

2024年度 北陸大学一般選抜(本学独自方式)A日程問題

(2月1日実施)

英 語

(注 意)

1. 問題冊子は本文10ページ、問題Ⅰ～Ⅵ、解答数47。
2. 解答用紙はマークシート1枚、解答はマークシートのそれぞれの解答欄の当てはまる選択肢の枠内をぬりつぶすこと(複数解答は無効)。
3. 解答用マークシートは、持ち帰ってはならない。
4. 試験終了後、問題冊子は持ち帰ること。
5. コピー及び二次利用は行わないこと。

問題 I Aに対するBの応答として、もっとも適切なものを選びなさい。

1. A: Which of these is your suitcase?

B: ()

- ① It's not mine.
- ② Place it on the scale.
- ③ The red one.
- ④ They were really heavy.

2. A: Do you still live in the same house that you did five years ago?

B: ()

- ① I moved there for the first time.
- ② Please send it to the same address.
- ③ That's right, I still do.
- ④ Yes, I lived in the house before.

3. A: My smartphone isn't working well. I guess it's because it's too old.

B: ()

- ① It's nice that you've bought a new one.
- ② May I call you tonight?
- ③ When did you buy it?
- ④ You're not too old to use a smartphone.

4. A: You'll have the chance to visit many parts of Singapore, won't you?

B: ()

- ① So, I guess I can stay in my hotel if I need to.
- ② Thanks to you, I enjoyed every spot I visited.
- ③ Unfortunately, my time is quite limited.
- ④ Yes, I want to visit Thailand and the Philippines.

5. A: How would you like to send the package?

B: ()

- ① How about tomorrow?
- ② I packed it by myself.
- ③ My mother sent it.
- ④ What's the fastest way?

問題Ⅱ 次の対話が成立するように、()内に入れるのもっとも適切なものを選びなさい。

Mathew: I've heard that Japan and the UK have similar traffic laws.

Ken: (6) We both drive on the left side of the road.

Mathew: I see. What about traffic lights? (7) We have to stop when the light turns yellow.

Ken: We do the same though (8)

Mathew: Really? That's interesting. Why is that?

Ken: I think the naming of colors in Japan is unique.

Mathew: (9)

Ken: Light blue is called "mizu-iro" in Japanese, which means "the color of water."

Mathew: Really? (10)

6. ① It's dangerous, so be careful.
② That's right.
③ Where did you hear that?
④ You should learn more about Japan.
7. ① It's easy to see the road thanks to the streetlights.
② There are few traffic lights in the UK.
③ Traffic lights have only two colors in the UK.
④ We have green, yellow, and red in the UK.
8. ① how about the yellow?
② Japanese people don't have to stop.
③ the red means "Stop" in Japan.
④ we usually call the green light "blue."
9. ① Can you give me an example?
② How about you?
③ Who names the colors?
④ Why not?
10. ① That's new to me.
② The UK and Japan have many similarities.
③ Traffic lights in Japan are unique.
④ Water is very important to the environment.

問題Ⅲ ()内に入れるのに、もっとも適切な語句を選びなさい。

11. Mary still keeps her () watch because it was a gift from her grandmother.
① break
② breaking
③ breaks
④ broken
12. The baby kept () while a stranger visited her house.
① cried
② cry
③ crying
④ to cry
13. I heard a bird () when I entered the forest.
① singing
② sings
③ sung
④ to sing
14. I don't know the reason () Pete knows so much about insects.
① because
② how
③ so
④ why
15. The international peace conference () in Berlin in 2022.
① has held
② held
③ hold
④ was held
16. Judging from the darkening sky, I think it ().
① has rained
② is going to rain
③ rained
④ rains
17. If you () more than three items on the menu, you can get 10% off the price of your bill.
① bought
② buy
③ buys
④ will buy

