

英 語

I. Read the following text written in 2001 and answer the questions on pages 2 and 3.

The recently started North Pole route between New York and Hong Kong has caused concern among airline unions and scientists. According to international experts, the passengers and crew members are exposed to unusually high levels of cosmic and solar radiation.

Passengers taking five round trips on the nonstop route could exceed maximum recommended levels for annual radiation doses, according to scientists who have studied the issue individually. In fact, any air travel involves greater exposure to cosmic and solar radiation than staying on the ground. That is because the air is thinner at high altitudes and provides less protection against the radiation that constantly hits Earth from space.

The New York-Hong Kong flights involve more exposure, scientists say, in large part because of higher radiation levels resulting from the magnetic attraction that the North Pole exerts on charged radioactive particles from space. A pilot from one airline who requested anonymity said that captains had recently started insisting on flying at lower than optimal flight altitudes along this and other routes to avoid excess radiation exposure.

Robert Barish, a New York health physicist who specializes in studying in-flight radiation and has written a book on the subject, reckons that the dosage received during each flight along the transpolar route is equivalent to three chest X-rays and may be significantly increased by solar flare radiation. A standard one-way trans-Atlantic flight between New York and London exposes fliers to the equivalent of less than two chest X-rays, Mr. Barish said.

The dose of in-flight radiation for each one-way transpolar flight from New York to Hong Kong could reach 0.10 millisievert, a standard measure of radiation exposure, even without additional radiation from a solar flare, according to calculations made by Martha Waters, a research scientist for the US government. According to Ms. Waters' calculations, a passenger taking only one return trip on the route every other month could surpass the maximum dosage guideline of one millisievert per year set for the general public by the EU and the Radiological Protection agency. Calculating separately and independently, scientists have affirmed that radiation from five roundtrip flights could surpass the threshold of one millisievert.

Heavy doses of radiation can cause damage to a developing fetus, provoke cancer or produce genetic mutations in human egg and sperm cells. (A), the neutron-intensive radiation experience in flight is more damaging to cell structure than X-rays, Ms. Waters said.

Another scientist has said, "The radiation on one flight may not be an immediate health hazard but it is important that air captains, first officers and frequent travelers know about the risks." The airlines flying the North Pole route said they do not inform passengers of the increased cosmic radiation risks. But they said they take precautionary measures, such as monitoring for solar storms. (B) Research into the radiation risks of high-altitude flights remains in its infancy, but several cancer studies among pilots have found increases in certain cancers often associated with radiation.

A paper published in 1996 found a higher incidence of myeloid leukemia*, astrocytoma**, prostate cancer and malignant melanoma*** among 2,740 Air Canada pilots than in the general population.

Scientists and airline employees unions, who have raised the issue in the past, have expressed concern, especially for (C) pregnant women and frequent travelers. Anecdotal reports of high rates of miscarriage and menstrual disorders among flight attendants have prompted the U.S. government's Centers for Disease Control to start a broad-based study on the impact of in-flight radiation.

Another large-scale study, on cancer rates among flight crews, will be completed this summer. Early reports of preliminary findings suggest that flight attendants have breast cancer rates twice those of the general population and that their skin cancer rates may be 15 times as high.

(註) *myeloid leukemia: 骨髄性白血病 **astrocytoma: 星状細胞腫
***melanoma: メラノーマ、黒色腫

1. Choose the most appropriate title for the text from the choices below.
 - a. A New Discovery for a New World
 - b. Choosing a Safe Flight
 - c. Flying on Top of the World: A Radiation Risk
 - d. Radiation and Vacation

2. Why is exposure to radiation more serious at high altitude?
 - a. People are not used to that height in their daily lives.
 - b. People receive radiation in one dose.
 - c. The higher the plane is, the farther it is away from the earth.
 - d. The layer of protective air is thinner.

3. Which is NOT true about the flight route between New York and Hong Kong?
 - a. It is more subject to radiation exposure because it passes near the North Pole.
 - b. It is a safer route than the trans-Atlantic route between New York and London in terms of radiation exposure.
 - c. If you take this route round-trip, it is possible that the dose of in-flight radiation could reach 0.20 millisievert.
 - d. If a passenger takes this trans-polar route, he/she may receive the dosage equivalent to three chest X-rays.

