2022年度

一般前期入学試験

英　語

注意：第１問から第４問まではマークシートに解答しなさい。
第５問と第６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
⓪	●	●	⓪
●	①	①	●
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤

注：選択する数字は『0』から順番に並んでいます。

藤田医科大学医学部

第 1 問から第 4 問では、問題文の中の [　　] 内の数字はマークシートの問番号を示している。該当する問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.　[　1　] the police don't suspect him doesn't mean that he isn't a criminal.

(1) Immediately after　　(2) Just because
(3) Not until　　(4) Only if

問 2.　Her parents objected [　2　] by herself in such a rough neighborhood.

(1) her live　　(2) her living　　(3) to her living　　(4) to her to live

問 3.　I don't know what became [　3　] him after graduation.

(1) in　　(2) of　　(3) to　　(4) with

問 4.　We were lost, and [　4　] was worse still, it was getting dark.

(1) as　　(2) it　　(3) that　　(4) what

問 5.　My brother is going to go bankrupt unless he starts saving money and lives within his [　5　].

(1) debts　　(2) deficits　　(3) means　　(4) measures

問 6.　What would you do if you had a lot of money at your [　6　]?

(1) deterioration　　(2) digestion　　(3) disposal　　(4) dynamics

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. 彼女はその結果にがっかりして泣きながら帰った。

She _____ [7] _____ _____ [8] _____ _____ result.

(1) at (2) cried (3) disappointed (4) her
(5) home (6) the (7) way

問 2. そこに辿り着くのに 30 度にも及ぶ急坂を登らねばならなかった。

I had to climb slopes _____ _____ [9] _____ _____ [10] _____.

(1) 30 degrees (2) as (3) as steep (4) it
(5) make (6) there (7) to

問 3. そうしてもらえると本当にありがたいです。

_____ _____ [11] _____ _____ [12] _____.

(1) be (2) nice (3) of (4) that
(5) very (6) would (7) you

問 4. そのニュースを伝えたにも関わらず、彼は旅行を延期しなかった。

Despite _____ [13] _____ _____ [14] _____ _____, he did not put off his trip.

(1) him (2) I (3) informed (4) of
(5) that (6) the fact (7) the news

第 3 問 Read the interview transcript and answer the questions that follow.

Narrator: Snaking through the waters of the Amazon are river giants. These creatures are three meters in size weighing up to 200 kilograms. The arapaima is one of the world's largest freshwater fish and for generations it has been a major source of food in these parts. However, as populations have grown and modernized, the species has fallen victim to overfishing becoming nearly extinct in certain areas. Arapaima fishing is now illegal in Brazil unless it's done sustainably as part of community-based conservation programs.

A: *Thank you for joining us today, Joao. Along with NGOs and partner organizations, you have helped put community-based conservation programs in place. As a biologist who has been working for more than a decade to help protect the arapaima, could you tell us a little about these conservation efforts?*

B: It boils down to empowering the local communities and leaders to take action. For example, guarding protected areas from illegal fishermen, closing river-connected lakes to fishing, and introducing the careful management of fishing. This is very interesting because actually the model is quite simple. It's very simple actually. For a long time people were (あ) from the conservation perspective, but actually they play a very important role in sustaining and maintaining the forest. We're talking about a paradigm shift. Conservationship should mean a better life for locals.

A: *You said that it's all helped the numbers of arapaima rise four-fold in the last ten years while protecting other wildlife in the Amazon. How do you feel about this success?*

B: In this case, conservation started to make sense. Now local people say they need to protect the environment — they need to protect species because more biodiversity means a better life.

A: *Are there any ways that the benefits go beyond just conservation?*

B: (い) Increased income from sustainable fishing is invested into infrastructure and health care. Women are also able to earn incomes through bigger roles in arapaima management. This is a truly incredible change that has been promoting a huge social transformation in the Amazon Basin.

https://transcripts.cnn.com/show/qmb/date/2020-11-18/segment/01 (改変あり)

注 overfishing: 乱獲　　boil down to: 結局～になる　　basin: 流域

問 1. Based on the transcript, how would you describe speaker B's occupation? Write the number of your answer in [15].