18. Naomi has been working at the company for 10 years and () the Dedicated Employee Award recently.
- ① win
 - ② winner
 - ③ winning
 - ④ won
19. I believe the hypothesis that an earthquake will strike soon, () it is questionable or not.
- ① if
 - ② that
 - ③ whenever
 - ④ whether
20. Unhappy with his career opportunities, Stephen felt that he () have worked harder when he was young.
- ① can
 - ② must
 - ③ should
 - ④ will
21. Students found () difficult to finish reading their textbooks by the end of the semester.
- ① it
 - ② it's
 - ③ them
 - ④ you
22. When the new employees gathered at the party for the first time, their boss asked them to introduce () to each other.
- ① him
 - ② them
 - ③ themselves
 - ④ us
23. The () issue of this journal will be available in April 2024.
- ① biggest
 - ② latest
 - ③ oldest
 - ④ smallest
24. We () inspect the seatbelts in this vehicle to maintain their safety.
- ① regular
 - ② regularly
 - ③ regulate
 - ④ regulated

25. I will do everything possible so as () my daughter to live her life happily.

- ① enable
- ② enables
- ③ enabling
- ④ to enable

問題IV 次の各文で、①～⑤の語句を並べ替えて日本語に対応する英文にしたときに、空欄の26～35に入る語句を答えなさい。

トムは自転車を盗まれたみたいだ。

It () that Tom () (26) () (27).

- ① his bicycle ② stolen ③ seems ④ has ⑤ had

多くの観光客がこの町を訪れている。

A () (28) of () (29) () visiting this town.

- ① tourists ② large ③ have ④ number ⑤ been

夏休みは忙しすぎて休めないよね。

(30) () (31) busy to () during ().

- ① summer vacation ② are ③ take a break ④ we ⑤ too

夜ご飯が勝手に出てきたらいいのにな。

() () (32) (33) () automatically.

- ① I ② my dinner ③ served ④ were ⑤ wish

今年の文化祭、誰が来ると思う？

() (34) () () (35) come to the school festival this year?

- ① will ② think ③ do ④ who ⑤ you

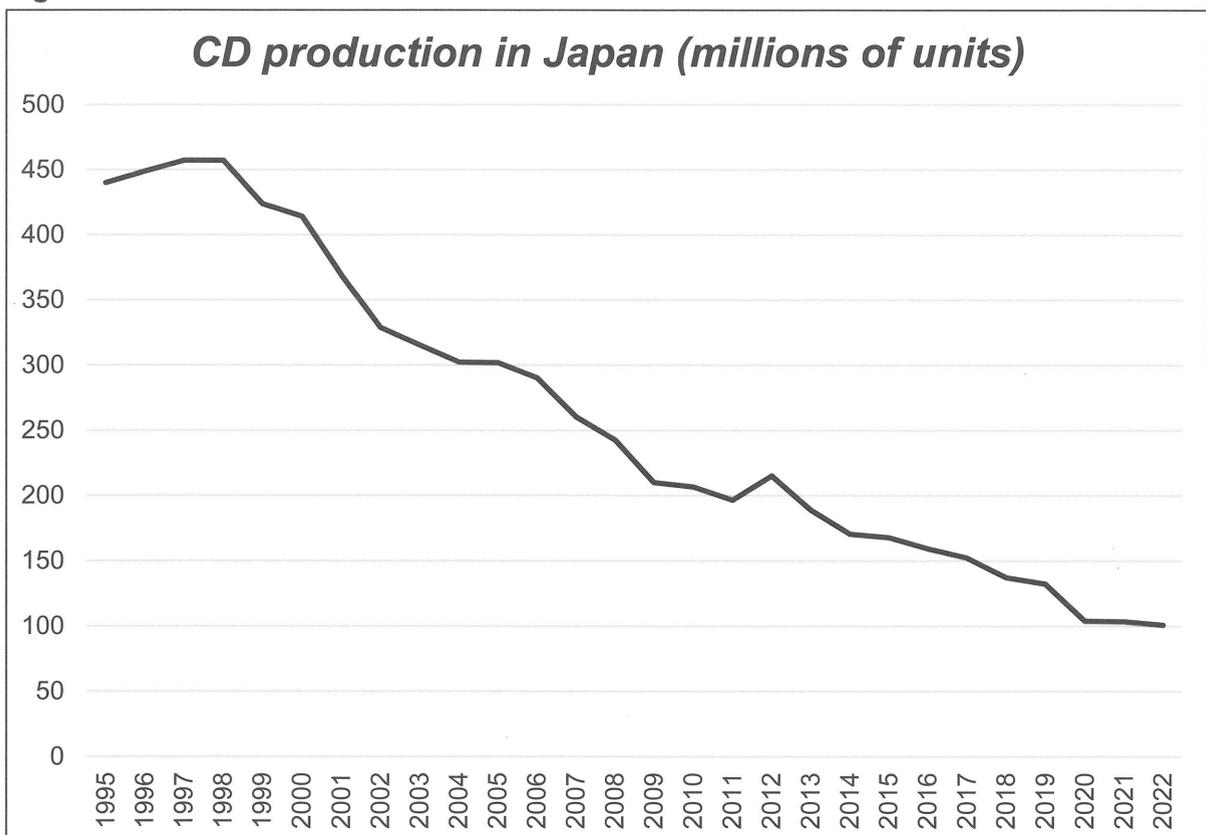
問題V 以下の英文と図表を読んで、各設問に対して、もっとも適切なものを選びなさい。

