ could ④ had ⑤ being

(19) Interviews with the participants () conducted online.

- ① were ② did ③ could ④ had ⑤ being

(20) 12 participants () high blood pressure.

- ① were ② did ③ could ④ had ⑤ being

(21) 15 participants had difficulties () hard foods.

- ① chewed ② chew ③ chewing ④ to chew ⑤ being chewed

(22) 32 participants told the researchers they hoped () more frequently after the study.

- ① exercised ② exercise ③ exercising ④ to exercise ⑤ being exercised

(23) Before the participants chose () consent forms, the researchers explained the study's goals and methodology.

- ① signed ② sign ③ signing ④ to sign ⑤ being signed

[Ⅲ] 次の会話文を読み，(24)～(28)の各問いの答えとして最も適切なものを，それぞれ①～④の中から一つずつ選びなさい。

著作権の都合により，省略。

著作権の都合により、省略。

(24) Who are Peter and Sarah?

- ① Peter and Sarah are both teachers.
- ② Peter and Sarah are both parents of schoolchildren.
- ③ Peter is a teacher and Sarah is a parent of schoolchildren.
- ④ Sarah is a teacher and Peter is a parent of schoolchildren.

(25) What advantage of computers in classrooms does Peter mention?

- ① Students find computers interesting.
- ② Students can teach each other how to use computers.
- ③ Students can use computers to make documents that are easy to read.
- ④ Students can use computers to research.

- (26) What disadvantage of computers in classrooms does Peter mention?
- ① Computers make it hard for teachers to communicate with students.
 - ② Computers make it hard for students to communicate with each other.
 - ③ Computers make it hard for teachers to make space in classrooms.
 - ④ Computers make it hard for students to listen to recordings.
- (27) What does Peter say about the way the students he has known used their smartphones in the classroom?
- ① The students never used their smartphones.
 - ② The students mostly used their smartphones appropriately.
 - ③ The students mostly used their smartphones inappropriately.
 - ④ The students only had electronic dictionaries. They did not have smartphones.
- (28) What do Sarah and Peter think about the policy of keeping students' smartphones away from them during classes?
- ① Sarah thinks it is a good idea. Peter thinks it is a bad idea.
 - ② Sarah thinks it is a bad idea. Peter thinks it is a good idea.
 - ③ Sarah and Peter both think that it is a good idea.
 - ④ Sarah and Peter both think that it is a bad idea.

[IV] 下記の設問に答えなさい。

問1 次の A~D の枠内の質問と答えが論理的に対応するように、それぞれ①~⑥の語(句)を1つずつ入れて、英文を完成させ、(29)~(36)に入るものを答えなさい。ただし、文頭の語も小文字の書き出しとなっています。

A

Question :

() (29) () (30) () () bugs?

- | | | |
|---------------------|----------|-----------|
| ① get | ② what | ③ apps or |
| ④ computer programs | ⑤ causes | ⑥ to |

Answer :

We say that software has a bug or it's 'buggy' because it is malfunctioning. It's not working the way it is designed to work. This is usually the fault of a programmer somewhere, who either made a mistake or was not able to anticipate all the possible ways the software might operate.

B

Question :

() (31) () (32) () () ones?

- | | | |
|--------------|-----------------|--------------------|
| ① with | ② with smaller | ③ more intelligent |
| ④ are people | ⑤ larger brains | ⑥ than people |

Answer :

Most experts agree that for intelligence, what's more important than overall brain volume is neuronal efficiency (how quickly and reliably nerve cells communicate with each other) and the nature and extent of the connectivity between key brain regions.

C

Question :

() (33) () (34) () () it?

- | | | |
|-----------|------------|----------|
| ① thicken | ② how | ③ adding |
| ④ a sauce | ⑤ flour to | ⑥ does |

Answer :

Wheat flour is commonly used to thicken sauces using a process called starch gelatinization. The flour grains contain starch, which is made of chains of sugar molecules strung together. The secret to starch's thickening success is its ability to absorb water and form a gel. Heating breaks the bonds between the starch molecules, freeing them up to bond and trap water.

D

Question :

() (35) () (36) () () once sent?

- | | | |
|---------|------------|---------|
| ① to | ② unsend | ③ is it |
| ④ email | ⑤ possible | ⑥ an |

Answer :

Sadly not. Once sent, the message is out of your control. Although some email software may have a recall or undo, these functions are not doing what you think. Recall will only work if the receiver uses the same email software as you—otherwise the receiver just receives the email followed by a second email saying, 'The sender wishes to recall the previous message.' Undo usually works by delaying the sending of your email for a few seconds, giving you a chance to change your mind before it is sent.

問2 次の(ア)～(ウ)は問1の回答者のプロフィールです。各プロフィールを読み、(37)～(40)の問いの答えとして最も適切なものを、それぞれ①～③の中から一つずつ選びなさい。

(ア) Emma Davies

Dr. Emma Davies is a science writer and editor with a PhD in food chemistry from the University of Leeds. She writes about all aspects of chemistry, from food and the environment to toxicology and regulatory science.

(イ) Christian Jarrett

Dr. Christian Jarrett is a cognitive neuroscientist, science writer and author. He is the author of *Great Myths of the Brain* and *Be Who You Want: Unlocking the Science of Personality Change*.

(ウ) Peter Bentley

Dr. Peter Bentley is a computer scientist and author who is based at University College London. He is the author of books including *10 Short Lessons in Artificial Intelligence and Robotics* and *Digital Biology: How Nature Is Transforming Our Technology and Our Lives*.

(37) Who is most likely to be the author of A's answer?

- ① Dr. Emma Davies ② Dr. Christian Jarrett ③ Dr. Peter Bentley

(38) Who is most likely to be the author of B's answer?

- ① Dr. Emma Davies ② Dr. Christian Jarrett ③ Dr. Peter Bentley

(39) Who is most likely to be the author of C's answer?

- ① Dr. Emma Davies ② Dr. Christian Jarrett ③ Dr. Peter Bentley

(40) Who is most likely to be the author of D's answer?

- ① Dr. Emma Davies ② Dr. Christian Jarrett ③ Dr. Peter Bentley

余 白

余 白

