

## 英 語

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

One bright morning this month, 400 protesters smashed down the high fences surrounding a field in the Bicol region of the Philippines and pulled up the genetically modified rice plants growing inside.

Had the plants survived long enough to flower, (A)they would have betrayed a distinctly yellow tint in the otherwise white part of the grain. That is because the rice is endowed with a gene from corn and another from a bacterium, making it the only variety in existence to produce beta carotene, the source of vitamin A. Its developers call it “Golden Rice.”

The concerns—that Golden Rice could pose unforeseen risks to human health and the environment, that it would ultimately profit big agrochemical companies — are a familiar (B)\_\_\_\_\_ in the long-running controversy over the merits of genetically engineered crops. They are driving the desire among some Americans for mandatory GMO (genetically modified organism) labels on food with ingredients made from crops whose DNA has been altered in a laboratory.

“We do not want our people, especially our children, to be used in these experiments,” a farmer who was a leader of the protest told the Philippine newspaper *Remate*. But Golden Rice is unlike any of the genetically engineered crops in wide use today, designed to either withstand herbicides\* sold by chemical companies or to resist insect attacks, and with benefits for farmers but not directly for consumers.

Golden Rice is being developed by a nonprofit group called the International Rice Research Institute with the aim of providing a new source of vitamin A to people both in the Philippines, where most households get most of their calories from rice, and eventually in many other places in a world where rice is eaten every day by half the population. Lack of the vital nutrient causes blindness in a quarter-million to a half-million children each year. (C)It affects millions of people in Asia and Africa and so weakens the immune system that some two million die each year of diseases they would otherwise survive.

Golden Rice has drawn suspicions from biotechnology critics. Vandana Shiva, an Indian environmentalist, called it a “Trojan horse” whose purpose was to gain public support for all types of genetically modified crops that would benefit multinational corporations (D)at the expense of poor farmers and consumers.

If the rice gains the Philippine government’s approval, it will cost no more than other rice for poor farmers. The potential that the Golden Rice would cross-pollinate with other varieties, sometimes called “genetic contamination,” has been studied and found to be limited, because rice is typically self-pollinated. And its production of beta carotene does not appear to provide a competitive advantage — or disadvantage — that could affect the survival of wild varieties with which it might mix.

Beyond the fear of corporate control of agriculture, perhaps the most cited objection to GMOs is that they may hold risks that may not be understood. The decision to grow or eat them relies, like many other decisions, on a cost-benefit analysis. (E)How food consumers around the world weigh that calculation will probably have far-reaching consequences. Such crops will make it to people's plates only with public support.

(註) \*herbicide: a chemical that is poisonous and used to kill plants that are growing where they are not wanted

1. Choose the most appropriate title for the article from the choices below.
  - a. GMOs: A Hard Decision for Consumers
  - b. GMOs: Their Global Influence
  - c. Golden Rice: Advantages and Disadvantages
  - d. Golden Rice: Future Issues of Farmers
  
2. Which is the closest in meaning to **(A)** in the article?
  - a. The flower would have caused the grain to turn from white to yellow.
  - b. The grain of the plants would have shown a yellow color.
  - c. The plants and flowers would have become pure yellow.
  - d. The plants would have changed white then yellow.
  
3. Choose the most appropriate word for **(B)** in the article.
  - a. example
  - b. question
  - c. refrain
  - d. rule
  
4. What does **(C)**“It” refer to in the article?
  - a. a new source of vitamin A
  - b. blindness in children
  - c. immune system weakness
  - d. lack of vitamin A
  
5. Which is the closest in meaning to **(D)** in the article?
  - a. Farmers and consumers will be at a disadvantage.
  - b. Farmers and consumers will buy expensive rice.
  - c. Farmers and consumers will not benefit.
  - d. Farmers and consumers will sell to corporations.

