

## I. Read the following article and answer the questions on pages 2 and 3.

Jeff Baum has a breathtaking daily commute. He travels 10 miles each way from his home to his office — up and down winding roads that eventually climb to 9,800 feet in the Rocky Mountains — to his job as the executive director of the Breckenridge Music Festival.

For most of his 10 years with the festival, he had driven a standard gasoline-powered sport utility vehicle (S.U.V.). Last September, though, he started leaving it at home for something cheaper, quieter and cleaner: an electric bicycle.

It takes him a little longer to get to work, but the bike is more dependable, more energizing, and just more fun than the S.U.V., he said. “I personally feel very good about it,” said Mr. Baum, 53, who spent \$7,000 for an Optibike. “I get the fresh air and, in fact, by switching to the bike, here is one of the few ways in which I as an individual can have a good impact on our environment.”

Electric bikes have some features in common with traditional bikes. They have working pedals, and most have gears. They look similar to traditional bikes, and riders of both types follow the same rules of the road. But the differences begin when a rider starts an electric bike’s battery, often with a key. On some models, riders can twist or thumb the throttle on the handlebar and move forward without pedaling. On others, they can pedal lightly and accelerate quickly.

Electric bikes are typically used at speeds of up to 20 miles per hour without pedaling. They can generally cover 20 to 50 miles on a battery charge, well within the distance of many daily commutes. At the end of a ride, the battery can usually be taken out of its compartment and plugged into a wall with a special cord. After a few hours of charging, it is ready for use again. The bikes may not go very far or fast compared with cars, but (A) due to higher fuel prices and deepening worries about the environment, they are emerging as a possible option for commuting, shopping and other local trips.

Prices of electric bikes can run from a few hundred dollars for cheap models to \$2,000 or more. Some manufacturers are selling electric mountain bikes, folding bikes, and even tricycles. In addition, traditional bikes can be changed into electric versions with conversion kits, like ones that use lithium-ion batteries. Costs of the kits can range from several hundred dollars to more than \$1,000. The potential savings on fuel can (B) ease any shock at the price tag. With the gasoline bill for a household running, on average, more than \$2,000 annually, buyers of electric vehicles may recover much or all of their initial costs in a matter of months to several years.

Electric bikes, popular in Asia and Europe, have yet to gain much of a following in the United States. The number sold here is in the tens of thousands a year, compared with 10 million in a recent year in China.

Finding a place to buy an electric bike can be a challenge. Shoppers have few places to check out the gears and tires, or to take test rides, while online retailers can charge \$200 or more for assembly and delivery charges. Many retailers tend to be on the West Coast and in Florida, in warmer urban areas, where batteries have better year-round performance. In the New York area, several stores also sell electric

bikes.

Internet sites also offer information and sell electric bikes. Elridge Daniel, a Brooklyn businessman, said he bought a bike online after doing some research (C)there. But he said he regretted that he could not try out the bike first. Mr. Daniel, who lives in a walk-up apartment, did not even ride that bike after it was delivered. "It was just too heavy to carry up a flight of steps," he said. He decided that he needed a lighter bike.

Meanwhile, Morris Swadener, a retired Navy officer who lives near Seattle, used the Web to buy his bike from a company based in Houston, for \$1,450. He said he was happy with his (D)choice. "I have bad knees and I wasn't looking to pedal," he said. "But I wanted to be able to go on bike paths."

All in all, manufacturers, retailers, and customers are finding electric bicycles to be an interesting new addition to the transportation world.

1. Which of the following would be the most appropriate title for this article?
  - a. A Two-Wheeled Option for Commuters
  - b. Finding the Best Possible Bicycle Site
  - c. How to Buy an Electric Bicycle
  - d. Riding through the Mountains
  
2. According to the article, which is NOT an advantage of electric bicycles?
  - a. cheaper
  - b. cleaner
  - c. dependable
  - d. faster
  
3. What is one difference between a regular bicycle and an electric bicycle?
  - a. acceleration
  - b. appearance
  - c. road rules
  - d. working pedals
  
4. Which is the closest in meaning to (B)ease any shock at the price tag in the article?
  - a. change the amount of fuel savings
  - b. change the total price
  - c. make money-making easier
  - d. make the cost less surprising