What device do you use when you listen to music? Of course, answers vary, but it is likely that most people would say “a smartphone” and/or “a PC,” but not “a CD player.” However, if people were asked the same question 30 years ago, most [A] responded with “a CD player.” Over just a few decades, the media people use to listen to music and its marketing have changed drastically.

The first music CD was produced in 1982 in Germany. In the 1990s, music device technology advanced rapidly, with portable CD players becoming relatively cheap and widely available. This enabled people to listen to music wherever they went, just like we do with smartphones today. In Japan, the 1990s also *ushered in* the “Golden Age of CDs.” At that time, a CD single and a full CD cost around 1,000 yen and 3,000 yen, respectively. In 1997, annual “CD single” sales reached 167 million copies, and in 1998, annual CD sales peaked at 329 million copies. At this time, the value of music CD production in Japan reached 58 billion yen and the number of CDs produced reached 457 million, the highest sales ever in Japan.

However, the “Golden Age of CDs” did not last long; after 1999, sales of CDs started to decline. There was a significant change in music media behind this. With the development of information technology, the CD had ended its role in the spotlight, and MP3 downloads and online streaming applications began to emerge. As a result, people could get individual songs for a few hundred yen or for free, which had a drastic impact on music marketing. And for musicians, it was tough to survive.

Figure 1



Source: <https://www.riaj.or.jp/f/data/annual/index.html>

36. Which of the following is most suitable for [A]?
- ① had
 - ② have
 - ③ will have
 - ④ would have
37. What does the phrase “*ushered in*” in the passage mean?
- ① closed at
 - ② led to
 - ③ returned to
 - ④ shared with
38. According to the passage, which of the following statements is NOT true?
- ① CD players were common over a few decades ago.
 - ② It is likely that many people use smartphones when listening to music.
 - ③ PCs are now one of the most common tools for playing music.
 - ④ The market of music and devices has been changing gradually.
39. According to the passage, which of the following statements is true?
- ① Before the 1990s, it was not common for people to listen to music while walking.
 - ② Before the 1990s, people did not have CD players.
 - ③ In the 1990s, the cost of a CD single and a full album varied greatly.
 - ④ In the 1990s, the cost of portable CD players was too high.
40. What do the passage and Figure 1 imply?
- ① After 1999, people stopped using CD players and started to use smartphones.
 - ② CD sales around 2010 were less than half of their peak.
 - ③ CD sales have been drastically declining every year since 1998.
 - ④ The MP3 will become the most popular format.