6. According to the article, which statement is NOT true?
- a. Golden Rice may have negative health effects that are not known yet.
  - b. Golden Rice's sale as a GMO may help support other GMO sales.
  - c. Golden Rice was created for maximum corporate profits.
  - d. Golden Rice will be the same price as regular rice for farmers.
7. Which is NOT a reason Golden Rice is superior to other types of rice?
- a. Golden Rice helps prevent blindness.
  - b. Golden Rice self-pollinates.
  - c. Golden Rice produces beta carotene.
  - d. Golden Rice provides us with vitamin A.
8. What will the farmers in Bicol probably do next?
- a. They will continue to protest Golden Rice.
  - b. They will get approval from the International Rice Research Institute.
  - c. They will look for research on other GMOs.
  - d. They will plant other crops in addition to Golden Rice.

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 sentence (E) in the article into Japanese.

2 If you were a consumer, would you buy genetically modified food like Golden Rice? Why or why not? Write your opinion within 25 words in English. Write the number of words in (      words) on your answer sheet.

III. Use FOUR sentences from [L] to [P] to complete the following passage.

**Red Meat Consumption Linked to Alzheimer's**

Red meat consumption, which can lead to a buildup of iron in the body, may be linked to Alzheimer's disease, *Counsel and Heal* reported.

9.

10.

Researchers discovered that iron was particularly associated with tissue damage in the hippocampus\* — an area of the brain damaged early on in the disease.

11.

Researchers believe that iron may trigger some of the tissue breakdown associated with the disease, according to *Counsel and Heal*.

12.

“The accumulation of iron in the brain may be influenced by modifying environmental factors, such as how much red meat and iron dietary supplements we consume and, in women, having hysterectomies\*\* before menopause\*\*\*,” said study author Dr. George Bartzokis.

**L**: A rare genetic variant may give clues for development of new therapeutic targets against Alzheimer's disease.

**M**: In a study published in the *Journal of Alzheimer's Disease*, researchers used magnetic resonance imaging (MRI) to examine the brains of 31 patients with Alzheimer's and the brains of 68 healthy people.

**N**: However, there was not as much iron-related damage in the thalamus\*\*\*\*, which is usually affected in the later stages of Alzheimer's.

**O**: Overall, people with Alzheimer's disease were found to have significantly higher levels of iron in their brains compared to healthy people.

**P**: However, the study's authors also point out that both dietary and medical interventions can help people control this risk factor.

(註) \*hippocampus : 海馬

\*\*hysterectomies : 子宮摘出 (術)

