

**Examination** 20 min

次の英文を読んで、以下の設問に答えなさい。

A fly can do one thing extremely well: fly. Recently a team of British scientists declared that the common housefly is the most talented aerodynamicist on the planet, superior to any bird, bat, or bee. A housefly can make six turns a second; hover; fly straight  
5 up, down, or backward; land on the ceiling; and perform various other show-off maneuvers. And it has a brain smaller than a sesame seed.

Michael Dickinson, who studies fly flight in his lab at the California Institute of Technology, says the housefly isn't actually  
10 the best flier. "Hoverflies are the (a)be-all and end-all," he says. They can hover in one spot, dash to another location, and then race back to their original hovering point — precisely.

Scientists, engineers, and military researchers want to know how creatures with such small brains can do ①that. Maybe they  
15 could reverse-engineer a fly to make a robotic device that could (b)reconnoiter dangerous places, such as earthquake zones or collapsed mines.

Dickinson's laboratory works with fruit flies. Researchers put them in chambers and manipulate the visual field, filming the flies  
20 in super-slow motion, 6,000 frames a second. Dickinson is interested in knowing how flies ( i ) collisions. He has found that certain patterns, such as 90-degree turns, are triggered by visual cues and two equilibrium organs on their backs that

function like a gyroscope.

25 Flies have only a dozen muscles for maneuvering, but they're  
loaded with sensors. In addition to their compound eyes, which  
permit panoramic imagery and are excellent at detecting motion,  
they have wind-sensitive hairs and antennae. They also have three  
light sensors on the tops of their heads, which ② [ is, tell, them,  
30 up, way, which ]. Roughly two-thirds of a fly's entire nervous  
system is devoted to processing visual images. (A) They take all this  
sensory data and boil it down to a few basic commands, such as "go  
left" and "go right."

Imagine if you didn't utter an opinion until you had read  
35 hundreds of books, magazines, newspaper articles, and blogs, and  
then issued a statement based on a few basic notions. That's how  
a fly approaches flying. Only the fly is ③ a speed reader. The  
information processing takes a fraction of a second. This mode of  
operation is called a "sensor-rich feedback control paradigm."

(B) Given that flies have evolved for hundreds of millions of  
years, we shouldn't be surprised that they're such good fliers.  
"They just don't have brains like ours. Studying flies," says  
Dickinson, "is like traveling to another planet."

設問(1) 本文中の下線部(a)～(b)を他の語で書き換えるとすれば、どれが最も適切か。それぞれ(イ)～(ニ)からひとつ選び、記号で答えなさい。

(a) (イ) the lightest flier      (ロ) the most popular flier  
(ハ) the most talented flier   (ニ) the worst flier

(b) (イ) check    (ロ) lose      (ハ) make    (ニ) miss

設問(2) 本文中の下線部① that の意味内容を日本語で簡潔に説明しなさい。

設問(3) 本文中の空所( i )を埋めるのに最も適切な語を(イ)～(ニ)からひとつ選び、記号で答えなさい。

(イ) avoid   (ロ) face      (ハ) love      (ニ) make

設問(4) 本文中の下線部②の [            ] 内に示された語群を、最も適切な語順に並べ換え、解答欄に記入しなさい。

設問(5) 本文中の下線部(A)の意味を日本語で表しなさい。

設問(6) 本文中の下線部③ a speed reader の意味内容を日本語で簡潔に説明しなさい。

設問(7) 本文中の下線部(B)の意味を日本語で表しなさい。