



〈R04161119〉

注 意 事 項

1. 試験開始の指示があるまで、問題冊子および解答用紙には手を触れないこと。
2. 問題は2～11ページに記載されている。試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁及び解答用紙の汚損等に気付いた場合は、手を挙げて監督員に知らせること。
3. 解答はすべて、HBの黒鉛筆またはHBのシャープペンシルで記入すること。
4. マーク解答用紙記入上の注意
 - (1) 印刷されている受験番号が、自分の受験番号と一致していることを確認したうえで、氏名欄に氏名を記入すること。
 - (2) 所定欄以外に受験番号・氏名を記入した解答用紙は採点の対象外となる場合がある。
 - (3) マーク欄にははっきりとマークすること。また、訂正する場合は、消しゴムで丁寧に、消し残しがないようによく消すこと。

| | | | |
|---------|-------------------------------------|-------------------------------------|--------------------------|
| マークする時 | <input checked="" type="radio"/> 良い | <input type="radio"/> 悪い | <input type="radio"/> 悪い |
| マークを消す時 | <input type="radio"/> 良い | <input checked="" type="radio"/> 悪い | <input type="radio"/> 悪い |

5. 解答はすべて所定の解答欄に記入すること。所定欄以外に何かを記入した解答用紙は採点の対象外となる場合がある。
6. 試験終了の指示が出たら、すぐに解答をやめ、筆記用具を置き解答用紙を裏返しにすること。
7. いかなる場合でも、解答用紙は必ず提出すること。

[I] 次の英文 (i) ~ (viii) を読んで、設問 1 ~ 25 の解答として最も適切なものを、(A) ~ (D) の中から選びなさい。

(i) Music makes life better in so many ways. It elevates mood, reduces stress and eases pain. Music is heart-healthy, because it can lower blood pressure, reduce heart rate and decrease stress hormones in the blood. It also connects us with others and enhances social bonds. Music can even improve workout endurance and increase our enjoyment of challenging activities. The fact that music can make a difficult task more tolerable may be why students often choose to listen to it while doing their homework or studying for exams. But is listening to music the smart choice for students who want to optimize their learning?

A new study by Manuel Gonzalez of Baruch College and John Aiello of Rutgers University suggests that for some students, listening to music is indeed a wise strategy, but for others, it is not. The effect of music on cognitive functioning appears not to be “one-size-fits-all” but to instead depend, in part, on your personality—specifically, on your need for external stimulation. People with a high requirement for such stimulation tend to get bored easily and to seek out external input. Those individuals often do *worse*, paradoxically, when listening to music while engaging in a mental task. People with a low need for external stimulation, on the other hand, tend to improve their mental performance with music.

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1. How might people with a high need for external stimulation improve their cognitive functioning?
 - (A) Listen to music
 - (B) Optimize learning
 - (C) Seek out external input
 - (D) Not enough information given

2. What type of learners benefit the most from listening to music?
 - (A) Have high need for external stimulation
 - (B) Have low need for external stimulation
 - (C) Tend to get bored easily
 - (D) Want to optimize their learning

3. What conclusion could one draw from this passage?
 - (A) Listening to music is an effective learning strategy.
 - (B) Many students listen to music to optimize their learning.
 - (C) The effect of music on cognitive functioning can vary.
 - (D) All of the above

4. What is the best title for this passage?
 - (A) Music and Cognitive Performance
 - (B) Music and Health Promotion
 - (C) Music and Learning Attitude
 - (D) Music and Stress Reduction

(ii) American robins (*Turdus migratorius*) set off on their migrations 12 days earlier than they did in 1994 due to warmer, dryer winters, say scientists. Ecologists writing in *Environmental Research Letters* tracked the birds' summer migrations from Mexico to Canada using GPS equipment. They found melting snow and warmer winters are causing flocks to leave their winter grounds earlier than they did in the past. In 2018, birds left 12 days earlier than they did in 1994 — suggesting migrations are moving forward by around five days a decade.

Each year, flocks of a dozen to several hundred robins migrate northwards across North America. While the species spend the winter across much of the continent, the birds rarely cross north into Canada and Alaska until later in the year. According to observations made by the Lesser Slave Lake Bird Observatory (LSLBO), birds tend to arrive in these breeding grounds in late April.

Between 2016 and 2018, 55 robins netted in Slave Lake were equipped with miniature backpacks containing GPS technology to track them on their journeys from April to June, partway through their migration. These movements were compared to data on weather conditions, from snow depth and precipitation to wind speed and temperature. The researchers found birds took off earlier in years when the winter was warm and dry, with melting snow being the most consistent factor affecting birds' movements. While temperatures are increasing worldwide, warming in Canada is taking place at roughly twice the speed of the global average.