\*\*\*menopause : 閉経 (期)、更年期

\*\*\*\*thalamus : 視床

9. a. L      b. M      c. N      d. P

10. a. L      b. N      c. O      d. P

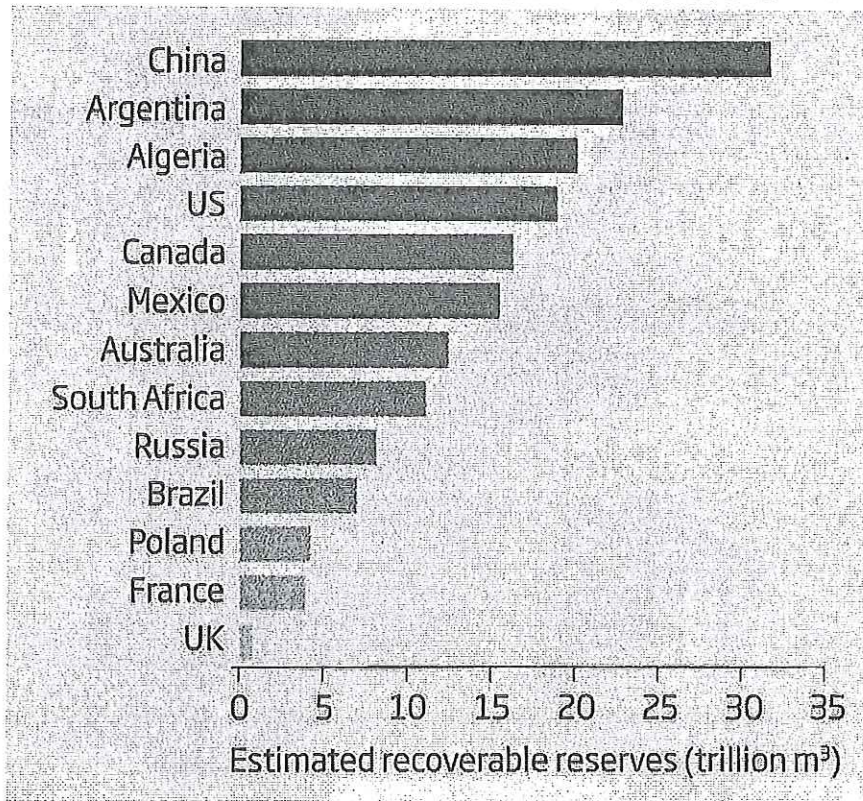
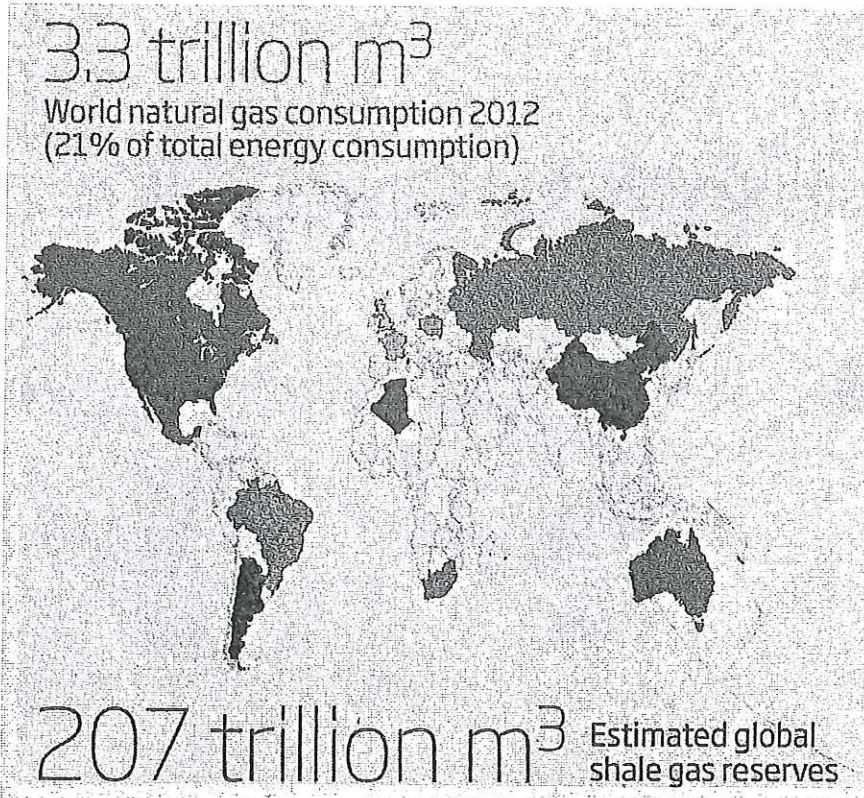
11. a. L      b. N      c. O      d. P

12. a. L      b. M      c. N      d. P

III. Based on the map and graph below, choose the most appropriate answer to fill in each blank (13-24).

### A global phenomenon

Shale rocks, potentially containing gas reserves, are found throughout the world



Recently there is a sizeable new global energy phenomenon. While costs for traditional fuels are rising and supplies are decreasing, there is a new energy player on the scene. Worldwide, in few places are there more of these ( 13 ) than in China. Argentina is a ( 14 ) second, while the UK is at the bottom of the ( 15 ). Yes, demand is rising, but there are ( 16 ) trillion cubic meters in Mexico alone. Since renewable technologies are not perfect yet, this remarkable source of energy will ( 17 ). This technological miracle will fill the gap until solar, wind, and tidal power are fully available. It is called shale gas.