4. Choose the most appropriate word or phrase for (A) in the text.
- Because
 - Consequently
 - However
 - In addition
5. Which of these does NOT result from large doses of radiation?
- damage to developing fetuses
 - malignant melanoma
 - mutations in reproductive cells
 - vision problems
6. Which word or phrase is the closest in meaning to (C) pregnant in the text?
- affective
 - affluent
 - efficient
 - expectant
7. According to the passage, which of the following is NOT true?
- Flight attendants are less likely to get breast cancer than the general public.
 - Flight attendants report high rates of miscarriages.
 - Flight crews have cancer rates 15 times as high as the general population.
 - Flight crews have a greater chance of suffering from leukemia.
8. According to the text, what do some scientists worry about?
- Air Canada pilots are seriously worried about flying at low altitudes.
 - Air captains, first officers and frequent travelers should know about the risks of in-flight radiation.
 - Even one flight's radiation can cause immediate damage to flight crews.
 - Heavy doses of radiation can influence viruses associated with human diseases.

次の問題 , の解答は記述式解答用紙に記入しなさい。

Translate the underlined part (B) in the text into Japanese.

Would you continue to fly on a New York-Hong Kong route if you were a pilot or a flight attendant? Why or why not?

II. From sentences A-G below, choose the most appropriate combination to complete the paragraph.

Research continues and new developments are constantly being made in the field of hearing loss. There were three new procedures and four new drugs developed and approved for the consumer market last year. (①) (②) Like other aids, it converts sound into vibrations. (③) This produces a clearer sound. The new device will not help all hearing-impaired people, but only those with a hearing loss caused by infection or some other problem in the middle ear. (④) (⑤) Those who are interested in trying out the new hearing device should assess their situation and speak to their health provider. (⑥)

- A. As an example, a new hearing device became available in 2012 for some hearing-impaired people.
- B. However, unlike other aids, it is unique in that it can transmit the vibrations directly to the magnet and then to the inner ear.
- C. Due to this limitation, it will probably help no more than 20 percent of all people with hearing problems.
- D. Hearing impairment is one of the top six issues in science today.
- E. In the future, hopefully a solution can be found for a higher percentage of hearing-impaired people.
- F. This device uses a magnet to hold the detachable sound-processing portion in place.
- G. Those 20 percent of people who have persistent ear infections, however, should find relief and restored hearing with the new device.

9. (①)-(②)-(③)

- a. A-B-F
- b. A-F-B
- c. D-A-C
- d. D-C-A

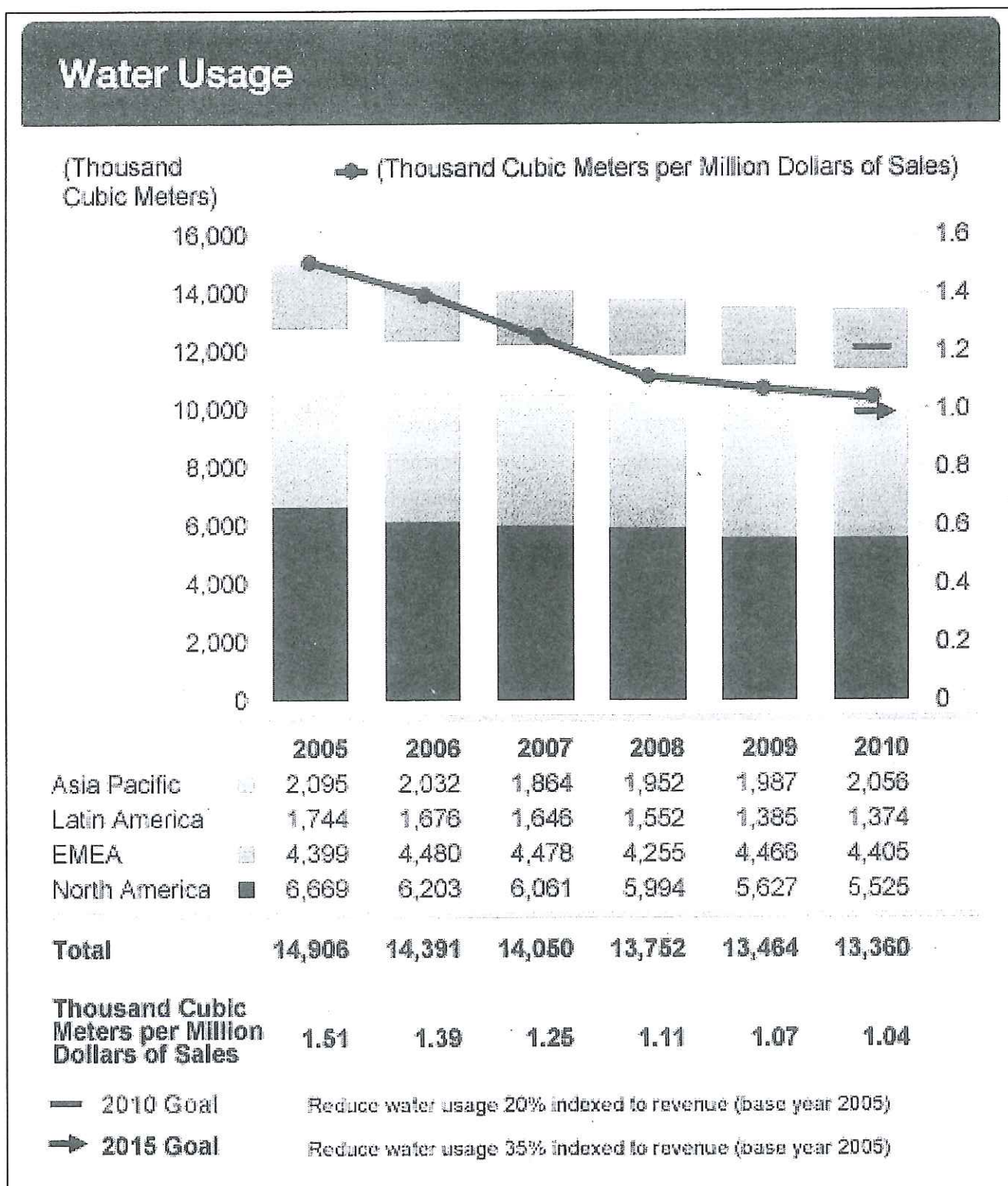
10. (④)-(⑤)-(⑥)