(1) a manager who earns income from fishing
(2) an arapaima fisherman living in the Amazon
(3) an NPO director who promotes arapaima fishing
(4) a researcher who studies fish and their habitats

問 2. Based on the context, which word best fits (あ)? Write the number of your answer in [16].

(1) conquered (2) excluded (3) involved (4) overworked

問 3. Based on the context, which of the following is most likely to be placed in (い)? Write the number of your answer in [17].

(1) I doubt it.
(2) Locals have some doubt.
(3) Unless there is doubt.
(4) Without a doubt.

問 4. Which of the following statements is closest to what is mentioned in the transcript? Write the number of your answer in [18].

(1) Due to overfishing of arapaima, all arapaima fishing has become illegal in Brazil.
(2) Explaining environmental effects to illegal fishermen has helped conservation efforts.
(3) Having locals rely less on fishing has helped to develop the Amazon Basin into an urban center.
(4) The role of locals in arapaima conservation has significantly aided conservation efforts.

第 4 問 Read the article and answer the questions that follow.

It's an attractive idea: By playing online problem-solving, matching and other games for a few minutes a day, people can improve such mental abilities as reasoning, verbal skills and memory. But whether these games deliver on those promises is up for debate.

"For every study that finds some evidence, there's an equal number of papers that find no evidence," says Bobby Stojanoski, a cognitive neuroscientist at Western University in Ontario.

Now, in perhaps the biggest real-world test of these programs, more than 1,000 people who regularly use brain training programs were (あ) around 7,500 people who don't do the mini brain workouts. There was little difference between how both groups performed on a series of tests of their thinking abilities, suggesting that brain training doesn't live up to its name, the scientists report in the *Journal of Experimental Psychology: General*.

"They put brain training to the test," says Elizabeth Stine-Morrow, a cognitive aging scientist at the University of Illinois at Urbana-Champaign. While the study doesn't show why brain trainers aren't seeing benefits, it does show there is no link "between the amount of time spent with the brain training programs and cognition," Stine-Morrow says. "That was pretty cool."

The researchers recruited 8,563 volunteers globally through Cambridge Brain Sciences, a Toronto-based company that provides assessments to measure healthy brain function. Participants filled out an online questionnaire about their training habits, opinions about training benefits and which, if any, program they used. Some 1,009 participants reported using brain training programs for about eight months, on average, though durations ranged from two weeks to more than five years.

Next, the volunteers completed 12 cognitive tests assessing memory, reasoning and verbal skills. They faced memory exercises, such spatial reasoning tasks as mentally rotating objects, pattern-finding puzzles and strategy challenges.

When researchers looked at the results, they saw that brain trainers on average had no mental (い) over the other group in memory, verbal skills and reasoning. Even among the most dedicated, who had used training programs for at least 18 months, brain training didn't boost thinking abilities above the level of people who didn't use the programs.

That's not because brain trainers have poorer function to start with and then improved. Participants who had trained for less than a month, and presumably wouldn't have reaped significant benefits from the programs yet, performed on par with people who didn't train at all.

"No matter how we sliced the data, we were unable to find any evidence that brain training was associated with cognitive abilities," says Stojanoski. That held true whether the team analyzed participants by age, program used, education or socioeconomic status – all were cognitively similar to the group who didn't use the programs.

Brain training may be beneficial in specific scenarios, Stojanoski says. But "part of our goal was to look at brain training in the real world."

The real world may provide the best brain training, Stine-Morrow says. While it's possible to

improve mental abilities, Stine-Morrow advocates practicing those skills in different real-life situations. "That's a much better use of one's time than sitting at a computer and doing little tasks."

https://www.sciencenews.org/article/brain-training-games-brainpower-cognition (改変あり)

注　workout: トレーニング　　duration: 継続期間　　on par with: ～と同等に

問 1. Fill in (　あ　) with the phrase that best fits the context within the article. Write the number of your answer in [　19　].

