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科学雑誌 *Science* に掲載された以下の文章を読んで、設問に答えなさい。

Contemporary science has its roots in the achievements of amateur<sup>(1)</sup>  
scientists of centuries past. Although they lacked what we would define  
as ( 2 ) scientific training, they worked out the basic laws of physics  
and principles of chemistry. They invented instruments. And they  
discovered, documented, sketched, and painted planets, comets, fossils,  
and species.

An editorial in a leading science journal once proclaimed an end to  
amateur science: “Modern science can no longer be done by gifted  
amateurs with a magnifying glass, copper wires, and jars filled with  
alcohol.” I grinned as I read these words. For then as now there’s a  
10× magnifier in my pocket, spools of copper wire on my work bench,  
and a nearby jar of methanol for cleaning the ultraviolet filters in my  
homemade solar ultraviolet and ozone instruments. Yes, modern  
science uses considerably more sophisticated methods and instruments  
than in the past. And so do we amateurs.<sup>(3)</sup> When we cannot afford the  
newest scientific instrument, we wait to buy it on the resale market or  
we build our own. Sometimes the capabilities of our homemade<sup>(4)</sup>  
instruments rival or even exceed those of their professional  
counterparts.

Many amateurs have contributed observations and data that have  
been incorporated into papers and books. Some are accepted as  
colleagues by their professional counterparts. They present their  
findings at conferences and publish papers in professional journals. For  
each of these, hundreds more<sup>(5)</sup> devote their spare time to making  
observations, measurements, sketches, photographs, and reports  
without receiving direct recognition.<sup>(6)</sup> Although some are retired, others  
are taxi drivers, photographers, civil servants, pilots, or missionaries,  
the latter group having an especially impressive record of achievement.  
And some, like my grandmother Leitha Mims, do not even think of  
themselves as amateur scientists. Yet through years of careful

gardening she grew a new variety of amaryllis.

Then there are the student scientists. Each year more than half a million science fair projects are prepared by students in the United States. Although most projects are required learning assignments, a surprising number of students do ( 7 ) work, and some even make discoveries.

Amateur scientists identify with student scientists, perhaps because we often don't realize that some of our experiments are not supposed to work. When my son Eric wanted to build a novel seismometer, a professional seismologist said it would not succeed because our Texas house rests on soil and not bedrock. Eric proceeded anyway, and his supersensitive seismometer detected many earthquakes and two underground nuclear tests in Nevada, an achievement that won him college scholarships and science fair awards. An atmospheric scientist said my daughter Vicki's attempt to detect solar x-ray flares with a Geiger counter would not work. Remembering Eric's experience, I excitedly told her this meant her <sup>(8)</sup> project would succeed! And succeed it did, for Vicki <sup>(9)</sup> detected six X-class x-ray flares. Her project won science fair awards and was recently published in a book.

The journal *Science* itself was begun by a famous amateur scientist and inventor. Although his methods were sometimes ridiculed by some scholarly scientists, their names are long forgotten. But everyone remembers Thomas Edison, who began *Science* as a private venture in 1880. Expelled from school at the age of seven for being "retarded," Edison was taught at home by his mother. His life changed forever when he found an old copy of Michael Faraday's *Experimental Researches in Electricity* and promptly built every project in the book. Thus the self-taught English amateur scientist, who was also schooled <sup>(10)</sup> at home, passed the torch to the young American.

注) seismometer = 地震計

seismologist = 地震学者

bedrock = 岩盤

retarded = 知能の発達が遅れた

問 1 下線部(1)を日本語に訳しなさい。

問 2 空所( 2 )に入る語としてもっとも適当なものを次の中から選び、記号で答えなさい。

- (ア) everyday                      (イ) formal                      (ウ) manual  
(エ) mental                      (オ) physical

問 3 下線部(3)を“so”の内容が明らかになるように、日本語に訳しなさい。

問 4 下線部(4)を日本語に訳しなさい。

問 5 下線部(5)の後に補うべき一語を、本文中から抜き出して答えなさい。

問 6 下線部(6)の意味内容としてもっとも適当なものを次の中から選び、記号で答えなさい。

- (ア) 科学的データの価値をきちんと認識せずに  
(イ) 彼らの観察や報告が最初はプロの科学者たちに信じてもらえないが  
(ウ) 現代科学に与える影響をはっきりと認識することなく  
(エ) その功績が直接認められることはないが

問 7 空所( 7 )に入る語としてもっとも適当なものを次の中から選び、記号で答えなさい。

- (ア) abrupt                      (イ) compulsory                      (ウ) original  
(エ) routine                      (オ) typical