- a. C-E-G
- b. C-G-E
- c. E-C-D
- d. E-G-A

11. Which of the following is true?

- a. People with hearing loss that is not caused by infection or middle ear problems use the new hearing aid.
- b. The magnet vibrates and sends sound to the brain.
- c. The new hearing aid will be released in 2013.
- d. Twenty percent of hearing-impaired people can have their hearing restored by the new hearing aid.

III. Based on the graphs below, choose the most appropriate answer to fill in each blank.



*EMEA: Europe, the Middle East and Africa

In Asia Pacific, the rate of water consumption from 2005 to 2006 was vastly reduced by (12) million cubic meters. This rate was further reduced to 1.864 million cubic meters the very next year, from 2006 to 2007. However, these savings (13) themselves in 2008 and usage has grown until 2010. Latin America, with its decreasing population size and (14) demand for water, has seen gradually dropping rates. (15), the EMEA's demand has (16) to remain stable since 2005 and is projected to do so in the (17). Back across the pond, in North America, water usage has been impressively dropping off since 2005. Since this region has (18) decreased its annual rate, it has been both (19) and awarded for its strong programs to reduce usage and to conserve water. Altogether, the global targets for water usage have been (20) every year, and analysts hope that they will drop (21) the 10 million mark by 2015.

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|-----|-----------------|--------------|---------------|---------------|
| 12. | a. 0.063 | b. 0.63 | c. 6.3 | d. 63 |
| 13. | a. divided | b. reserved | c. reversed | d. stabilized |
| 14. | a. declining | b. expanding | c. increasing | d. steady |
| 15. | a. Although | b. In fact | c. Meanwhile | d. Therefore |
| 16. | a. continued | b. declined | c. expected | d. leaned |
| 17. | a. century | b. future | c. past | d. place |
| 18. | a. consistently | b. randomly | c. rarely | d. sometimes |
| 19. | a. alarmed | b. alerted | c. annoyed | d. applauded |
| 20. | a. challenged | b. ignored | c. maintained | d. met |
| 21. | a. above | b. below | c. in | d. with |

IV. Based on the following table and dialogue, answer questions 22-31.

	NON-IMMIGRANT VISA (NIV) SERVICES	IMMIGRANT VISA (IV) SERVICES
Routine Visa Applications	- Monday, Wednesday, Thursday: 09:00-12:00	-Tuesday: 08:00-10:00 -By online appointment system only
Official/Diplomatic Visa Applications	- Monday, Tuesday, Thursday, Friday: 08:00-13:30 - No interview necessary	- Tuesday: 10:00-12:00 - By online appointment system only
Visa Interviews	- Monday, Wednesday, Thursday: 08:00-12:00 - By online appointment system only	- Friday: 13:30-17:00 - By telephone appointment system only
Visa Pick-up	- Monday, Wednesday, Thursday: 13:30-16:00 - Passports will only be released to passport holder or person previously designated on application form with proper ID (passport or driver's license).	- Thursday: 13:30-17:00 - Passports will only be released to passport holder.
Non-Emergency Telephone Inquiries	- Monday through Thursday: 13:00-17:00 - (212) 847-2300	- Monday through Thursday: 13:00-17:00 - (212) 847-2700
Emergency Telephone Inquiries	-Monday through Friday: 18:00-20:30 - (212) 847-2100	- Monday through Friday: 18:00-20:30 - (212) 847-2500
E-mail Inquiries	USAConsul@usa.gov	USAConsulImmigration@usa.gov