5. According to the article, which of the following is true about electric bicycles?
- a. Electric bicycles are always started with a key.
  - b. Electric bicycles use a lot of gasoline.
  - c. More than 10 million per year are sold in the US.
  - d. Most stores that sell them in the US are in warm areas.
6. What does (C)there refer to in the article?
- a. Brooklyn
  - b. business
  - c. online
  - d. shop
7. What does (D)choice refer to in the article?
- a. \$1,450
  - b. buying a bike
  - c. living in Seattle
  - d. retiring
8. According to the article, a potential electric bicycle buyer should consider:\_\_\_\_\_.
- a. if their job supports electric bicycles
  - b. if they must carry the bicycle somewhere
  - c. the age of their car
  - d. the bicycle's negative impact on the environment

次の問題 **1** , **2** の解答は記述式解答用紙に記入しなさい。

- 1** Translate the underlined part (A) in the article into Japanese.  
(ただし、下線部中の they を明示しながら訳すこと。)
- 2** Would you consider purchasing an electric bicycle? Why or why not?  
Write your opinion in English. Use your own words.  
Do NOT write more than 25 words.  
Write the number of words on the answer sheet.

II. Use three paragraphs from **L**-**O** on page 5 to complete the following passage.

**First Year may be Critical for Lowering Allergy Risk**

9.

10.

By age three, 44 percent of the children were sensitized to at least one allergen, and 36 percent had recurrent wheezing. Over all, the more exposure children had to cockroach, mouse and cat allergens, the higher their risk for wheezing.

11.

**L**

But timing was important. Only 17 percent of those exposed to all three allergens during the first year of life had recurrent wheezing, compared with 51 percent of those exposed to none of them.

**M**

Childhood exposure to allergens and germs is generally believed to protect against the development of asthma and allergy, but a new study suggests that this effect happens only with exposure in the first year of life.

**N**

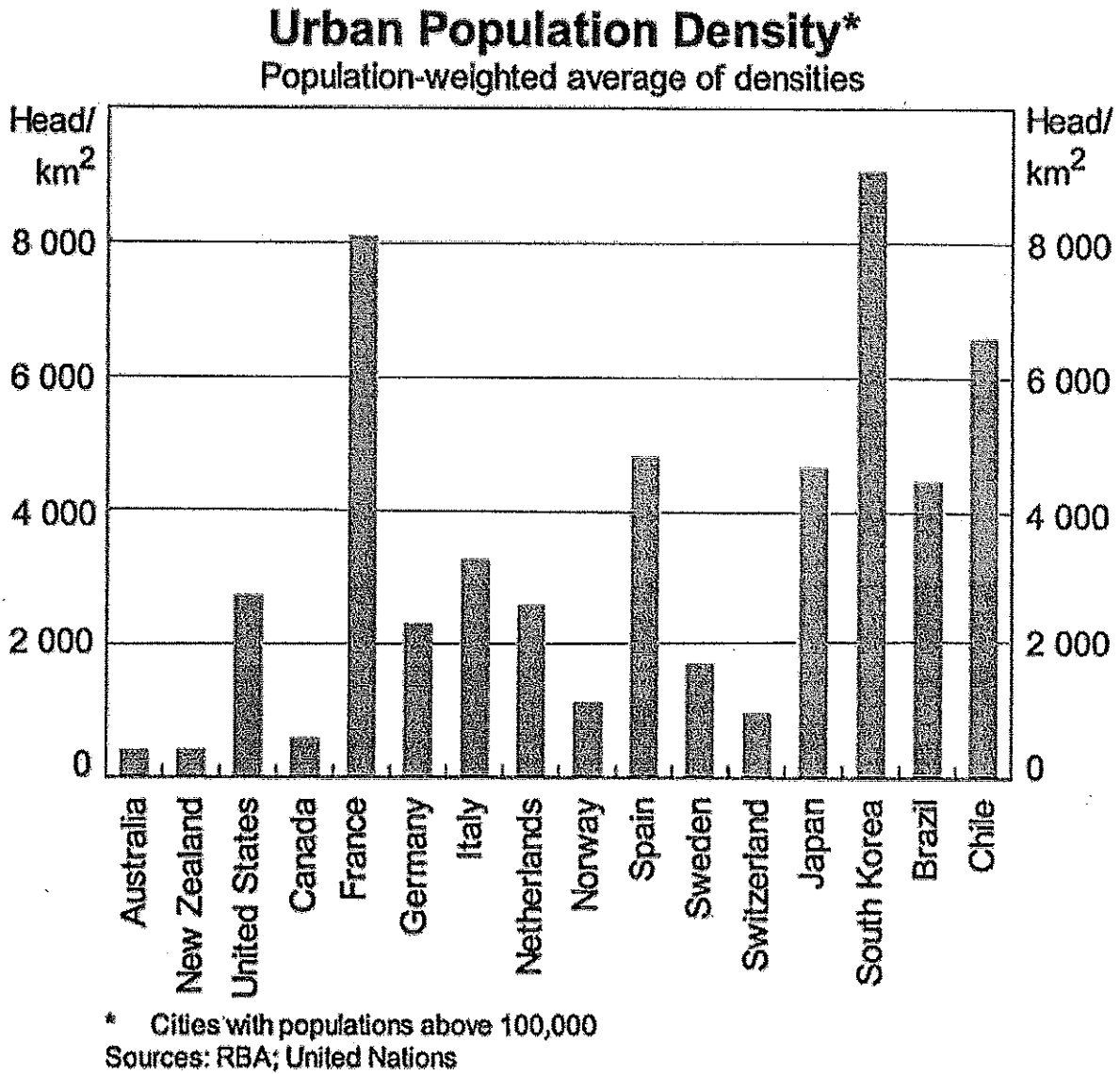
The information could be useful in fighting local outbreaks, which may be caused by parasites from other parts of the world. And it should be possible to make a test kit that will get that information from a spot of dried blood in two hours—far less time than is needed to sequence a whole genome.

