Đề thi thật 1: Frozen Food A US perspective on the development of the frozen food industry

At some point in history, humans discovered that ice preserved food. There is evidence that winter ice was stored to preserve food in the summer as far back as 10,000 years ago. Two thousand years ago, the inhabitants of South America's Andean mountains had a unique means of conserving potatoes for later consumption. They froze them overnight, then trampled them to squeeze out the moisture, then dried them in the sun. This preserved their nutritional value—if not their aesthetic appeal.

Natural ice remained the main form of refrigeration until late in the 19th century. In the early 1800s, ship owners from Boston, USA, had enormous blocks of Arctic ice towed all over the Atlantic for the purpose of food preservation. In 1851, railroads first began putting blocks of ice in insulated rail cars to send butter from Ogdensburg, New York, to Boston.

Finally, in 1870, Australian inventors found a way to make 'mechanical ice'. They used a compressor to force a gas—ammonia at first and later Freon—through a condenser. The compressed gas gave up some of its heat as it moved through the condenser. Then the gas was released quickly into a low-pressure evaporator coil where it became liquid and cold. Air was blown over the evaporator coil and then this cooled air passed into an insulated compartment, lowering its temperature to freezing point.

Initially, this process was invented to keep Australian beer cool even in hot weather. But Australian cattlemen were quick to realize that, if they could put this new invention on a ship, they could export meat across the oceans. In 1880, a shipment of Australian beef and mutton was sent, frozen, to England. While the food frozen this way was still palatable, there was some deterioration. During the freezing process, crystals formed within the cells of the food, and when the ice expanded and the cells burst, this spoilt the flavor and texture of the food.

The modern frozen food industry began with the indigenous Inuit people of Canada. In 1912, a biology student in Massachusetts, USA, named Clarence Birdseye, ran out of money and went to Labrador in Canada to trap and trade furs. While he was there, he became fascinated with how the Inuit would quickly freeze fish in the Arctic air. The fish looked and tasted fresh even months later.

Birdseye returned to the USA in 1917 and began developing mechanical freezers capable of quick-freezing food. Birdseye methodically kept inventing better freezers and gradually built a business selling frozen fish from Gloucester, Massachusetts. In 1929, his business was sold and became General Foods, but he stayed with the company as director of research, and his division continued to innovate.

Birdseye was responsible for several key innovations that made the frozen food industry possible. He developed quick-freezing techniques that reduced the damage that crystals caused, as well as the technique of freezing the product in the package it was to be sold in. He also introduced the use of cellophane, the first transparent material for food packaging, which allowed consumers to see the quality of the product. Birdseye products also came in convenient size packages that could be prepared with a minimum of effort.

Questions 1–7

Complete the notes below.

Choose ONE WORD ONLY from the passage for each answer.

The history of frozen food

- *2,000 years ago, South America: People conserved the nutritional value of 1....., using a method of freezing then drying.*
- *1851, USA: 2..... was kept cool by ice during transportation in specially adapted trains.*
- *1880, Australia: Two kinds of 3..... were the first frozen food shipped to England.*
- *1917 onwards, USA: Clarence Birdseye introduced innovations including:*
  - *quick-freezing methods, so that 4..... did not spoil the food.*
  - *packaging products with 5....., so the product was visible.*
- *Early 1940s, USA: Frozen food became popular because of a shortage of 6.....*
- *1950s, USA: A large number of homes now had a 7.....*

But there were still obstacles. In the 1930s, few grocery stores could afford to buy freezers for a market that wasn't established yet. So, Birdseye leased inexpensive freezer cases to them. He also leased insulated railroad cars so that he could ship his products nationwide. However, few consumers had freezers large enough or efficient enough to take advantage of the products.

Sales increased in the early 1940s, when World War II gave a boost to the frozen food industry because tin was being used for munitions. Canned foods were rationed to save tin for the war effort, while frozen foods were abundant and cheap. Finally, by the 1950s, refrigerator technology had developed far enough to make these appliances affordable for the average family. By 1953, 33 million US families owned a refrigerator, and manufacturers were gradually increasing the size of the freezer compartments in them.

1950s families were also looking for convenience at mealtimes, so the moment was right for the arrival of the 'TV Dinner'. Swanson Foods was a large, nationally recognized producer of canned and frozen poultry. In 1954, the company adapted some of Birdseye's freezing techniques, and with the help of a clever name and a huge advertising budget, it launched the first 'TV Dinner'. This consisted of frozen turkey, potatoes and vegetables served in the same segmented aluminum tray that was used by airlines. The product was an instant success. Within a year, Swanson had sold 13 million TV dinners. American consumers couldn't resist the combination of a trusted brand name, a single-serving package and the convenience of a meal that could be ready after only 25 minutes in a hot oven. By 1959, Americans were spending $2.7 billion annually on frozen foods, and half a billion of that was spent on ready-prepared meals such as the TV Dinner.

