

英 語

問題冊子 2

注 意

「問題冊子 2」に印刷されている問題は、**2** から **3** までで、2 ページから 14 ページまであります。

2 次の対話の文章を読んで、あとの各問に答えなさい。

(* 印のついている単語・語句には、本文のあとに〔注〕がある。)

Ellen is a high school student who is from New Zealand and has been in Japan for four months. She goes to a high school in Japan and is a member of the science club. Mayu and Ryo are also members of the club. Mr. Ito is a science teacher and takes care of the club. Ellen, Mayu and Ryo are talking after school.

Ellen: We are going to have a club meeting next Tuesday, right?

Mayu: Yes. We should find a topic for it. Did you find anything interesting?

Ryo: The other day, I found an interesting book at a bookstore, and I bought it. The title is “*Why Do Fish *Float?*”

Ellen: It sounds very interesting.

Mayu: Can you repeat the title, Ryo? I'll write it down.

Ryo: Sure. It's “*Why Do Fish Float?*” , I haven't finished reading it yet, but the most interesting part seems to be about the *mechanism that sharks use to float. I have been very interested in sharks since I saw a huge one in an aquarium for the first time. I was very surprised to know that scientists still don't know very much about the mechanism!

Mayu: Wait. Don't tell us any more about that now. That sounds really interesting. I'd like to know more about the mechanism before the next club meeting.

Ellen: Me, too. Let's learn more about it in various ways. , we can find more information on the internet or borrow some other books from the city library.

Ryo: I'll borrow ten books from the library.

Mayu: That's impossible.

Ellen: Anyway, it's going to be very exciting.

A week later, they are in the science room for the club activities. Mr. Ito joins them.

Mr. Ito: OK. Now, let's start. What is today's topic?

Ellen: We've decided to talk about fish, especially about sharks.

Ryo: I found a book and the title is “*Why Do Fish Float?*” The book says that most kinds of fish have *swim bladders. They help fish float in water by holding air inside their bodies.

Mayu: Mr. Ito, Ryo wants to know more about different mechanisms of fish. Sharks are different from fish with swim bladders. Is that right, Ryo?

Ryo: That's true. They don't have swim bladders in their body. Then, why do sharks float? I want to know the reason. And I learned that there are two types of fish from the book.

Ellen: I also read the same book and became more interested in sharks.

Ryo: , there are two kinds of fish in the sea: *cartilaginous fish and bony fish. Bony fish have swim bladders, and they are able to float in the sea by using these swim bladders.

Mayu: Ah, sharks are not bony fish. I wonder why sharks and similar kinds of fish can float without swim bladders. Does that mean they have other ways to float?

Mr. Ito: That's a good question. First, you should learn about something called *specific gravity.

Mayu: What is that, Mr. Ito?

Mr. Ito: Specific gravity means how heavy something is when you *compare it to water. The specific gravity of *fresh water at 4°C is 1. If something has a specific gravity than 1, it is than cold fresh water and won't float. If the number is less than 1, the *object is than cold fresh water and it can float. The specific gravity of seawater is between 1.02 and 1.03. So, seawater is a little heavier than cold fresh water.

Ryo: What about the specific gravity of sharks? We know they float in water. That means their specific gravity must be less than that of water, right?

Mr. Ito: You made a good point. Before we find an answer to Ryo's question, we need to talk more about specific gravity.

Mayu: Oh, we've not learned about it in class yet.

Mr. Ito: You are right, but you've already learned about “*density.”

Mayu: Yes, we learned about it in junior high school. Density shows how heavy something is for its size. If something is 10 grams in *weight and its *volume is 2 cm³, its density is 5 g/cm³. If the density of an object is less than that of a *liquid, the object will float in the liquid.

Mr. Ito: Perfect, Mayu! Then, think about ice and water. Ice floats in cold fresh water because the density of ice is 0.917 g/cm³ and that of cold fresh water is 1.00 g/cm³. Let's go back to specific gravity. Now, all of you can understand that specific gravity compares the density of something to that of cold fresh water. So, the specific gravity of cold fresh water is 1, as I said.

Ryo: Then, can we think that the specific gravity of ice is 0.917?

Mr. Ito: You're right, Ryo. ⁽³⁾Objects with higher density have greater specific gravity. Silver has a specific gravity of 10.5, *mercury has a specific gravity of 13.5, and gold has a specific gravity of 19.3. *Iron may seem heavy, but its specific gravity is only 7.87.