US Consulate, Reception Desk -- Monday

Consulate Staff, Joanna: Good morning! Welcome to the US Consulate. How can I assist you today?

Fred: I submitted my IV application last week. When can I come and pick up my visa?

Joanna: After a successful interview, you can pick it up on the following (A).

Fred: Oh, I see. Are there any other times that I can pick it up?

Joanna: Unfortunately, no. That's the only time that's scheduled for IV pick-up.

Fred: Hmm, alright. Thanks very much.

Hiroshi: Hi there. Do I have to pick up my visa or can someone else pick it up?

Joanna: Are you applying for non-immigrant or immigrant status?

Hiroshi: I applied for non-immigrant status and my wife applied for immigrant status.

Joanna: Well, then, your wife has to come in personally to pick up her visa, but you can designate her on your visa application and she can pick it up for you.

Hiroshi: Great, thanks so much!

Consulate Staff, Ricardo: (B) Joanna, there's a diplomat here who wants to schedule an IV interview in-person.

Joanna: Okay, I will help them in just a minute.

Ricardo: By the way, how are things going today?

Joanna: It's only 10:15, but it's so (C)! I wonder why that is. Anyway, do you have any idea who's next? The queuing system broke down this morning, so I have to give people numbers by hand.

Ricardo: Sounds like you've really been working hard this morning. Why don't you (D)?

Joanna: That's a fantastic suggestion. Would you mind giving me a raise, as well?

Ricardo: You just started working here, so I think it's a little bit too early for that! Maybe after you've been here for 10 or 15 years like Shaun.

Consulate Staff, Shaun: I heard that! I've never gotten a raise from him. Don't believe him, Joanna.

Eun Sung: Excuse me, where can I find American Citizen Services?

Ricardo: Walk through that door, take a right, go all the way down the hall, and you'll see it on your left.

Eun Sung: Thanks very much. Also, where can we pick up forms for routine visa applications?

Ricardo: Next door in Visa Application Services.

Eun Sung: Thank you again. OK, mom, let's go.

Ricardo: Joanna was right. The line just isn't stopping today.

22. Choose the most appropriate phrase for (A).
- a. Friday afternoon
 - b. Friday morning
 - c. Thursday afternoon
 - d. Thursday morning
23. Which part of sentence (B) should be given the most stress in spoken conversation?
- a. there's
 - b. wants
 - c. schedule
 - d. in-person
24. Choose the word that is NOT appropriate for (C).
- a. busy
 - b. crowded
 - c. packed
 - d. early
25. Which one is the most appropriate phrase for (D)?
- a. answer the phone
 - b. get a new computer
 - c. go have lunch
 - d. take a break
26. Which sentence is true about visa interviews?
- a. Both Routine IV and NIV interviews can be scheduled on Fridays.
 - b. NIV visa interviews are on Monday, Wednesday, and Thursday mornings.
 - c. Official/Diplomatic visa applicants never have to come in for an interview.
 - d. Visa interviews are only accepted online.
27. Which service is available tomorrow?
- a. Official/Diplomatic IV interviews
 - b. Official/Diplomatic NIV interviews
 - c. Routine IV application
 - d. Routine NIV application

28. Which sentence can be guessed about Joanna and Ricardo's working relationship?
- a. Joanna and Ricardo are both new employees.
 - b. Joanna and Ricardo are same-level colleagues.
 - c. Joanna is Ricardo's superior.
 - d. Ricardo is Joanna's superior.
29. Which of the characters is most likely an American citizen?
- a. Eun Sung
 - b. Fred
 - c. Fred's wife
 - d. Hiroshi
30. How can you make IV interview appointments?
- a. By online appointment system and telephone appointment system
 - b. By online appointment system only
 - c. By telephone appointment system only
 - d. No interview is necessary
31. Why is the consulate staff especially busy today?
- a. It is the weekend.
 - b. There are many people planning to travel abroad.
 - c. There are not enough staff today.
 - d. The system controlling people's turns is broken today.