

工 学 部

入 学 試 験 問 題

A日程 1月31日

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）。なお本文の内容は2023年3月時点のものである。

Using five locks of hair, scientists have sequenced the genome of one of history's greatest musical composers — Ludwig van Beethoven — nearly two centuries after his death, gaining insight into his fatal liver disease but not his hearing loss.

Researchers said on March 22 his genome showed the German composer was  genetically predisposed\* to liver disease and had the hepatitis B\* virus infection. An autopsy after his 1827 death at age 56 in Vienna determined he had cirrhosis of the liver\*, a disease often caused by chronic drinking. The new findings suggest there were multiple factors behind his liver disease including genetics, viral infection and alcohol consumption.

“Beethoven's liver disease risk, which arises predominately from mutations\* in two genes — PNPLA 3 and HFE — would have roughly tripled his risk for the full spectrum of progressive liver disease,” said University of Cambridge biological anthropologist Tristan Begg, lead author of the study published in the journal Current Biology. “On their own, these risk factors are not of great concern to most people who have them, but there would have been a harmful interaction effect with his alcohol consumption,” Begg added. “ to this study, alcohol was the only definitely known risk factor for Beethoven's liver disease.” The presence of the hepatitis B virus, incorporated into Beethoven's genome, indicated a liver infection at least a few months before his death and maybe earlier.

Beethoven experienced progressive hearing loss starting at age 29 and by 44 his hearing loss was complete, though he continued to compose masterpieces. “We were ultimately unable to find a genetic explanation for Beethoven's hearing loss, though this by no means precludes such an explanation, as several possible explanations could not be reliably or comprehensively evaluated,” Begg said. There was no evidence found for conditions hypothesized by some experts such as otosclerosis or Paget's disease\*, Begg said.

A towering figure in the history of Western civilization, Beethoven was a brilliant and innovative composer of symphonies, sonatas, concertos and other pieces,  with a single opera. Many of his works have become , including his Symphonies No. 5, No. 6 and No. 9, Moonlight Sonata and Fur Elise. In 1802, Beethoven asked in a document called the Heiligenstadt Testament\* that his doctor publicly describe his hearing loss and other health issues after his death so that “as far as possible at least the world will be reconciled to me.”

“Beethoven's music continues to inspire millions nearly 200 years after his death,” Begg said. “It was valuable to carry  this study first to attempt to satisfy Beethoven's own wishes regarding the understanding of his health, but also in the interests of more accurately conveying the facts of his biography, which was also of concern to him.”

The researchers analyzed eight locks of hair from public and private collections in the United States and Europe, determining that five of them matched and were almost certainly authentic as his. The best-preserved one, called the Stumpff Lock based on the name of a man who once possessed it, was used to sequence his genome. “The DNA was really degraded\*,” said study coauthor Johannes Krause, director of the Max Planck Institute for Evolutionary Anthropology in Germany. “It was really hard to actually get enough DNA from such a sample to assemble a genome. We had to extract the DNA from more than 2 meters of hair from one of the locks, the so-called Stumpff Lock,” Krause added. The study did not pinpoint a cause for gastrointestinal\*

issues Beethoven experienced, finding no predisposition\*, for example, to Crohn's disease or ulcerative colitis\*.

(出典：Reuters, "Locks of Beethoven's hair offer symphony of genetic health data," *The Japan News*, March 29, 2023 一部改変)

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注：predispose ～を（病気に）かかりやすくさせる hepatitis B B型肝炎  
cirrhosis of the liver 肝硬変 mutation 変異  
otosclerosis or Paget's disease 耳硬化症またはページェット病  
Heiligenstadt Testament ハイリゲンシュタットの遺書（ベートーヴェンが残した手紙）  
degraded 退化した gastrointestinal 胃腸の  
predisposition （～しやすい）体質  
Crohn's disease or ulcerative colitis クローン病または潰瘍性大腸炎