問 8 下線部(8)で筆者が思い起こしている“Eric’s experience”の内容を50字以内(句読点を含む)の日本語で説明しなさい。

問 9 下線部(9)は本文のどの部分を指すのか、その最初と最後の語を示しなさい。

問10 下線部(10)の意味内容としてもっとも適当なものを次の中から選び、記号で答えなさい。

- (ア) エジソンが創刊した雑誌が今でもアメリカの若者に読まれている。  
(イ) エジソンの影響を受けて、多くのアメリカの若者が科学に興味を持った。  
(ウ) ファラデーと同じようにエジソンも家庭で教育を受けた。  
(エ) ファラデーのアマチュア科学の精神がエジソンに受け継がれた。

2 次の英文を読んで、設問に答えなさい。

When I ask people worldwide what are the three most important things in their lives, 95 percent put “family” or “family relationships” on the top-three list. Fully 75 percent put family first.

Our greatest joys and our deepest heartaches surround what’s happening in our family life. We want things to be right. When we sense a gap between our vision of the rich, beautiful family life we want to have and the reality of every day, we begin to feel “off track.”

One evening when I was in the middle of working late, my wife called.

“What are you doing?” she asked impatiently. “You knew we were having guests for dinner. Where are you?”

I could tell she was upset, but I was in the midst of my own frustration over delays at work and I replied directly, “Look Sandra, it’s not my ( 1 ) that you scheduled dinner. And I can’t help it that things are running behind here. You’ll have to figure out ( 2 ) to handle things at home. I’ll come when I can.”

As I ( 3 ) down the phone I suddenly realized that my response had been completely reactive. My wife’s question had been reasonable. She was in a tough social situation. But ( 4 ) of understanding, I had been so filled with my own situation that I had responded harshly and undoubtedly made things worse.

This was not the way I wanted to behave toward my wife. These were not the feelings I wanted in our relationship. If I had been more considerate—if I had acted ( 5 ) of my love for her rather than reacting to the pressures of the moment—the results would have been completely different.

Family life would be a whole lot better if people were proactive, that is, if they acted based on their deepest values rather than reacting to the

emotion or circumstance of the moment. What we all need is a “pause button” that allows us to stop between what happens to us and our automatic response to it, and to choose our own response.

It is possible to develop this capacity to pause and to give wiser responses. The ability comes from the cultivation and use of four unique human gifts. These gifts—self-awareness, conscience, creative imagination and independent will—reside in the space we humans have between what happens to us and our response to it.

I have one friend who uses these gifts to make a powerful proactive choice every day. When he comes home from work, he sits in his car in the driveway and pushes his pause button. He literally puts his life on hold. He gets perspective. He thinks about the members of his family and what they are doing inside the walls of his home. He considers what kind of environment and feeling he wants to create when he goes inside. He says to himself, “My family is the most enjoyable, the most pleasant, the most important part of my life. I’m going to go into my home and feel and communicate my love for them.”

When he walks through the door, rather than becoming critical or going off by himself to relax and take care of his own needs, he goes around the house and interacts in positive ways with every family member—kissing his wife, rolling around on the floor with the kids or doing whatever it takes to create pleasantness and happiness—whether it’s taking out the garbage or helping with a project. He rises above his fatigue, his challenges at work, his tendencies to find fault with what he may find in the house. He becomes a conscious, positive, creative force in the family culture.

Think about the proactive choice this man is making and the impact it has on his family! Think about the way he is building relationships and how this is going to affect every dimension of family life for years, perhaps for generations, to come!

問 1 空所(1)~(5)に、もっとも適当な一語を入れなさい。

問 2 上の英文に関して、以下の(1)~(7)の答えとしてもっとも適当なものを(ア)~(エ)から一つ選び、記号で答えなさい。

(1) The phrase “off track” (underlined) in this sentence means:

- (ア) everything is OK
- (イ) helpless
- (ウ) something is wrong
- (エ) sympathetic

(2) The words “proactive” and “reactive” mean:

- (ア) acting without thinking carefully / thinking carefully before acting
- (イ) being active / being passive
- (ウ) being passive / being active
- (エ) thinking carefully before acting / acting suddenly or spontaneously

(3) What happens when the author’s friend presses the “pause button” (underlined)?

- (ア) He stops his car.
- (イ) He takes time to think about his life.
- (ウ) He tries to remember the important things he did at work.
- (エ) He worries about his family.

(4) Which of the following is the author’s friend most unlikely to do when he comes home from work?