**O**

Researchers studied 560 children at high risk for asthma across the United States, regularly testing their homes for bacteria and cat, dog, cockroach, mouse and dust mite allergens. The study, several of whose authors have received funds from pharmaceutical companies, appears in the *Journal of Allergy and Clinical Immunology*.

- |     |      |      |      |      |
|-----|------|------|------|------|
| 9.  | a. L | b. M | c. N | d. O |
| 10. | a. L | b. M | c. N | d. O |
| 11. | a. L | b. M | c. N | d. O |

III. Based on the graph below, choose the most appropriate answer to fill in each blank (12-27).



As more and more people continue to leave their homes in search of better jobs, urban population density will become a ( 12 ) significant problem. In recent years, urban migration has caused a large flow of rural workers to travel to city ( 13 ) in search of employment. Although there are a great number of opportunities for these workers, ( 14 ) is fierce. Consider South Korea, which has the highest urban population density, as an example: South Korea posted a population density of 9,000 heads per square kilometer. There, cities are not only growing, but rural areas are depopulating rapidly because of a ( 15 ) of migration and the death of the elderly. France comes in at a close ( 16 ) due to its similarly high rate of 8,000 people per square kilometer, which is ( 17 ) less than South Korea.

On the ( 18 ) end of the phenomenon, countries which are traditionally nature-oriented, such as Australia and New Zealand, have not ( 19 ) from urban population density problems. Not only do they lack density problems, but those countries, in addition to Canada, also have vast areas of land where nobody lives. There is plenty of room to ( 20 ) if it is necessary.

In the ( 21 ) step up, countries like ( 22 ) and Norway have very similar, almost identical, density levels. However, their density averages are ( 23 ) than half of the following set: the United States, Germany, and the Netherlands. Although these three countries are culturally, geographically, and economically dissimilar, they all have densities that are approximately ( 24 ) people per square kilometer.

( 25 ), there are some locations where citizens must live in densely populated clusters. They are forced to live together in tight, cramped accommodations. In such countries, including Spain and especially the East Asian powerhouse, Japan, the ( 26 ) is emptying out and people are beginning to share houses and apartments in the city.

Citizens of the world are moving at an alarming rate. Due to the fact that most of the movement is from rural to urban areas, economic growth and prosperity occurs in the densely populated city ( 27 ) stagnation and a slow decline takes place in the countryside. Could this be the future of the world?