Shale gas is methane trapped in shale ( 18 ). However, shale gas is still a fossil fuel, and burning methane produces greenhouse gases that contribute to global warming. ( 19 ), world natural gas consumption has been rising and hit ( 20 ) percent of the total energy consumption in 2012. Between 1981 and 2005, US carbon emissions increased by 33 percent, from 4.5 billion to 6 billion metric tons a year. ( 21 ), since 2005, they have fallen by 9 percent. There are many factors, including the global economic recession, but according to figures from the US Energy Information Administration, approximately half of that reduction is due to shale gas. In fact, the US is just after ( 22 ) and is 4th in total estimated reserves with approximately 20 trillion cubic meters.

If we can duplicate this emissions reduction success globally, we might begin to solve the problem without rushing into a renewable revolution, say the enthusiasts. If they are ( 23 ), then shale gas is technology's answer to the climate problem, and can serve as a "bridging fuel" to a cleaner, greener future. However, there are potentially only 207 trillion cubic meters of shale gas ( 24 ). So, the burning question is: Are the optimists right?

- |     |                |                |               |                |
|-----|----------------|----------------|---------------|----------------|
| 13. | a. estimates   | b. populations | c. reserves   | d. territories |
| 14. | a. distant     | b. mere        | c. migratory  | d. vague       |
| 15. | a. list        | b. market      | c. mass       | d. train       |
| 16. | a. 8           | b. 11          | c. 16         | d. 23          |
| 17. | a. combine     | b. compare     | c. compensate | d. comprehend  |
| 18. | a. craters     | b. pockets     | c. rocks      | d. watches     |
| 19. | a. Furthermore | b. Second      | c. Totally    | d. Ultimately  |
| 20. | a. 3.3         | b. 20          | c. 21         | d. 207         |
| 21. | a. Although    | b. For example | c. However    | d. Moreover    |
| 22. | a. Argentina   | b. Algeria     | c. Canada     | d. Mexico      |
| 23. | a. careful     | b. correct     | c. truthful   | d. taken       |
| 24. | a. recycled    | b. reduced     | b. redundant  | d. remaining   |

IV. Based on the following dialogue and table, answer the questions (25-34).

*At the travel agency in Central – 9:30am, Saturday*

**Amy:** OK, where are we going and when do we leave?

**Shun:** I have to work until Friday at 5:00pm, so we can't leave until then. I'd like to go to North Island, anyway.

**Amy:** Hmm, I've already been there, so don't think I really want to go there. How about going to Southeast Sea instead?

**Shun:** Let's ask the travel agent and see if they have any recommendations.

**Travel Agent, Risa:** Good morning! How may I help you?

**Amy:** Well, we'd like to take a trip next month, but we're having trouble deciding where to go.

**Risa:** When would you like to go, and how long would you like to stay for?

**Shun:** We want to leave on Friday the 21<sup>st</sup>, around 6:00pm, and we only have 6 nights.

**Amy:** Wait, we can't leave at 6:00pm if you finish work at 5:00pm.

**Shun:** Sorry, we want to leave around 7:00pm.

**Amy (to Risa):** Will that be enough time to catch a flight?

**Risa:** How long will it take you to get to the airport?

**Shun:** About 30, no, 40 minutes. Since it's Friday afternoon, there might be a lot of traffic, so I guess it could take up to an hour.

**Amy:** That means we'd get to the airport at (A)\_\_\_\_\_ at the latest.

**Risa:** Since you should arrive at the airport an hour before your flight time, you can catch a 7:00pm flight. If that's the case, then there are flights to (B)\_\_\_\_\_ on Friday. Here's a copy of the schedule:

**Shun:** I'd really like to go to North Island, but she's already been there. What's there to see in Eastern Port?

**Risa:** Eastern Port is known for their long marine history, their colorful ships, fishing villages, and local folk dancing.

