

October 21, 2022

英語 B
English B

(60分間)

Time limit: 60 minutes

注意

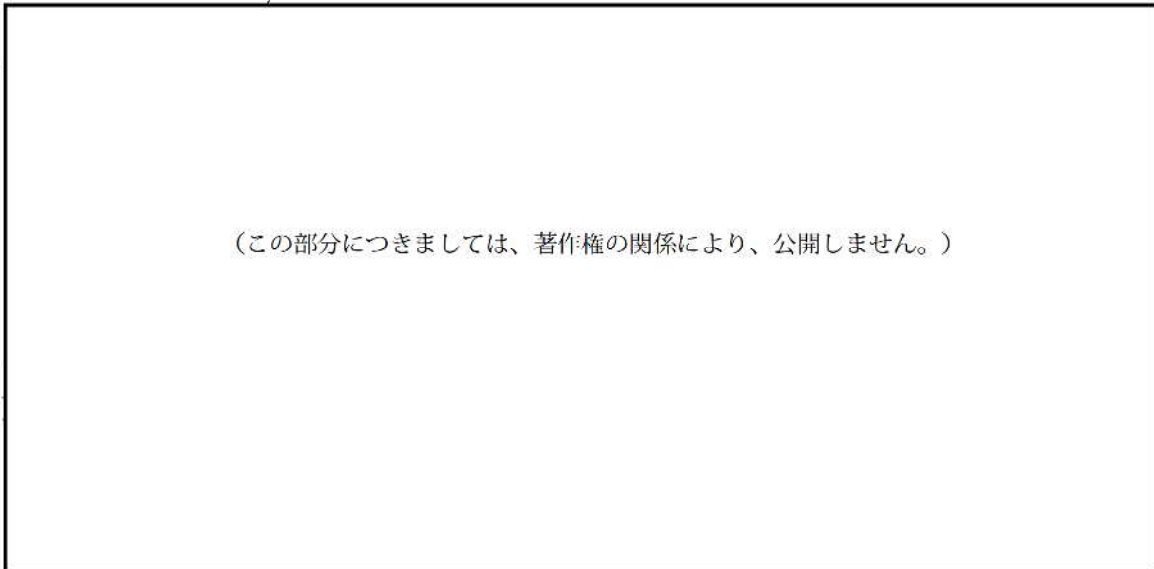
1. 問題紙は指示があるまで開いてはいけません。
2. 問題紙は表紙を入れて4枚です。
3. 問題紙は持ち帰ってください。

Notice:

1. Do not open this cover until you have been instructed to by a proctor.
2. The question sheet consists of 4 pages including this cover.
3. You must bring the question sheet back when you are finished.

Read the following **Reports 1-3**, and answer to **Questions (Q) 1-5**.

Report 1. Physicists think outside the box for better package design



Nature **604**, 221 (2022)

Reference

1. De Ruiter, J., Østergaard, E. V., Marker, S. & Jensen, K. H. *Phys. Rev. Fluids* **7**, 044101 (2022).

Q1. Explain why the cardboard boxes are popular.

Q2. Explain the ideal configuration for a ‘telescoping’ box that revealed by air-flow analysis.

Report 2. Global cities are sinking — and humans are partly to blame

(この部分につきましては、著作権の関係により、公開しません。)

Nature **604**, 10 (2022)

Reference

1. Wu, P.-C., Wei, M. (M.) & D'Hondt, S. *Geophys. Res. Lett.*
<https://doi.org/10.1029/2022GL098477> (2022).

Q3. What is the major reason for falling of coastal cities?

Report 3. The miniature mice locked in an evolutionary battle of the sexes

(この部分につきましては、著作権の関係により、公開しません。)

Nature **604**, 220 (2022)

Reference

1. Saunders, P. A., Perez, J., Ronce, O. & Veyrunes, F. *Curr. Biol.*
<https://doi.org/10.1016/j.cub.2022.03.029> (2022).

Q4. Explain the feature of X* chromosome in pygmy mice.

Q5. What is the percentage of pygmy mice with XY chromosome to be male?

_____ %