- |     |                 |                |                 |                |
|-----|-----------------|----------------|-----------------|----------------|
| 12. | a. decreasingly | b. less        | c. more         | d. vanishingly |
| 13. | a. centers      | b. distantly   | c. nearby       | d. outsiders   |
| 14. | a. case         | b. competition | c. constancy    | d. contract    |
| 15. | a. combination  | b. commitment  | c. continent    | d. currency    |
| 16. | a. choice       | b. crowding    | c. relationship | d. second      |
| 17. | a. 500          | b. 1,000       | c. 2,000        | d. 17,000      |
| 18. | a. narrow       | b. opposite    | c. strange      | d. turning     |
| 19. | a. left         | b. returned    | c. suffered     | d. tested      |
| 20. | a. expand       | b. experience  | c. export       | d. exterminate |
| 21. | a. ascend       | b. back        | c. next         | d. preceding   |
| 22. | a. Brazil       | b. Canada      | c. Italy        | d. Switzerland |
| 23. | a. equal        | b. less        | c. same         | d. triple      |
| 24. | a. 1,000-2,000  | b. 2,000-3,000 | c. 3,000-4,000  | d. 4,000-5,000 |
| 25. | a. Finally      | b. Fortunately | c. Thereby      | d. Therefore   |
| 26. | a. city         | b. colony      | c. condominium  | d. countryside |
| 27. | a. during       | b. however     | c. whether      | d. while       |

IV. Based on the following dialogue and graph, answer the questions (28-40).

*Science Museum – in front of a new exhibit*

Henry: Hmm, I wonder what (A)this one is about.

Wu: It looks like it's about sound waves.

Henry: Oh? Is that the shape of a sound wave?

Wu: I'm not really sure. Let's get a closer look.

Henry: Now I can see the numbers. They are a bit small.

Wu: I'm still not sure what this is. I'm going to ask.

Tour Guide (Chris): Can I help you with something?

Wu (to Chris): Yes, could you (B)\_\_\_\_\_?

Chris: Sure. Why don't you take a look at the number 60? That's the number of decibels of the conversation we are having now. If you walked outside, though, the sound of busy traffic would be (C)\_\_\_\_\_.

Henry: I understand now. As the numbers ascend, the sound levels get louder and louder.

Wu: Looks like it.

Chris: That's correct. The lowest theoretical decibel level is (D)\_\_\_\_\_, but humans can't hear sounds that low.

Wu: What is the quietest possible sound that humans can hear?

Henry: I heard that it was an insect flying.

Chris: There are actually many sounds that compete for the lowest measured sound. I'm afraid I can't give you an absolutely (E)correct answer.

Wu: So normal breathing is 10 decibels. Can humans really hear that?

Chris: Yes, it's possible, but usually it's in a laboratory setting or a soundproofed room.

Wu: How about the loudest possible sound that humans can hear?

Henry: According to the chart, it looks like fireworks.

Wu: I can't imagine what they would sound like just one meter away. It's bad enough at 100 meters.

Henry: I do not think that you would be able to hear anything at all afterwards.

Chris: You're probably right. There are many loud sounds that humans could hear, but not many loud sounds that they could hear without going deaf.

Wu: Wow, that's really interesting. But actually I heard that all humans eventually go deaf. Is that true?

Chris: It's partly true. As humans get older, they lose more and more of their hearing. Hearing loss can start from age 8 and continues during your entire life. Men lose their hearing earlier than women, and they lose more of it.

Henry: And that happens to all people?