**Amy:** Sounds similar to the place we went to on our last vacation. Are there any flights to Southeast Sea?

**Risa:** Unfortunately, even though all direct flights from Central take 30 minutes, there aren't any direct flights from Central. You would have to take the 8:45pm flight to (C)\_\_\_\_\_, stay overnight, and take the daily 5:00pm flight to (D)\_\_\_\_\_.

**Shun:** That plan sounds good to me. We'd get to spend a day in North Island, and I'd like to go there anyway.

**Amy:** Sounds good to me, too.

**Risa:** Great, I'll start checking for seat availability. Would you mind waiting a few minutes?

**Amy & Shun:** Not at all!



## National Airways Flight Schedule (Domestic)

CENTRAL				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
Central	North Island	Daily	9:00, 10:00, 13:00, 15:30, 17:45, 20:45	11
Central	West Side	Daily	11:30, 17:45	13
Central	Eastern Port	Daily	20:15	15
Central	Far Isle	Tue-Thu-Sat- Sun	21:00	17

NORTH ISLAND				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
North Island	Central	Daily	11:30, 14:30, 18:30, 21:30	2
North Island	Southeast Sea	Daily	17:00	4
North Island	West Side	Daily	19:40	6
North Island	Eastern Port	Daily	20:10	8
North Island	Far Isle	Mon	1:40	10

SOUTHEAST SEA				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
Southeast Sea	North Island	Daily	10:20	145
Southeast Sea	West Side	Mon-Wed-Fri	13:30	146

WEST SIDE				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
West Side	North Island	Tu-Thu-Sat	7:40	255
West Side	Central	Tu-Thu-Sat	16:50	256

FAR ISLE				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
Far Isle	North Island	Mon	7:40	711
Far Isle	Central	Wed-Fri	16:50	718

EASTERN PORT				
DEPARTURE	DESTINATION	FREQUENCY	TIME	FLIGHT #
Eastern Port	North Island	Daily	10:15	808
Eastern Port	Central	Daily	10:10	809

25. Why doesn't Amy want to go to North Island?
- a. She dislikes going to North Island.
  - b. She doesn't want to follow Risa's suggestion.
  - c. She has been to North Island already.
  - d. She wants to go to Southeast Sea.
26. Why can't Amy and Shun go directly to Southeast Sea?
- a. Shun finishes work too late.
  - b. Shun wants to stop in North Island.
  - c. There aren't any direct flights.
  - d. There aren't any seats available.
27. Which is the most appropriate time for (A)?
- a. 5:00pm
  - b. 5:30pm
  - c. 5:40pm
  - d. 6:00pm
28. Considering Shun's work schedule, which is the most appropriate answer for (B)?
- a. Eastern Port and Far Isle
  - b. Eastern Port and North Island
  - c. Eastern Port, North Island, and Far Isle
  - d. Eastern Port, North Island, and West Side
29. Which is the most appropriate combination for (C) and (D)?
- a. Eastern Port and Far Isle
  - b. Eastern Port and West Side
  - c. North Island and Southeast Sea
  - d. West Side and Far Isle
30. Which of the following are probably popular in Eastern Port?
- a. famous museums and fast cars
  - b. local art and interesting stories
  - c. seafood dinners and traditional music
  - d. tall buildings and large flags

31. What day will Amy and Shun return?
- a. Tuesday the 25th
  - b. Wednesday the 26th
  - c. Thursday the 27th
  - d. Friday the 28th
32. Which route goes from West Side to Southeast Sea and back?
- a. Flight #255, then Flight #2, then Flight #13
  - b. Flight #255, then Flight #4, then Flight #146
  - c. Flight #256, then Flight #11, then Flight #6
  - d. Flight #256, then Flight #13
33. Which route does NOT go from Central to Far Isle?
- a. Flight #11, then Flight #10
  - b. Flight #13, then Flight #255, then Flight #10
  - c. Flight #15, then Flight #809
  - d. Flight #17
34. If you wanted to go from Central to Southeast Sea by the most time-efficient route, what time should you depart from Central?
- a. 11:30
  - b. 15:30
  - c. 17:45
  - d. 20:45