Ellen: I see. I've also read another book about fish, Mr. Ito. It explains how sharks can float.

Mr. Ito: Will you tell us about it?

Ellen: Sure. About sixty years ago, a researcher checked the weight of many kinds of sharks and he found that the specific gravity of sharks is a little greater than that of seawater.

Ryo: Does that mean it is for to ?

Ellen: You may think so, but there is also another mechanism in the book. They have oil in their large *liver and it helps sharks float. Can you guess why oil helps them float?

Mayu: Maybe because the specific gravity of oil is of seawater.

Mr. Ito: That's right!

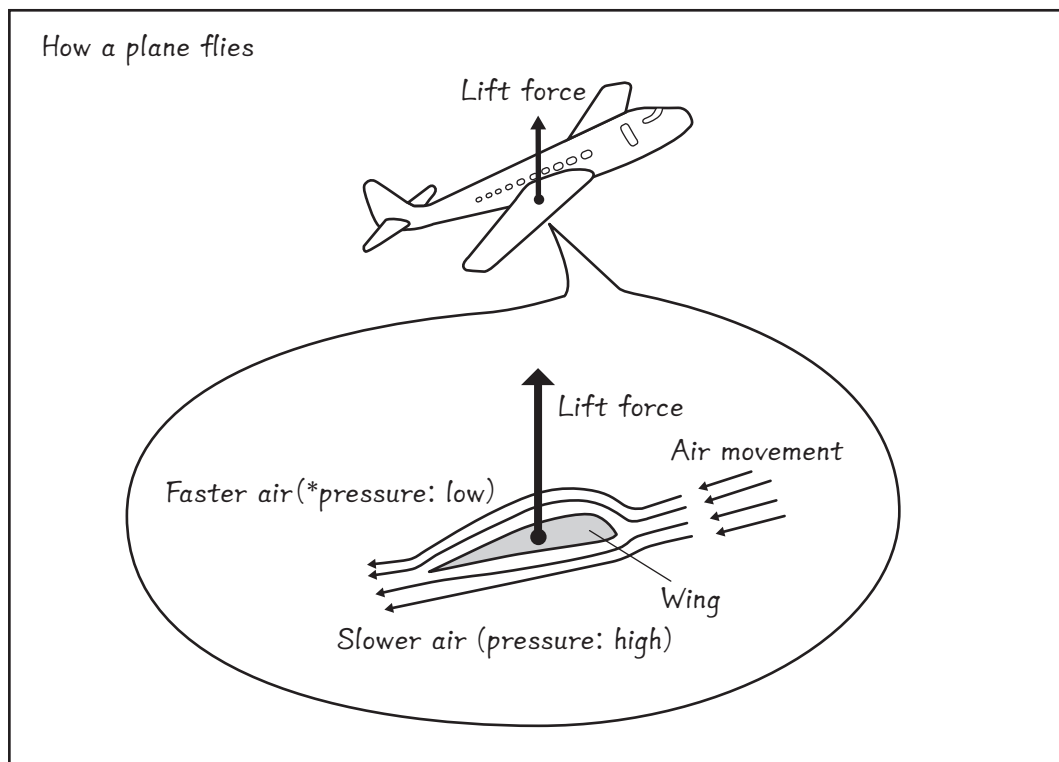
Mayu: We all know that oil floats on water.

Mr. Ito: Do you know anything else about sharks?

Ellen: Yes. An American researcher thought that cartilaginous fish like sharks might use the same kind of *lift force in seawater to float as plane wings do in the air, and tried to research this through *experiments.

Ryo: What? That's so interesting. Tell us more about it.

Ellen: OK. Planes can fly because of the lift force. It is the force to support the weight of planes. I will draw a simple picture and show you how a plane flies.



Mayu: You are good at explaining things. It's easy to understand.

Ellen: Thank you. So, the researcher used a special way to see how seawater moves. She put very small objects in the seawater and put a special light on them. ⁽⁶⁾ 【 ① how ② it ③ made ④ moves ⑤ possible ⑥ this ⑦ to see ⑧ the water 】. Then, she let a shark swim in the water with those very small objects. She watched how the water moved around the shark's body. She looked at the water near the shark's side *fins. She thought that if the fins worked like , she would see some water around the fins going .

Mayu: Did she get the results she wanted?

Ellen: Unfortunately, this experiment didn't show that the fins on the shark's sides were working like wings.