- (ア) ask his children what they did at school
- (イ) do some housework
- (ウ) help his children with their homework
- (エ) tell his children to study hard at school

(5) The phrase “rises above” (underlined) means:

(A) is based on

(B) is influenced by

(C) overcomes

(D) suffers

(6) The author thinks

(A) that husbands shouldn't overwork or come home late.

(B) that people shouldn't take their work stresses home to their families.

(C) that people should be more self-centered.

(D) that wives must be tough with their husbands.

(7) What would be the best title for this essay?

(A) Husbands must do their best

(B) Making a better home life

(C) Pause to think about yourself

(D) The pleasures of family life

3

英文の指示に従い、設問Aと設問Bに答えなさい。

[A] Read the student's draft<sup>1</sup> profile of a classmate below. Then rewrite the 5 underlined sentences. Change the part that's incorrect but keep the same meaning intended by the writer. **Don't** change any part that is correct or make unnecessary changes. The first sentence has been done for you as an example.

e.g. 'My first impression of Yuichi Kimura was friendly.'

*My first impression of Yuichi Kimura was that he is friendly.*

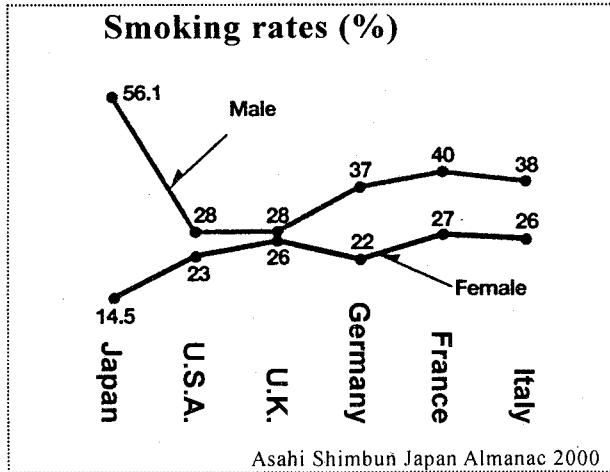
My first impression of Yuichi Kimura was friendly. I was right and we're getting on just fine these days. I'm really glad he is in the same class to me. He is extremely good at sport. Recently he joined the club of basketball. In fact last year I saw him skiing too and he says he wants to do it again next winter. He would like to challenge snowboarding as well. Like me, he's studying law but he tells me that his real interest is astronomy. The books in his room are almost about stars. I think he's a bit of a dreamer. Yuichi also has a really interesting girlfriend. She wants to trip to Australia.<sup>2</sup> They hope to both meet up in Sydney next September. It seems to me that Yuichi is a lucky guy.

Note:

<sup>1</sup>draft = 下書き

<sup>2</sup>Please use the word 'trip' in your answer.

(B) Imagine you are writing an article about smoking in Japan for an international health conference and you are going to include the following information in it.



Complete the short paragraph on your answer sheet

- comparing Japan's male and female smoking rates with other countries'
- giving a possible reason for any differences
- and finishing with your own conclusion based on the information above.

You may write any number of sentences but you must include the words you are given (*'The graph clearly shows.....'* etc.). The whole paragraph should be **about** 60-80 words.

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放送を聞き、以下の英文の指示に従って、設問に答えなさい。

**注 意**

1. 対話はAとBの二つがある。まず、最初に対話Aが二度続けて放送される。その後、設問に解答するための3分間の空白がある。最後に、対話Bが二度続けて放送される。
2. 放送を聞きながら、メモをとってもよい。また放送が終わったあとも、この問題の解答を続けてよい。
3. 解答は解答用紙の所定欄に記入すること。

[A] *Listen to Junko (female) and Patrick (male) who meet on a boat trip in Vietnam, and choose the best answer to each question.*

- (1) Does Junko's friend like Vietnamese food?
  - (ア) Junko's friend doesn't like Vietnamese food.
  - (イ) Junko's friend likes Vietnamese food.
  - (ウ) Junko's friend only likes French food.
  - (エ) We are not told.
- (2) Do the speakers like the food in Vietnam?
  - (ア) Neither of them likes it.
  - (イ) Only Junko likes it.
  - (ウ) Only Patrick likes it.
  - (エ) They both like it.
- (3) What does Patrick say about the food in Vietnam?
  - (ア) French food is better.
  - (イ) It's better than French food.
  - (ウ) There's a lot of French food in Vietnam.
  - (エ) There's too much French food in Vietnam.
- (4) What does Junko say about the 'Indo-China' restaurant?
  - (ア) It's good but a bit expensive.
  - (イ) It's good value for money.
  - (ウ) It's the top place for tea.
  - (エ) Their menu is difficult to understand.