5. Based on these findings, about how much earlier might American robins have migrated in 2004 compared to 1994?
 - (A) 5 days
 - (B) 10 days
 - (C) 12 days
 - (D) None of the above

6. When are American robins more likely to arrive in Canada and Alaska?
 - (A) April
 - (B) May
 - (C) June
 - (D) None of the above

7. Which of the following is the most consistent factor in the timing of American robins' migration?
 - (A) Longer days
 - (B) Melting snow
 - (C) Precipitation
 - (D) Wind speed

(iii)

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8. Why is it hard for some people to translate the word “fossil” into their language?
- (A) Challenging concept to grasp
 - (B) Difficult to pronounce
 - (C) Equivalent word may not exist
 - (D) Hard to explain
9. How are some translations described?
- (A) Accepted
 - (B) Indigenous
 - (C) Lyrical
 - (D) All of the above
10. What is the best way to translate scientific terms into local languages?
- (A) Create a formula
 - (B) Elicit solidarity
 - (C) Use the original scientific words
 - (D) None of the above

(iv)

※この問題は、著作権の関係により掲載できません。

- (A) Colliding
- (B) Competing
- (C) Precise
- (D) None of the above

12. How are the Humboldt squid's unique organs described?

- (A) Backlighting
- (B) Glowing
- (C) Light-producing
- (D) All of the above

13. What is the best title for this passage?

- (A) How Squid Communicate in the Dark
- (B) Humboldt Squid Thrive in Frigid Waters
- (C) New Squid Identified in the Pacific Ocean
- (D) Squid Produce Light to Attract Prey

(v) Tucked behind a nondescript door inside Alaska Resources Library and Information Services (ARLIS), a library on the University of Alaska Anchorage campus, resides a collection of curiosities. Inside are shelves upon shelves of archival boxes, each carefully stacked and labeled with its specific contents—a perfectly preserved carcass of a ring-necked pheasant nestled in one, a mounted black rockfish in another. Over the years the collection has grown to include hundreds of specimens, making ARLIS the only known library in the United States to hold such a trove. It is not only open to the public, but its items can be checked out just like one would a library book—the only thing you need is an Anchorage public library card.

Since 1997, ARLIS has been amassing an extensive inventory of animal furs, skulls, bird and fish mounts, skeletons and other “realia,” items that are typically more at home displayed behind a glass case in a natural history museum than at a public library. ARLIS is the result of combining the resource libraries of eight federal, state, and university agencies under one roof, including the Alaska Department of Fish and Game’s “FMS” (furs, mounts, skulls) collection. Prior to combining the collections, each was housed separately and managed by its specific department. By combining these libraries together, it makes them more accessible to researchers, members of the agencies and the public.

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14. What makes ARLIS unique in the United States?

- (A) Archival boxes
- (B) Rare books
- (C) Realia
- (D) Public library card

15. Which is true about ARLIS?

- (A) Consists of eight departments
- (B) Loans specimens
- (C) Only library in Alaska
- (D) Originally a museum

16. What was a benefit of combining the libraries of eight federal, state, and university agencies?

- (A) Better access
- (B) Save money
- (C) Save space
- (D) Tax benefits

(vi) Eating a diet featuring chemicals known as ketones could protect brain cells from the progress of Alzheimer’s disease, according to a study on mice. Scientists wanted to see if increasing the levels of ketones — a type of fatty acid — in mice could boost the production of a protein called SIRT3. This protein is thought to protect neurons. As the brain starts to be affected by Alzheimer’s disease, the way some mitochondria — the powerhouses of cells — work is thought to be damaged, as are some brain cell networks, the authors explained in the *Journal of Neuroscience*.

The team studied mice with Alzheimer’s disease — including some who had been genetically modified to have lower than normal levels of SIRT3 — as well as regular mice who acted as controls. Mice with lower levels of SIRT3 were more likely to die prematurely and have seizures. Certain types of interneurons — brain cells that transmit impulses — were also found to be more likely to die in these mice, when compared with the rodents with just Alzheimer’s disease and controls. When researchers supplemented the mice’s diets with ketones, which boosted SIRT3 levels, the animals had fewer seizures, lived longer and their interneurons appeared to be preserved. The team concluded the ketone supplements appeared to help SIRT3 preserve the interneurons, and protect brain circuits against becoming over-excited in what is known as hyperexcitability.

17. Which is NOT damaged when the brain is affected by Alzheimer’s disease?

- (A) Brain cell networks
- (B) Mitochondrial function
- (C) Production of SIRT3
- (D) None of the above

18. What was found for mice with lower levels of SIRT3?

- (A) More likely to die prematurely
- (B) More likely to have seizures
- (C) Some interneurons are more likely to die
- (D) All of the above

19. What effect do ketone supplements have on humans?

- (A) Extending life expectancy
- (B) Increasing the production of SIRT3
- (C) Preserving interneurons
- (D) Not enough information given

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20. What is a benefit of listening to music while exercising?
- (A) Exercise harder
 - (B) Higher heart rate
 - (C) Keeps the mind entertained
 - (D) All of the above
21. Listening to music is likely to most benefit people doing which kind of exercise?
- (A) Hiking
 - (B) Pilates
 - (C) Sprinting
 - (D) Weight lifting
22. What gender differences did the researchers identify?
- (A) Men benefited more than women
 - (B) No noticeable differences were found
 - (C) Women benefited more than men
 - (D) Not enough information given

(viii) A new species of a bird-like dinosaur that lived 99 million years ago has been identified from a fossilized skull trapped in a block of amber, a study said. Even tinier than a hummingbird, it's among the smallest dinosaurs from the Mesozoic Era yet found. It's also one of the most ancient birds ever reported. "When I first saw it, I was blown away," Jingmai O'Connor, a paleontologist from the Chinese Academy of Sciences and lead author of the study. "Amber preservation of vertebrates is rare, and this provides us a window into the world of dinosaurs at the lowest end of the body-size spectrum," said study co-author Lars Schmitz, a biologist at the W.M. Keck Science Department in California, in a statement.