Mr. Ito: Thank you, Ellen. I heard that another researcher working at one of the aquariums in Japan is trying to do that researcher's experiment again. The American researcher couldn't get the results she hoped for, because she used small sharks in her research. So, the Japanese researcher is thinking that using larger sharks may give different results.

Ryo: It's very exciting.

Mayu: Yes. It's important to realize how much I still do not know about the mechanism. That helps me learn more. If I read more books, I might discover some more interesting information.

(8) Ryo: Oh, I just remembered. When I was in elementary school, my brother showed me a book about sharks. It said that sharks are an ancient species. They have not changed their body shape very much since ancient times. They probably live in the same way as many fish did before developing swim bladders! Many ancient fish had fins that helped them float.

Mr. Ito: A lot of fish in the deep sea, like sharks, do not have swim bladders. Swim bladders may break in the deep sea because the water pressure is very high. If they break, the fish can no longer float. So, these fish have *evolved without swim bladders to survive in that environment.

Ellen: Thank you, Mr. Ito. I will get other information about mechanisms of various fish.

〔注〕 float 浮く	mechanism メカニズム
swim bladder 浮き袋 (硬骨魚がもつ, 気体の詰まった袋状の器官)	
cartilaginous fish and bony fish 軟骨魚と硬骨魚	
specific gravity 比重	compare ~ to ... ~を...と比較する
fresh water (海水に対して) 淡水	object 物体
density 密度	weight 重さ
volume 体積	liquid 液体
mercury 水銀 (20℃では液体)	iron 鉄
liver 肝臓	lift force 揚力
experiment 実験	pressure 圧力
fin (魚の) ひれ	evolve 進化する

〔問1〕 本文の流れに合うように、 ～ の中に、それぞれ次のA～Eの語句を入れるとき、その組み合わせとして最も適切なものは、下のア～カの中ではどれか。

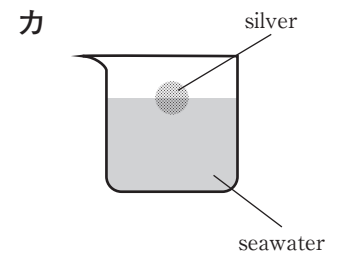
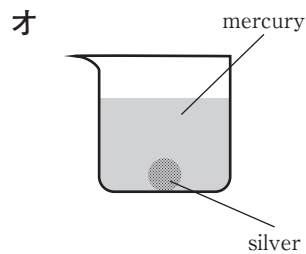
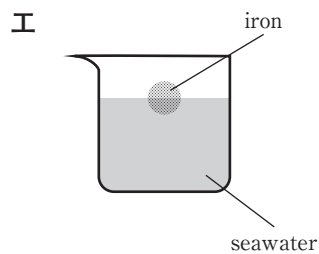
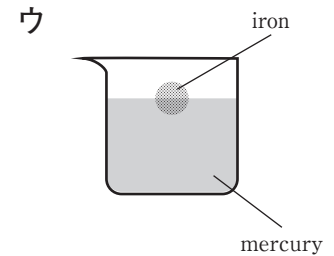
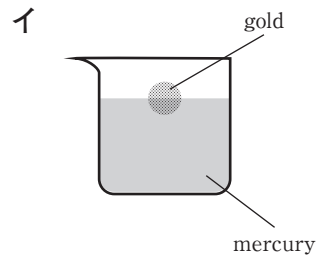
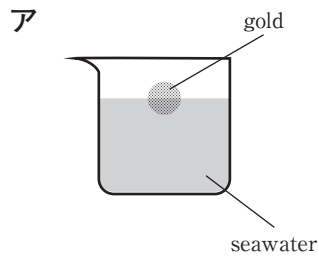
- A As I told you B In my opinion C In addition
 D For example E In fact

	(1)-a	(1)-b	(1)-c
ア	B	C	A
イ	B	C	E
ウ	B	D	E
エ	E	C	B
オ	E	D	A
カ	E	D	B

〔問2〕 本文の流れに合うように、 ～ の中に英語を入れるとき、その組み合わせとして最も適切なものは、次のア～エの中ではどれか。

	(2)-a	(2)-b	(2)-c
ア	greater	heavier	lighter
イ	greater	lighter	heavier
ウ	smaller	heavier	lighter
エ	smaller	lighter	heavier

