

工 学 部

奨学生入学試験問題

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. 次の英文は、伝書鳩 (homing pigeon) がどのように巣 (loft) のある方角を知るのかを論じた文章の一部である。これを読み、問 A. 問 B. に答えよ (なお、\*印を付した語句には注がある)。

How birds navigate has long interested people. From the Arctic tern's\* pole-to-pole\* marathons to the humble homing pigeon's return to its loft, birds manage instinctively tasks for  human beings would need serious technological assistance. Over the years, the roles of the sun and the stars, the Earth's magnetic field, and even the distant sound of the ocean have been proposed as explanations for the birds' navigational ability. But all of these are useless unless a bird knows where it is starting from. And, in the case of homing pigeons at least, the whole point is that they do not — for they are brought to the starting place for a competition\* without being able to see how they got there.

The angle at  the Earth's magnetic field meets the ground cannot be the explanation, for this varies only with latitude\*, not longitude\*. Nor can an acute sense of smell, unless a bird has been to the place in question\* before. But Hans-Peter Lipp, founder of the Swiss Homing Pigeon Foundation and an emeritus professor\* at the University of Zurich, reckons he knows the answer. He thinks birds use the Earth's gravity to work out where they are. If that is true, a pigeon's ability to navigate ought to be affected by gravitational anomalies\* caused by things  ore bodies\* and meteorite craters\*. And a study Dr Lipp and his colleagues have just published in the *Journal of Experimental Biology* suggests it is.

Thirty years ago one of those colleagues, Valeryi Kanevskyi of the High Technologies Institute in Kiev\*, noticed, by following them in a helicopter, that pigeons veered off\* course when they encountered one such anomaly.  now, he has been unable to follow that observation up, so he suggested to Dr Lipp, who had been looking for somewhere to test his ideas, that Ukraine\* would be a perfect place.

Whatever its political problems, the country contains several strong and well-mapped gravitational anomalies, and these are scattered around an area that has few landmarks which could otherwise help birds find their way.

One of the strongest anomalies is near Kirovograd. It is caused by a 25km-diameter\* crater called Boltys, which was created by an impact\* near the end of the Cretaceous period\*. This crater's existence is especially convenient because there are no study-befuddling\* variations in the Earth's magnetic field nearby.  experiments, Dr Lipp and his team released GPS-equipped pigeons from the crater's center, 91km north-east of their home loft. They also released a control group\* a similar distance from the loft, but well away from the crater.

The control group found their way home with little difficulty; the others, , started to veer off course pretty quickly. Those whose new bearings\* took them over other gravitational anomalies then veered even farther from the beeline\* to the loft. Most did eventually make it home, but by wildly different routes. One bird flew a convoluted\* 260km course in its confusion, giving up 40km from the loft.

It does seem, then, that gravity plays a part in how pigeons (and possibly, by extension, other birds) find their way home. What is going on in the birds' brains, , is mysterious. (後略)

(出典：“Flight Risk,” *The Economist*, November 15, 2014より抜粋，一部改変)

注：Arctic tern 鳥の名 pole-to-pole 北極と南極を往復する  
 competition レース（巣に戻る時間を競う） latitude 緯度  
 longitude 経度 in question 問題の emeritus professor 名誉教授  
 gravitational anomalies 重力異常 ore bodies 鉱床  
 meteorite craters 隕石による穴 veer off ～を外れる  
 Kiev キエフ（ウクライナ（Ukraine）の首都） diameter 直径  
 impact 衝突 the Cretaceous period 白亜紀  
 study-befuddling 研究を混乱させる  
 a control group （結果を比較するための）別の伝書鳩の群れ  
 bearings 進行方向 beeline 最短コース convoluted 遠回りの

問 A. 文中の  ～  に入れるのに最も適切なものを、①～④の中から選び、  
 解答欄にマークせよ（なお、同じ番号の空欄には同じ単語が入る）。

① when                      ② where                      ③ how                      ④ which

① like                      ② such                      ③ which                      ④ alike

① By                      ② Until                      ③ Since                      ④ After

① In addition to              ② Compared with              ③ In a series of              ④ In return for

① though                      ② thorough                      ③ tough                      ④ through

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. For a long time, people have proposed various things to explain how birds navigate.
7. Homing pigeons know where they start from in a race.
8. An acute sense of smell might be of help if a bird has been to the place in question before.
9. Dr Lipp's study suggests that a pigeon's ability to navigate is not affected by gravitational anomalies.
10. Kanevskyi suggested that Ukraine was a perfect place for Lipp's study because of the country's political problems.
11. Generally, landmarks cannot help birds find their way.
12. The writer suggests that Boltysch was created by a meteorite impact.
13. The crater's location is helpful for the research because there is no worry about influences from Earth's magnetic field.
14. The pigeons released from the crater's center found it very easy to find their way home.
15. The more gravitational anomalies the pigeons flew over, the farther away they veered off course.

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. 彼ほど多くのことを成し遂げた小説家は他にいない。

No     he has.

① accomplished ② has ③ more ④ novelist ⑤ than ⑥ other

2. その時点まで、彼女はひとつもミスをしていなかった。

Up until that time,    .

① had ② made ③ mistake ④ not ⑤ one ⑥ she

3. 彼女と一緒に舞台に立てたことはすばらしい体験だった。

It     on stage with her.

① a ② be ③ to ④ experience ⑤ was ⑥ wonderful

4. 彼らはその競技場をてんとう虫と同じ形に設計した。

They designed    .

① as ② shape ③ a ladybird ④ the same ⑤ in ⑥ the stadium

5. 彼女の次の動きがどうなるかは明日になるまでわからない。

We don't     be until tomorrow.

① next ② her ③ know ④ will ⑤ move ⑥ what

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. She cut the vegetables  a knife.

2. Let's solve the problems one  one.

3. You can finish the task  one or two days.

4. Over 300 people are thought  be on the train.

5. I've been teaching at this school  over 30 years.

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

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. to tell people about things that are going to happen in the future

=

2. a small part taken from large matter that is expected to have the same character as the matter

=

3. to try hard to bring something into reality

=

4. to gather people in one place and choose someone who is fit for playing a role or singing a song.

=

5. a metal string that is used for carrying electricity

=

[ 語群 : ① wire      ② sample      ③ audition      ④ prediction  
         ⑤ confidence ⑥ adaptor      ⑦ election      ⑧ effort  
         ⑨ purpose      ⑩ quality ]

V. 36.～40.の英単語のいちばん強く発音する個所はどこか。解答欄にマークせよ。

36. mu · si · cian  
     ①    ②    ③

37. dif · fer · ence  
     ①    ②    ③

38. un · cer · tain · ty  
     ①    ②    ③    ④

39. his · tor · i · cal  
     ①    ②    ③    ④

40. civ · i · li · za · tion  
     ①    ②    ③    ④    ⑤