The skull specimen, which was discovered in a mine in northern Myanmar, is only about 1/2 inch in length. The entire bird weighed less than a tenth of an ounce, scientists estimate. The creature's skull is dominated by a large eye socket that's similar to a modern lizard's eye. The eye socket has a narrow opening and only lets in a small amount of light, which means that it was suited to being active in daylight conditions. Its upper and lower jaws contain a large number of sharp teeth and the study authors estimate each jaw would have had 29 to 30 teeth in total.

Despite its small size, this finding suggests the bird was a predator and likely ate small arthropods or invertebrates, unlike similar-sized modern birds, which have no teeth and feed on nectar. The researchers concluded that the specimen's tiny size and unusual form suggests a never-before-seen combination of features. "This discovery shows us that we have only a small glimpse of what tiny vertebrates looked like in the age of the dinosaurs," Schmitz said.

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23. Where was the bird-like dinosaur fossil discovered?

- (A) California
- (B) China
- (C) Myanmar
- (D) Not enough information given

24. What makes this particular fossil unusual?

- (A) Preserved in amber
- (B) Sharp teeth
- (C) Small size
- (D) All of the above

25. What is the main idea of this passage?

- (A) Ancient bird fossil is one of the smallest Mesozoic dinosaurs.
- (B) Bird ancestor shows similarities with modern birds.
- (C) Rare bird skull preserved in amber sheds light on ancient invertebrates.
- (D) None of the above

〔Ⅱ〕 次の設問26～40の空所を補うものとして最も適当な語を、(A)～(K)の中から選びなさい。
ただし、使われない語が含まれていることもあります。また、同じ語を繰り返して使うことも
できます。空所に何も補う必要のない場合には (L) を選びなさい。

| | | | | | |
|-----------|-------------|---------|--------|----------|-------------|
| (A) about | (B) down | (C) for | (D) in | (E) into | (F) on |
| (G) over | (H) through | (I) to | (J) up | (K) with | (L) NO WORD |

26. When it comes _____ fixing computers, no one knows more than my friend Beth.
27. All the world _____ there is growing interest in developing clean energy alternatives.
28. Although she tried to find the ring she had lost on the beach, her search was _____ vain.
29. I can't think of a good place to hide _____ my wife's birthday present.
30. The irate customer returned to complain _____ the poor service to the manager.
31. If I can work _____ enough courage, I might ask Linda out for a date this weekend.
32. Everybody was tired of hearing Karen's made-_____ stories about her personal achievements.
33. She has considerable experience so there is no cause _____ concern if she becomes president.
34. We regret _____ inform you that we cannot comply with your data request.
35. Together _____ my friends and I served soup at the local homeless shelter.
36. Jiro is a Waseda man _____ and through as the fourth member of his family to study there.
37. I asked my parents _____ advice on how to save for my children's education.
38. Our boss encouraged us not to _____ doubt next quarter's sales projections.
39. Jim waded across the river and emerged soaking wet from the waist _____.
40. The children's faces lit _____ when they saw the presents under the tree.

〔Ⅲ〕 次の設問41～50のA～Dのうち、誤った英語表現を含んだ部分がある場合にはA～Dの中の一つを、誤りがない場合にはEを選びなさい。

41. If all the Arctic ice melted, polar bears would likely disappear from the region in ten years' time.
A B C D
NO ERROR
E
42. At the graduation ceremony, every boy and girl are going to receive a special award
A B C
from the teacher. NO ERROR
D E
43. In the past, women had few career options outside of the home but nowadays they
A B C
have more opportunities. NO ERROR
D E
44. Flight 882 to Chicago will be delayed about half a hour due to dense fog at the airport.
A B C D
NO ERROR
E
45. Our team put up for a good fight, but in the end, the other team was simply too strong.
A B C D
NO ERROR
E
46. The negotiations among the three countries reached to a dead end after all parties
A B C
refused the proposal. NO ERROR
D E
47. We have only just began to live in this neighborhood but have already made many friends.
A B C D
NO ERROR
E
48. The children took cover under an old tree during the rainstorm and waited for it to clear up.
A B C D
NO ERROR
E
49. I make up my mind to study at a language school in California for two weeks next summer.
A B C D
NO ERROR
E
50. To speak Spanish well, it is important to study hard and learn a lot of vocabularies.
A B C D
NO ERROR
E

〔以下余白〕