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 downstairs    | ② both     | ③ abroad   | ④ together     |
| <input type="text" value="2"/> | ① Owing         | ② Inferior | ③ Junior   | ④ Prior        |
| <input type="text" value="3"/> | ① along         | ② during   | ③ between  | ④ until        |
| <input type="text" value="4"/> | ① congressional | ② abnormal | ③ immortal | ④ professional |
| <input type="text" value="5"/> | ① in            | ② down     | ③ over     | ④ out          |

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. Researchers analyzed Beethoven's genome and managed to determine the cause of not only his liver disease but also his hearing loss.
7. According to the article, Beethoven's DNA sequence reveals that the composer was genetically subject to liver disease.
8. The new findings show that Beethoven's chronic drinking was a crucial factor in his liver disease.
9. Tristan Begg thinks that mutations in PNPLA3 and HFE might have heightened the risk of Beethoven's liver disease.
10. Even hearing loss never deprived Beethoven of his incomparable creativity.
11. The author is sure that it will be possible for researchers to make clear a genetic cause for Beethoven's hearing loss in the not-so-distant future.
12. Beethoven wanted his own health conditions kept secret while he was alive.
13. Beethoven boldly announced the state of his health in the Heiligenstadt Testament.
14. According to Begg, Beethoven was eager to write his autobiography while sick in bed.
15. The Stumpff lock was the most suitable of all the locks of hair for the extraction of Beethoven's DNA.

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. 携帯電話を見ながら運転をして事故を起こすとは彼女も愚かだった。

It was \_\_\_\_\_  16 \_\_\_\_\_  17 \_\_\_\_\_ her cellphone and then cause an accident.

① while    ② of    ③ stupid    ④ her    ⑤ looking at    ⑥ to drive

2. コンビニの隣の美容室でパーマをかけた。

I \_\_\_\_\_  18 \_\_\_\_\_  19 \_\_\_\_\_ next to the convenience store.

① a beauty salon    ② permed    ③ at    ④ my    ⑤ had    ⑥ hair

3. 娘に歯磨きの最中は水を出しっ放しにしないように言った。

I told my daughter \_\_\_\_\_  20 \_\_\_\_\_  21 \_\_\_\_\_ she was brushing her teeth.

① the water    ② leave    ③ to    ④ while    ⑤ running    ⑥ not

4. その画家は最新作の完成に心血を注いでいる。

The artist \_\_\_\_\_  22 \_\_\_\_\_  23 \_\_\_\_\_ latest work.

① himself    ② his    ③ is    ④ completing    ⑤ devoting    ⑥ to

5. 洪水で30軒もの家が押し流された。

No \_\_\_\_\_  24 \_\_\_\_\_  25 \_\_\_\_\_ by the flood.

① away    ② washed    ③ were    ④ than    ⑤ thirty houses    ⑥ less

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。下の語群から選び、解答欄にマークせよ。

1. The patient paid no attention  26 his doctor's advice.

2. The scientist came up  27 a creative solution.

3. We buy gasoline  28 the liter.

4. Do you believe  29 UFOs?

5. We will have to focus  30 immigration problems.

[ 語群 : ① on    ② at    ③ to    ④ with    ⑤ in    ⑥ by ]

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. the rate at which someone or something moves or operates or is able to move or operate

=

2. a colored fluid or paste used for writing, drawing, printing, or duplicating

=

3. the length of the space between two points

=

4. the faculty by which the mind stores and remembers information

=

5. a rectangular cloth bag stuffed with feathers or other soft materials, used to support the head when lying and sleeping

=

[ 語群 : ① melancholy      ② species      ③ ink      ④ disease  
         ⑤ pillow            ⑥ individuality    ⑦ speed      ⑧ memory  
         ⑨ distance          ⑩ pillar ]

V. 36. ~ 40. の英単語の一番強く発音する個所はどこか。解答欄にマークせよ。

36. ed · u · cate  
     ①    ②    ③

37. in · her · it  
     ①    ②    ③

38. cat · e · go · ry  
     ①    ②    ③    ④

39. in · fe · ri · or  
     ①    ②    ③    ④

40. so · phis · ti · cat · ed  
     ①    ②    ③    ④    ⑤