(1) asked about　　(2) compared to
(3) excluded from　　(4) rejected by

問 2. Fill in (　い　) with the word that best fits the context within the article. Write the number of your answer in [　20　].

(1) advantage　　(2) control　　(3) disorder　　(4) stress

問 3. Which of the following is closest to what is stated in the article? Write the number of your answer in [　21　].

(1) Among the tests taken by the subjects was one that checked their athletic abilities.
(2) More than 85% of the participants in the study were not using brain training programs.
(3) Participants' age was not included in the list of items that have been investigated.
(4) The researchers checked the correlation between three cognitive abilities.

問 4. Which of the following is correct about the study in the article? Write the number of your answer in [　22　].

(1) Brain training was not effective, but the reason has not been clearly identified.
(2) Participants could not stay focused because the tests were too numerous.
(3) The researchers recruited volunteers with the same age, educational level and socioeconomic status.
(4) The time spent using the brain training programs was very long and caused stress.

この後の第5問と第6問は記述用解答用紙に解答しなさい。

第5問 次の英文を読み、後の問いに答えなさい。

Artificial intelligence (AI) is at an inflection point in health care. A 50-year span of algorithm and software development has produced some powerful approaches to extracting patterns from big data. For example, deep-learning neural networks have been shown to be effective for image analysis, resulting in the first FDA-approved AI-aided diagnosis of an eye disease called diabetic retinopathy, using only photos of a patient's eye.

【 あ 】

However, the application of AI in the health care domain has also revealed many of its weaknesses, outlined in a recent guidance document from the World Health Organization (WHO). The document covers a lengthy list of topics, each of which are just as important as the last: 《A》inclusive, equitable, ethical, unbiased, 《B》transparent, trustworthy and 《C》explainable AI. These are all vital to the delivery of health care and consistent with how we approach medicine when the best interest of the patient is paramount.

It is not hard to understand how an algorithm might be biased, exclusive, inequitable or unethical. That could be explained by the possibility of its developers not giving it the ability to discern good data from bad, or that they hadn't been aware of data problems because these often arise from discriminatory human behavior. One example is unconsciously triaging emergency room patients differently based on the color of their skin. Algorithms are good at exploiting these kinds of biases, and making them aware of them can be challenging. As the WHO guidance document suggests, we must weigh the risks of AI carefully with the potential benefits.

【 い 】

But what is more difficult to understand is why AI algorithms may not be transparent, trustworthy and explainable. Transparency means that it is easy to understand the AI algorithm, how it works and the computer code doing the work behind the scenes. This kind of transparency, in addition to rigorous validation, builds trust in the software, which is vital for patient care. Unfortunately, most AI software used in the health care industry comes from commercial entities who need to protect intellectual property and thus are not willing to divulge their algorithms and code. This likely results in a lack of trust of the AI and its work.

Trust and transparency are, of course, worthy goals. But what about explanation? One of the best ways to understand AI, or what AI aspires to be, is to think about how humans solve health care challenges and make decisions. When faced with challenging patients, it is common to consult other clinicians. This taps into their knowledge and experience base. One of the advantages of consulting a human is that we can follow up on an answer with the question of why.

【 う 】

"*Why* do you think this treatment is the best course of action?"

"*Why* do you recommend this procedure?"

【 え 】

A good clinician consultant should be able to explain *why* they arrived at a particular recommendation. Unfortunately, modern AI algorithms are rarely able to provide an answer to the question of why they think an answer is a good one.

How do we get to explainable AI? Interestingly, one of the earliest successful AI algorithms in health care was the MYCIN program developed by physician and computer scientist Edward Shortliffe in the early 1970s for prescribing antibiotics to patients in the intensive care unit. MYCIN was a type of AI called an expert system, which could answer the "Why?" question by backtracking through its probability calculations to tell the user how it arrived at an answer.