Today, the US frozen food industry has a turnover of over $66 billion, with $26.6 billion of that sold to consumers for home consumption. The remaining $40 billion in frozen food sales come through restaurants, cafeterias, hospitals and schools, and that represents a third of the total food service sales.

Questions 8–13

Do the following statements agree with the information given in Reading Passage?

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

8. The ice transportation business made some Boston ship owners very wealthy in the early 1800s.

9. A disadvantage of the freezing process invented in Australia was that it affected the taste of food.

10. Clarence Birdseye travelled to Labrador in order to learn how the Inuit people froze fish.

11. Swanson Foods invested a great deal of money in the promotion of the TV Dinner.

12. Swanson Foods developed a new style of container for the launch of the TV Dinner.

13. The US frozen food industry is currently the largest in the world.

Đề thi thật 2 Tunnelling under the Thames

The first tunnel ever to be built under a major river was the tunnel under London's River Thames. At the beginning of the 19th century, the port of London was the busiest in the world. Cargoes that had travelled thousands of miles and survived all the hazards of the sea were unloaded on the banks of the Thames, only for their owners to discover that the most frustrating portion of their journey lay ahead. Consignments intended for the southern parts of Britain had to be lifted onto horse carts, pulled through the docks and across London Bridge, built in the 12th century and as impractical as its early date implies. By 1820, London Bridge had become the centre of the world's largest traffic jam.

It was an intolerable situation, and it was clear that if private enterprise could build another crossing closer to the docks, there would be good money to be made in tolls paid by users. Another bridge was out of the question, as this would deny sailing ships access to the city centre and ambitious men turned their thoughts to tunnelling beneath the Thames instead. This was not such an obvious idea as it might appear. Although increasing demand for coal had meant a great many tunnels had been dug in mines in Britain, working methods remained primitive. Tunnels were dug by men with simple tools, by candlelight. However, in 1807, a group of businessmen set themselves up as the Thames Archway Company. Their ambition was to tunnel below the Thames, but there was little to guide them as there had been no previous attempt to do this. Their chief engineer was Richard Trevithick, designer of the world's first high-pressure steam engine. His men made progress at the beginning, but then things began to go disastrously wrong, with muddy soil pouring into the tunnel. Eventually, the Thames Archway Company had had enough. Its funds were exhausted, Trevithick was sick from exposure to the river water, and its efforts had proved only that a passage under the river exceeded the limits of contemporary mining technology.

At that time, the only machines used in mines were pumps. It took a man of genius to recognise that a different sort of machine was needed, a machine that could prevent the roof and walls of a tunnel from collapsing. This man was Marc Brunel, a Frenchman who had become one of the most prominent engineers in Britain. Not long after the failure of the Thames Archway Company, Brunel saw a rotten piece of wood lying on the riverbank. Examining the wood through a magnifying glass, he observed it was infested with something that looked like a worm. Brunel realised that as it tunnelled through the wood, it would push chewed wood into its mouth and digest it, then excrete a hard substance that lined the new tunnel. Brunel realised that the worm's digging technique could be adapted to produce a new way of tunnelling. His realisation led him to invent a device that has been used in one form or another in most major tunnels built since – the tunnelling shield. It consisted of a heavy iron frame that could be pushed forward a few inches at a time. The front of the frame was made up of a series of iron frames that could be folded back to allow miners to dig the ground ahead. Behind these frames was a wall consisting of a series of iron plates pressed against the tunnel face and supported on a set of horizontal wooden planks, that would prevent the face from collapsing. It was a complex and rather cumbersome machine and not easy to use, but it seemed that it would protect the miners from the worst of the river's water. Brunel's team carefully examined earth samples taken from beneath the riverbed, and subsequently decided to dig the tunnel close to the muddy river bottom, where he could expect to find clay. This would be a more solid and safe substance to dig through than the sand that was found deeper down.

Questions 1-8

In boxes 1-8 on your answer sheet, write:

- *TRUE if the statement agrees with the information*
- *FALSE if the statement contradicts the information*
- *NOT GIVEN if there is no information on this*

1. *In the early 19th century, the port of London was considered a safer destination than other ports.*
2. *London Bridge provided quick access for cargo being sent to southern Britain.*
3. *It was generally believed that a new river crossing would be profitable.*
4. *Building a second bridge crossing was initially considered to be the best solution.*
5. *It was believed that coal could be found under the River Thames.*
6. *The Thames Archway Company was the first group to try tunnelling below the Thames.*
7. *Some of Trevithick's men were injured during a mudslide at his tunnel.*
8. *The Thames Archway Company ran out of money to finance the tunnel project.*

Đề thi thật 2 Tunnelling under the Thames

Brunel began work on his tunnel in 1825, but the problems of such an operation soon became apparent. Although the shield itself worked well, water began to drip into the tunnel. This was more of an annoyance than a danger while the pump was working, but this machine proved unreliable and sometimes failed altogether. When the pump broke down, work had to stop as the tunnel quickly flooded. There were occasions when the miners had to abandon their tools and flee for their lives. Even when Brunel's men were able to work, they had to run the constant risk of the pumps failing. They also complained of frequent headaches and dizziness, caused by the poor air quality. The air underground was dirty and stale, contaminated due to the lack of an adequate ventilation system. There were lighting problems too. Illuminating the tunnels by candlelight was a constant challenge. Lamps give off only a very weak glow, and there were a number of accidents because the miners could not see what they were doing. Lastly, a number of Brunel's miners walked off the job because they could not tolerate the excessive temperatures that developed in the cramped conditions underground.