〔問3〕 ⁽³⁾ Objects with higher density have greater specific gravity. とあるが、本文に書かれていることから正しいと読み取れる絵は、次のア～カの中ではどれか。なお、ア～カに描かれた容器はビーカーとし、それぞれの物質は液体に溶けないものとする。すべての絵はビーカーを真横から見た絵である。



〔問4〕 本文の流れに合うように、 ～ の中に入る英語を、本文中で用いられている1語でそれぞれ答えなさい。

〔問5〕 本文の流れに合うように、great という語を形を変えずに用いて に入る5語の英語を書きなさい。

〔問6〕 ⁽⁶⁾【① how ② it ③ made ④ moves ⑤ possible ⑥ this ⑦ to see ⑧ the water】. とあるが、本文の流れに合うように、【 】内の単語・語句を正しく並べかえたとき、**2番目と5番目と8番目**にくるものの組み合わせとして最も適切なものは、次のア～カの中ではどれか。なお、文頭にくる語も小文字で示してある。

	2番目	5番目	8番目
ア	③	④	⑦
イ	③	⑦	④
ウ	④	⑦	③
エ	④	⑧	⑤
オ	⑧	①	③
カ	⑧	④	⑤

〔問7〕 本文の流れに合うように、 と に入る適切な英語を、本文中で用いられている**1語**でそれぞれ答えなさい。

〔問8〕 大きな四角で囲われた(8)のやり取りにおいて、本文の流れに合わない内容の**1文**を探し出し、その英文の**最初の2語**を答えなさい。

〔問9〕 本文の内容と合っているものを、次のア～キの中から**全て**選びなさい。

ア When Ryo first talked about the book he bought, Ellen asked him to repeat the title.

イ In the book Ryo bought, scientists explained why planes can fly.

ウ Most kinds of fish can float by using swim bladders and others float by using different mechanisms.

エ Bony fish are able to float in the sea because of oil in their large liver.

オ An American researcher tried to discover why sharks float, but she didn't do the experiment.

カ A researcher at an aquarium in Japan did an experiment with bony fish for the first time in the world.

キ Mayu thinks that it is important to read more books to find some interesting things she doesn't know.

3 次の文章を読んで、あとの各問に答えなさい。

(* 印のついている単語・語句には、本文のあとに〔注〕がある。)

Let me tell you about one of my most precious memories. Every summer, my family and I visited a big lake in California. ⁽¹⁾ 【① one ② my family ③ summer ④ camping ⑤ which ⑥ of ⑦ there in ⑧ the experiences ⑨ was】 had when I was a child. We usually enjoyed fishing in the lake, walking in the woods, having a barbecue for dinner, looking at beautiful stars at night, and singing to the guitar my father played. I liked sleeping in a tent I set up with him.

One summer day in 1980, my father, mother, sister and I were camping at the lake. I was ten years old then. My father and I went fishing and met Ted, a nine-year-old boy, and his father. Ted and I became friends quickly and *went on a treasure hunt in the woods near the lake. My father shouted to us, “Don’t go too far, and be careful!” I said, “Of course!” Actually, we did not find anything special there, but just walking in the woods was an exciting thing for children like us. That night, our families had a barbecue together. The food was delicious, and we laughed a lot. Our parents kept talking happily, and Ted’s sister and my sister were singing their favorite songs again and again in a loud voice.

Ted and I sat by the lake and talked about our schools, our families, our towns, and our dreams. Ted said he liked to watch stars and wanted to study *astronomy in the future. “I’ve been interested in stars since my parents bought me a *telescope for my birthday two years ago, and I often look at stars on clear nights,” he added. I told him that I liked to draw pictures and read books, and I also told him about my dream — to become a writer and write stories full of adventures. “I didn’t tell anyone about it before because I thought I would not be able to *realize it. This is my first time,” I said. Ted listened to me and said, “^(A) Life is worth living with good friends and a big dream.” “Oh, they are nice words,” I said. Ted continued, “Thank you. They are the words my father often says to me. I believe our dreams will come true if both of us keep working hard for them. Let’s promise to do that. And I’m looking forward to reading the stories you will write.” I said, “Thank you, Ted. You listened to me carefully, and your words gave me courage to try to do my best. Now I feel I can write stories.” “⁽²⁾ I’m glad you told me about your secret.” said Ted. He continued, “If I discover an *asteroid, I can give it a name.” “I’ve never heard of that. Tell me more about it,” I said. He explained, “If someone discovers a new asteroid, that person should send a report about the *discovery with *concrete data to the *Minor Planet Center. That person can get the right to give it a name only after the Center *accepts the discovery. I want to find one someday!” I was moved by his words and said, “I really hope that you can do that. It’s wonderful to imagine that *somewhere in the sky, an asteroid is waiting for the moment to be discovered by you. Do you have any idea about the name of your asteroid?” He looked surprised at my question and said, “No, but let me think... It is August 3 today...” He was watching stars in the sky for a few minutes. Then he smiled at me and said, “How about ‘PROMISE08031980’?” “Oh, that’s great! I promise to make efforts in any situation, for you and for