This was an important advance in AI, which we seemed to have lost in the search for better-performing algorithms. Explainable AI should be possible if the developer of the algorithm truly understands how it works. It's simply a matter of putting the time and effort into keeping track of the algorithm as it iterates and presenting the path it took to an answer for the user in a human understandable form.

【 お 】

We have made tremendous strides in the AI domain. We are all genuinely excited about how AI can help patients. We are also humbled by the failures of AI such as the recent study showing that AI results for diagnosing COVID-19 are unreliable as a result of biases in the data. We must keep the clinician in mind as we develop and evaluate AI algorithms for use in the clinic. We must constantly be thinking about what is good for the patient and how to garner the trust of the clinician using the software. The ability of AI to explain itself will be key.

https://www.scientificamerican.com/article/the-question-medical-ai-can-rsquo-t-answer/ (改変あり)

注 FDA: 米国食品医薬品局 (Food and Drug Administration)
equitable: 公平な
divulge: ～を漏らす
iterate: 反復適用される
paramount: 至上の
clinician: 臨床医
stride: 進歩
diabetic retinopathy: 糖尿病網膜症
triage: ～の優先順位を決定する
antibiotics: 抗生物質
garner: ～を得る

問 1．本文の内容に即し、AI が下線部《A》の性質を備えるために開発者がする必要があることを日本語で述べなさい。

問 2. 本文の内容に即し、AI が下線部《B》の性質を備えることが困難な理由を日本語で述べなさい。

問 3. 本文の内容に即し、下線部《C》の性質を備えていた最初期の AI についての次の問いに日本語で答えなさい。

(i) どのような機能を持つ AI だったか。

(ii) 下線部《C》の性質をどのようにして実現していたか。

問 4. 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。

In other words, this should just be a matter of priority for the developer. Any AI algorithm that is so complex the developer cannot understand how it works is likely not a good candidate for health care.

第 6 問　次の英文を読み、下線部 (1) ～ (3) の日本語の内容を英語にしなさい。

A team led by a Kyoto University researcher observing a group of western lowland gorillas in the wild found that about 70% of the mammals were right-handed.

The findings were published on January 11 in the online edition of the *American Journal of Physical Anthropology*.

Although there have been numerous reports on the dominant hand of tamed primates in zoos and other places on an individual basis, there have been few instances where analysis was conducted on a whole group living in the wild. According to the research team, (1)近年の調査結果は特定の集団を観察することから得られたものであり、ゴリラが一般的に右利きであると結論付けるのに用いることはできない. However, the discovery could contribute to existing theories on the human acquisition of a dominant hand.

The research was conducted over a total of 331 days between August 2017 and December 2019. The team observed 21 western lowland gorillas inhabiting a national park in Gabon in central Africa, and recorded 4,293 instances of the apes feeding on African ginger. (2)ゴリラが片手で地面から生姜を引き抜く際にどちらの手を使うかに有意な差はなかった。 Meanwhile, for the detailed work of taking out the pith at the center of ginger stems with one hand while holding the stem with the other, 15 gorillas, or around 70%, extracted the pith with their right hand — markedly greater in number than the six apes that used their left.

The use of language was previously thought to be a factor in people acquiring a dominant hand. (3)しかし、人間以外の霊長類が特定の手をまるで利き手であるかのように頻繁に使う事例の報告が増えてきている。 This has given rise to the hypothesis that the dominant hand may be attained before language.

The research team will continue investigations into the mechanism of the gorillas' dominant hand, while also comparing the data to that of humans.

Masaya Tamura, a doctoral student studying primatology at Kyoto University's Graduate School of Science, commented, "There is a lot that is unknown about the dominant hand. I hope that this will contribute to understanding and research of its evolution."

https://mainichi.jp/english/articles/20210130/p2a/00m/0sc/013000c (改変あり)

注　primate: 霊長類　　pith: 髄(茎の柔らかい中心部分)