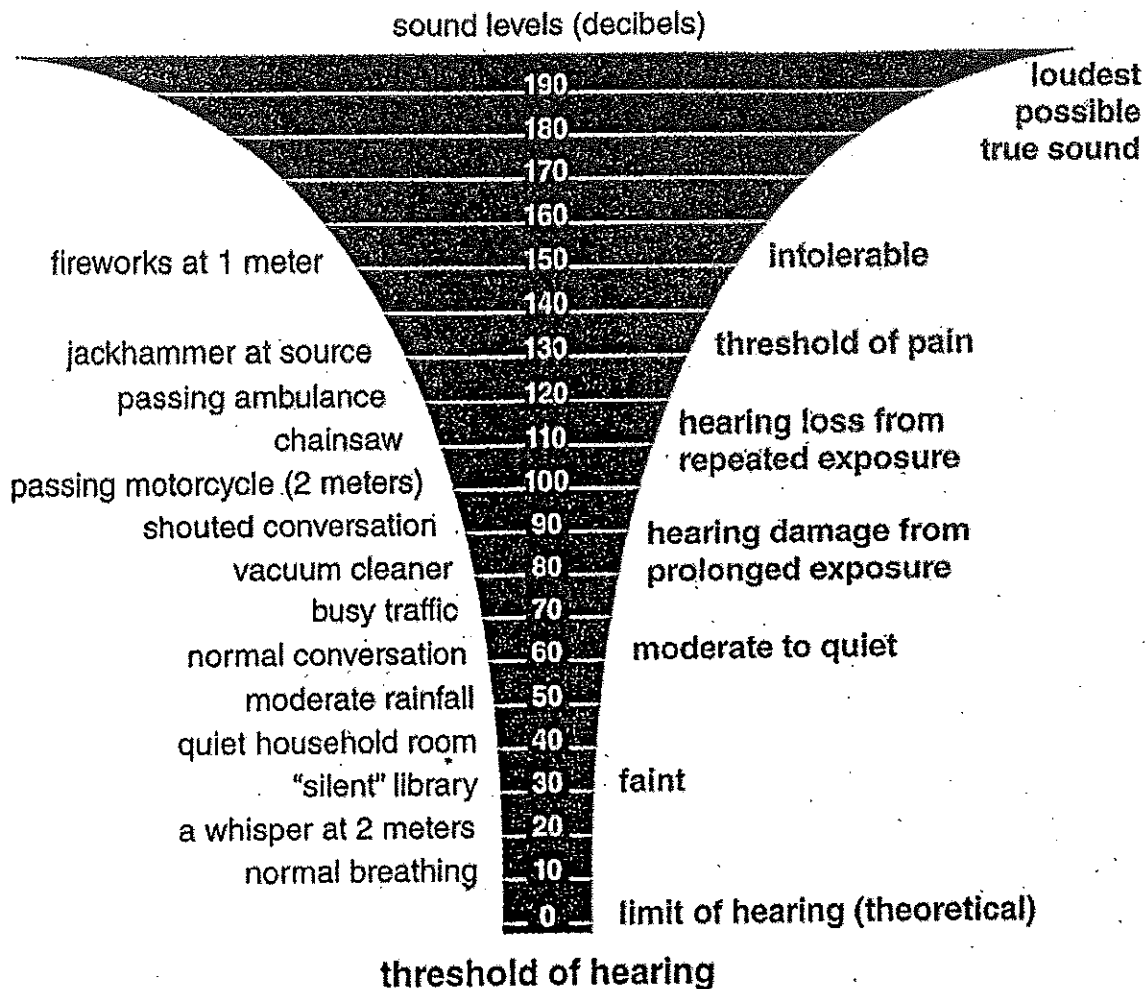
Chris: Unfortunately. Do you have any more questions?

Henry: (F)\_\_\_\_\_

Wu (to Henry): Since we're finished here, let's see what's on the next floor.

Henry: Sounds good to me.





28. What does (A) this one refer to?

- a. Exhibit
- b. Henry
- c. Map
- d. Science

29. Which of the following is the most appropriate for (B)?

- a. change these sound waves
- b. let me know when you are finished
- c. rearrange these small numbers
- d. tell me what this exhibit is about

30. Complete the sentence in (C).

- a. a sound level
- b. difficult to hear
- c. faint
- d. louder than now

31. Complete the sentence in (D).

- a. limited
- b. ten decibels
- c. terrible
- d. zero decibels

32. Which word is the closest in meaning to (E)correct?

- a. capable
- b. certain
- c. conscious
- d. contained

33. Choose the best answer for (F).

- a. Certainly.
- b. Let's go.
- c. No. Thanks, though.
- d. Yes, of course.

34. A live rock concert is approximately 110 decibels. According to the graph, which is the closest in decibels?

- a. a jackhammer
- b. a chainsaw
- c. an ambulance
- d. a shouted conversation

35. According to the graph, which of the following might cause hearing damage from prolonged exposure?

- a. Moderate rainfall
- b. Non-busy traffic
- c. Normal conversation
- d. Vacuum cleaner

36. Based on the graph, how many decibels would a whispered conversation be?
- a. About 10 decibels
  - b. Exactly 15 decibels
  - c. Between 20 to 40 decibels
  - d. Around 55 decibels
37. According to the dialogue, who might have the greatest hearing loss?
- a. An 8-year-old boy
  - b. A 16-year-old girl
  - c. A 47-year-old woman
  - d. A 59-year-old man
38. What will Henry and Wu do next?
- a. They will buy souvenirs.
  - b. They will go to the next exhibit.
  - c. They will leave the building.
  - d. They will visit a cafe.
39. What would be a good name for this exhibit?
- a. Everyday Decibels
  - b. Hearing Damage
  - c. Strange Sounds
  - d. The Sound Level of Instruments
40. Which of the following is the **most likely** to be an exhibit at the museum?
- a. A Collection of Modern French Paintings
  - b. Learning about Mexican Food
  - c. Measuring Water Usage in Ghana
  - d. The Culture of Ainu People in Japan