myself," I said. Ted was still looking at the sky and said, "Thank you, Alex. I'll never forget today."

After that, we *exchanged letters for about ten years, but both of us started working, *got married, and moved to several places. Later, we *lost touch. Although my everyday life was busy, I wrote several short stories and sent some of them to writing contests. Unfortunately, I was not successful as a writer, but I had a chance to *edit picture books at a publishing company. Actually, I was happy with my life. My mother often told my sister and me about her favorite words by *Tolstoy, "(B) If you want to be happy, be." Those words helped me a lot in thinking about my life.

Time passed. I became 54 years old in 2024. One day in June, my wife and I were going to fly from Los Angeles to New York for our daughter's university graduation. I bought a bottle of water and a magazine before our flight. I watched a comedy movie on the plane and then started reading the magazine. One article on a page about scientific news caught my eye. Its title was "New Asteroid Discovered." The article included the following information:

- 1) asteroid number: 25035
- 2) the date of its discovery: February 2, 2023
- 3) the *diameter of the asteroid: 10.5 kilometers
- 4) the name of the asteroid: PROMISE08031980

In the article, nothing else was written, but I was sure it was the asteroid found by Ted. I was so excited that I shouted to my wife sitting next to me and listening to music, "He found it! He finally did it!" Of course, my wife did not understand me at all. "Who did what?" she said. I explained to her, " (3)" "How wonderful! Let me read the article," she said.

(4)

My wife helped me try to find his name, but we could not. I was so disappointed.

Two months later, I went to that lake again by myself to clear my mind and set up a tent. Then I sat by the lake and waited for the night to fall. When it was getting dark, I saw several children who were enjoying dinner with their families at the camp site. While I was watching them, I remembered that wonderful night with Ted and his family.

I noticed a man who was setting up a telescope about 30 meters away from me. He seemed to be around my age. Our eyes happened to meet. The next moment, both of us shouted, "Oh, my god!" The man was Ted. We *hugged each other with tears in our eyes. I said, "About two months ago, I read an article about the discovery of a new asteroid. I thought it was your discovery. I tried to contact you, but I couldn't. I never expected to see you here again. This is a *miracle!"

We talked about many things for hours. His eyes were shining brightly just as they did at the age of nine. He said, "I often visited this camp site even after I grew up." He continued, "It took me such a long time to find a new asteroid. It was not easy, but I didn't give up. And at last I was able to get a *satisfying result." "I'm really *proud of you, Ted," I said to him. He asked me what I was doing these days, so I answered, "Now I am editing picture books for children. I didn't become a writer, but I'm pleased that some children can be happy through the books I edited." Ted said, "I'm proud of you, too, Alex. I'm glad that you have a job connected to books." ⁽⁵⁾ I almost cried. I said, "Thank you, Ted. I think both of us have kept our promise to for our dreams, right?" "Yes, we have. Alex, if I can find another asteroid, the name will be..." I waited for the next word. He said, "MIRACLE-OF-LIFE." "Oh, that's wonderful. I like that," I said. We put our arms around each other and laughed.

Now I feel life is like a treasure hunt. I was able to find some treasures to make my life richer. I believe anyone can find one or more in his or her life, too, although it may take a lot of time.

It makes me happy to think that the asteroid discovered by Ted is watching over both of us somewhere out there in the sky, and always will be.