問題VI 以下の英文を読んで、各設問に対して、もっとも適切なものを選びなさい。

Quantum Mechanics and Biological Wonders

- 1 Humans, animals, plants, and all other lifeforms are made up of matter. All matter is affected by physical laws, and there are two types of laws in physics: the classical laws – the law of gravity is one typical example – and the laws of quantum mechanics* – namely atomic physics, which deals with subatomic particles* (pieces of matter smaller than an atom, such as electrons and protons) and their interactions. The field of study that aims to describe some biological phenomena by quantum mechanics (atomic physics) is called “quantum biology.”
- 2 According to quantum theory, in the world of atoms and subatomic particles, strange things happen: one particle can exist in several places at once (quantum superposition); particles can pass through barriers that should be impossible to cross in terms of classical physics (quantum tunneling); two particles, when separated by great distances, even billions of light-years away, can remain connected and affect each other (quantum entanglement). In this condition, we can say “quantum coherence” exists. Quantum theory states that in a condition where more than a handful of atoms are involved, these rules no longer apply, and particles will appear to behave as “normal” substances (quantum coherence is lost). In a “normal” world, you cannot be attending school and playing games at home at the same time; your cat cannot go through a closed door; without some means of communication, like a phone or a texting app, you cannot exchange information with someone in a distant place. This means what we normally observe and experience in our life is ruled by the classical laws of physics.
- 3 Austrian theoretical physicist Erwin Schrödinger became the pioneer of quantum biology in the 1940s. He wondered how living cells could duplicate their genetic information with incredibly few errors (less than 0.000001%). Based on classical laws of physics such as thermodynamics*, genes* are too small to maintain such high precision in their motion and activity. In other words, genes do not seem to behave in a “normal” way when copying themselves. Schrödinger suggested that the almost perfect precision of genetic copying must come from the laws of quantum mechanics. His idea was confirmed by the discovery of the molecular structure of DNA by James Watson and Francis Crick in the 1950s.
- 4 Schrödinger’s idea came back to the forefront of biological study in 2006 when Graham Fleming and Greg Engel discovered that photosynthesis* involved a quantum mechanism. In the process of photosynthesis, chlorophyll* molecules capture the sunlight, transfer its energy to the “reaction center,” where the sunlight energy is attached to carbon dioxide and turned into chemical energy. [A], and this cannot be explained in classical physics. The experiment conducted by Fleming and Engel revealed that in photosynthetic processes, the energy does not move along a single route, but along multiple paths in a coherent quantum mechanical wave. This enables the transferred energy to find the quickest way to the reaction center, without the energy loss expected in classical processes.
- 5 It has been shown that quantum mechanics operates in other biological processes and functions as well. For instance, enzymes*, substances that speed up chemical reactions in living organisms, make use of the effect of quantum tunneling, enabling the chemical reactions that would take thousands of years to take place in seconds. Migrating birds find their way by sensing the Earth’s magnetic field, and they do this by making use of quantum entanglement. Behind some of life’s simple wonders seems to lie the amazing world of quantum mechanics.

*quantum mechanics 量子力学

*gene 遺伝子

*enzyme 酵素

*particle 粒子

*photosynthesis 光合成

*thermodynamics 熱力学

*chlorophyll 葉緑素

41. Which statement is true about classical laws and the laws of quantum mechanics?
- ① Everything on earth is ruled by both of them at the same time.
 - ② The classical laws are normal and true, and the quantum laws are strange and wrong.
 - ③ The law of gravity is an example of quantum mechanics.
 - ④ The laws of quantum mechanics can explain something that seems abnormal.
42. Which of the following is NOT mentioned as an example of what can happen in the world of atoms and subatomic particles?
- ① A single particle can occupy two or more locations simultaneously.
 - ② Particles can move through barriers without being blocked.
 - ③ When there are too many particles, they behave under the laws of quantum mechanics.
 - ④ Two separated particles are kept connected and can impact each other.
43. Which is the best description of Erwin Schrödinger?
- ① He discovered the molecular structure of DNA.
 - ② He made only a few errors in his research.
 - ③ He tried to attend school and play games at home at the same time.
 - ④ He was one of the first researchers of quantum biology.
44. Which of the following statements best fits in [A]?
- ① Chemical energy of plants makes flowers bloom
 - ② From sunlight and carbon dioxide, plants can generate oxygen
 - ③ Leaves turn from green to red or yellow when they get less sunlight
 - ④ The energy-transfer process takes place with nearly 100% efficiency
- 45-47. Choose the best summary of each paragraph.

Paragraph	Summary
1	Introduction: What is quantum biology?
2	(45)
3	(46)
4	(47)
5	Conclusion

- ① A recent discovery in quantum biology
- ② Some extraordinary phenomena in the quantum world
- ③ The beginning of quantum biology