(5) What happens at the end?

- (ア) Junko can't find the restaurant's address.
- (イ) Junko gives Patrick the restaurant's card.
- (ウ) Junko must hurry to catch the bus.
- (エ) Junko writes the restaurant's address on an old bus ticket.

[B] *Listen to Junko (female) and Pietro (male) who meet in a restaurant in Spain, and choose the best answer to each question.*

(1) What are we told about Junko's home?

- (ア) She came from Sendai.
- (イ) She comes from Sendai.
- (ウ) She's from Tokyo.
- (エ) She's living in Sendai.

(2) Does Junko seem to be fluent in Spanish?

- (ア) She can speak a little.
- (イ) She can't speak it.
- (ウ) She majors in Spanish.
- (エ) She's teaching Spanish.

(3) Who is Pietro?

- (ア) He's a foreign tourist.
- (イ) He's a guide.
- (ウ) He's a Spanish tourist.
- (エ) He's a writer.

(4) Have Junko and Pietro been to Granada?

- (ア) Both are going there.
- (イ) Both have been there.
- (ウ) Junko has been there.
- (エ) Pietro has been there.

- (5) Where is the palace?
- (ア) Beside the bank.
  - (イ) Four miles from the town centre.
  - (ウ) On the hill.
  - (エ) On the main square.
- (6) Is the palace usually very crowded inside?
- (ア) It always gets very crowded.
  - (イ) Only 14 people are allowed in at any time.
  - (ウ) Only 10 people are allowed in at any time.
  - (エ) The number of visitors is restricted.
- (7) How can you get tickets for the palace?
- (ア) It's possible to get them at any bank.
  - (イ) They're only on sale at the bank.
  - (ウ) They're only sold the evening before you go to the palace.
  - (エ) They're sold at the palace and at the bank at the town's central square.
- (8) What's Pietro's reaction at the end?
- (ア) He decides not to go to Granada.
  - (イ) He is disappointed that he can't buy a ticket.
  - (ウ) He seems to agree with Junko's suggestion about buying a ticket.
  - (エ) He thinks he won't be able to get a ticket.

## Dialogue Script

[Dialogue A] (On a boat trip in Vietnam)

Patrick: Enjoying the trip?

Junko: Yes, the islands are very beautiful.

Patrick: You're on your own...or...?

Junko: Yes but I have a friend who lives here.

Patrick: A Vietnamese?

Junko: No, but he's working here for a Vietnamese company.

Patrick: That must be interesting.

Junko: Yes but he's not so keen on the food here.

Patrick: Really...I quite like Vietnamese food. And there's so much French food here too...

Junko: Yes I like it too.

Patrick: so...there's a wide variety. And it's quite cheap...

Junko: Have you tried the Indo-China restaurant?

Patrick: ...I don't think so...It's French?

Junko: Vietnamese...I had a marvellous lunch there. It's quite difficult to find but it's really top quality and not expensive compared to other countries.

Patrick: Really...maybe I'll give it a try.

Junko: I think I have their card somewhere...yes...Oh!...that's a bus ticket...Ah! here...and it has a small map on the back.

Patrick: Thank you. I'll try it.

[Dialogue B] (In a restaurant in Spain)

Pietro: You're Japanese?

Junko: Yes.

Pietro: Where from?

Junko: Sendai, but I'm studying in Tokyo.

Pietro: You speak Spanish?

Junko: Enough to get around.

Pietro: Oh...you're better than me...I have to look it up in the back of my guidebook...But it's not that difficult I think...Have you been here long?

Junko: I came yesterday...but I was in Granada before that...How about you?

Pietro: I'm thinking of going to Granada tomorrow. It's worth seeing? .

Junko: Yes I took many photos of the palace and the gardens. It's on the hill, high up. The view is wonderful. You can see for miles. But you have to get a ticket early, otherwise you won't be able to get in. They limit the number of people who can get in, so it's best to get there before ten.

Pietro: Right...I see...I suppose it would get too crowded if they didn't.

Junko: Yes...though you can also get a ticket in the town centre at the bank the evening before. Maybe that's a good idea.

Pietro: Right...in the bank...any bank?

Junko: Eh...I think it's just the one on the main square...in the middle of the town.

Pietro: Mmm...that's quite useful. It would be disappointing to arrive at the Palace and not be able to get in.

Junko: Yes...and it's really worth seeing.