- [注] go on a treasure hunt 宝探しに行く astronomy 天文学
telescope 望遠鏡 realize 実現させる
asteroid 小惑星 discovery 発見
concrete data 詳細なデータ
Minor Planet Center ボストン近郊にある小惑星センター
accept 認める somewhere どこかで
exchange 交換する get married 結婚する
lose touch 疎遠になる edit 編集する
Tolstoy ロシアの文豪トルストイ diameter 直径
hug 抱きしめる miracle 奇跡
satisfying 満足のいく proud of ~ ~の事を誇りに思っている

〔問1〕 ⁽¹⁾【 ① one ② my family ③ summer ④ camping ⑤ which ⑥ of ⑦ there in ⑧ the experiences ⑨ was 】 had when I was a child. とあるが、本文の流れに合うように、【 】内の単語・語句を正しく並べかえたとき、2番目と5番目と8番目にくるものの組み合わせとして最も適切なものは、次のア～カの中ではどれか。なお、文頭にくる語も小文字で示してある。

	2番目	5番目	8番目
ア	②	⑤	⑧
イ	②	⑧	⑨
ウ	⑦	①	⑤
エ	⑦	⑧	④
オ	⑨	③	⑤
カ	⑨	⑥	④

〔問2〕 ⁽²⁾ I'm glad you told me about your secret とあるが、your secret の内容として最も適切なものは、次のア～エの中ではどれか。

- ア the effort to discover a new asteroid and give it a name
- イ the dream to edit picture books for children
- ウ the hope to learn astronomy in the future
- エ the wish to become a writer and create adventure stories

〔問3〕 本文の流れに合うように、(3) に入る 20 語以上 30 語以内の英語を書きなさい。英文は二つ以上にしてもよい。

解答用紙の解答欄には、一つの下線に1語を書き、「,」「.」「?」「!」などは語数に含めず、下線と下線の間を書くこと。I'll のような「'」を使った語や e-mail のような「-」で結ばれた語はそれぞれ1語として扱うこととする。

〔問4〕 (4) の中には次の①～④の文が入る。本文の流れに合うようにそれらを正しく並べかえたとき、その組み合わせとして最も適切なものは、下のア～カの中ではどれか。

- ① I asked the woman who answered the phone about the discoverer of the new asteroid in the article.
- ② Even after I went back home to Los Angeles, I continued to look for Ted's name on social media.
- ③ However, she said in a low voice, "I'm sorry, but we cannot give you any information about the person who discovered it."
- ④ Soon after my wife and I arrived at a hotel in New York, I checked the website of the Minor Planet Center and made a phone call.

ア	② → ③ → ④ → ①	イ	② → ④ → ① → ③
ウ	③ → ① → ② → ④	エ	③ → ② → ① → ④
オ	④ → ① → ③ → ②	カ	④ → ③ → ① → ②

〔問5〕 ⁽⁵⁾ I almost cried. とあるが、その理由として最も適切なものは、次のア～エの中ではどれか。

- ア Ted told me that he was able to discover a new asteroid at last after he made a lot of efforts, and I was glad at that.
- イ Ted showed his understanding and respect for my job as an editor, and I was moved by that.
- ウ Ted told me that he was proud of himself for never giving up his dream, and I was encouraged by that.
- エ Ted kept his promise to find a job which was connected to books, and I felt so happy about that.

〔問6〕 本文の流れに合うように、(6) にどのような英語を入れるのがよいか。本文中の連続する3語で答えなさい。

〔問7〕 本文の内容と合っているものを、次のア～カの中から一つ選びなさい。

- ア Ted and Alex talked not only about their schools, their families, and their towns but also about their dreams while walking in the woods.
- イ When someone finds a new asteroid, the person can give it a name and must send the report about it to the Minor Planet Center.
- ウ Ted and Alex exchanged letters for a few years, and they became so busy that they stopped doing so.
- エ When Alex read a magazine on the plane and found out the name “Ted” on it, he was excited and shouted to his wife.
- オ In 2024, Alex found a telescope, and it reminded him of the wonderful night with Ted’s family while he was watching some families by the lake.
- カ Alex thinks that all of us will be able to have a chance to find valuable things in life just as he found some.

〔問8〕 (A) Life is worth living with good friends and a big dream. および (B) If you want to be happy, be. とあるが、(A), (B) いずれかの文を選び、その文に対するあなたの考えを、今後の自分の生活と結びつけて、50語以上60語以内の英語で書きなさい。波線部の語や表現は用いても構わないが、文全体を引用してはならない。英文は二つ以上にしてもよい。

解答用紙の解答欄の に選択した文の記号を記入しなさい。また、一つの下線に1語を書き、「,」「.」「?」「!」などは語数に含めず、下線と下線の間を書くこと。I'll のような「'」を使った語や e-mail のような「-」で結ばれた語はそれぞれ1語として扱うこととする。