Questions 9-13

Complete the notes below.

Choose ONE WORD ONLY from the passage for each answer.

Write your answers in boxes 9-13 on your answer sheet.

Marc Brunel's tunnel

Preparing to build the tunnel

- *Brunel noticed how a kind of 9 ..... made its tunnels in wood.*
- *Brunel created a device called a tunnelling shield, to protect people working under the river.*
- *Brunel planned to build a shallow tunnel so the earth would have a higher content of 10 .....*

Problems faced by miners

- *There were frequent floods caused by mechanical breakdowns.*
- *The miners suffered from 11 ..... because of pollution in the tunnels.*
- *Lighting problems led to several 12 .....*
- *Some workers quit because of the high temperatures in the tunnel.*

After the tunnel was finished

- *The tunnel was finally completed in 1841.*
- *Brunel did not have enough money to repay his debt to the 13 .....*
- *The tunnel was abandoned until the 1880s.*

Đề thi thật 3: Detection of a meteorite Lake

A

As the sun rose over picturesque Lake Bosumtwi, a team of Syracuse University researchers prepared for another day of using state-of-the-art equipment to help bottom. Nestled in the heart of Ghana, the lake holds an untapped reservoir of information that could help scientists predict future climate changes by looking at evidence from the past. This information will also improve the scientists' understanding of the changes that occur in a region struck by a massive meteorite.

B

The project, led by earth sciences professor Christopher Scholz of the College of Arts and Sciences and funded by the National Science Foundation (NSF), is the first large-scale effort to study Lake Bosumtwi, which formed 1.1 million years ago when a giant meteor crashed into the Earth's surface. The resulting crater is one of the largest and most well-preserved geologically young craters in the world, says Scholz, who is collaborating on the project with researchers from the University of Arizona, the University of South Carolina, the University of Rhode Island, and several Ghanaian institutions. "Our data should provide information about what happens when an impact hits hard, pre-Cambrian, crystalline rocks that are a billion years old," he says.

C

Equally important is the fact that the lake, which is about 8 kilometers in diameter, has no natural outlet. The rim of the crater rises about 250 meters above the water's surface. Streams flow into the lake, Scholz says, but the water leaves only by evaporation, or by seeping through the lake sediments. For the past million years, the lake has acted as a tropical rain gauge, filling and drying with changes in precipitation and the tropical climate. The record of those changes is hidden in the sediment below the lake bottom. "The lake is one of the best sites in the world for the study of tropical climate changes," Scholz says. "The tropics are the heat engine for the Earth's climate. To understand the global climate, we need to have records of climate changes from many sites around the world, including the tropics."

D

Before the researchers could explore the lake's subsurface, they needed a boat with a large, working deck area that could carry eight tons of scientific equipment. The boat – dubbed R/V Kilindi – was built in Florida last year. It was constructed in modules that were dismantled, packed inside a shipping container, and reassembled over a 10-day period in late November and early December 1999 in the rural village of Abono, Ghana. The research team then spent the next two weeks testing the boat and equipment before returning to the United States for the holidays.

E

In mid-January, five members of the team – Keely Brooks, an earth sciences graduate student; Peter Cattaneo, a research analyst; and Kiram Lezzar, a postdoctoral scholar, all from SU; James McGill, a geophysical field engineer; and Nick Peters, a Ph.D. student in geophysics from the University of Miami – returned to Abono to begin collecting data about the lake's subsurface using a technique called seismic reflection profiling. In this process, a high-pressure air gun is used to create small, pneumatic explosions in the water. The sound energy penetrates about 1,000 to 2,000 meters into the lake's subsurface before bouncing back to the surface of the water.

F

The reflected sound energy is detected by underwater microphones – called hydrophones – embedded in a 50-meter-long cable that is towed behind the boat as it crosses the lake in a carefully designed grid pattern. On-board computers record the signals, and the resulting data are then processed and analyzed in the laboratory. "The results will give us a good idea of the shape of the basin, how thick the layers of sediment are, and when and where there were major changes in sediment accumulation," Scholz says. "We are now developing a three-dimensional perspective of the lake's subsurface and the layers of sediment that have been laid down."

Questions 1-5

Do the following statements agree with the information given in Reading Passage?

In boxes 1-5 on your answer sheet, write

TRUE if the statement is true

FALSE if the statement is false

NOT GIVEN if the information is not given in the passage

1 With the investigation of the lake, the scientist may predict the climate changes in the future.

2 The crater resulted from a meteorite impact is the largest and most preserved one in the world.

3 The water stored in lake Bosumtwi was gone only by seeping through the lake sediments.

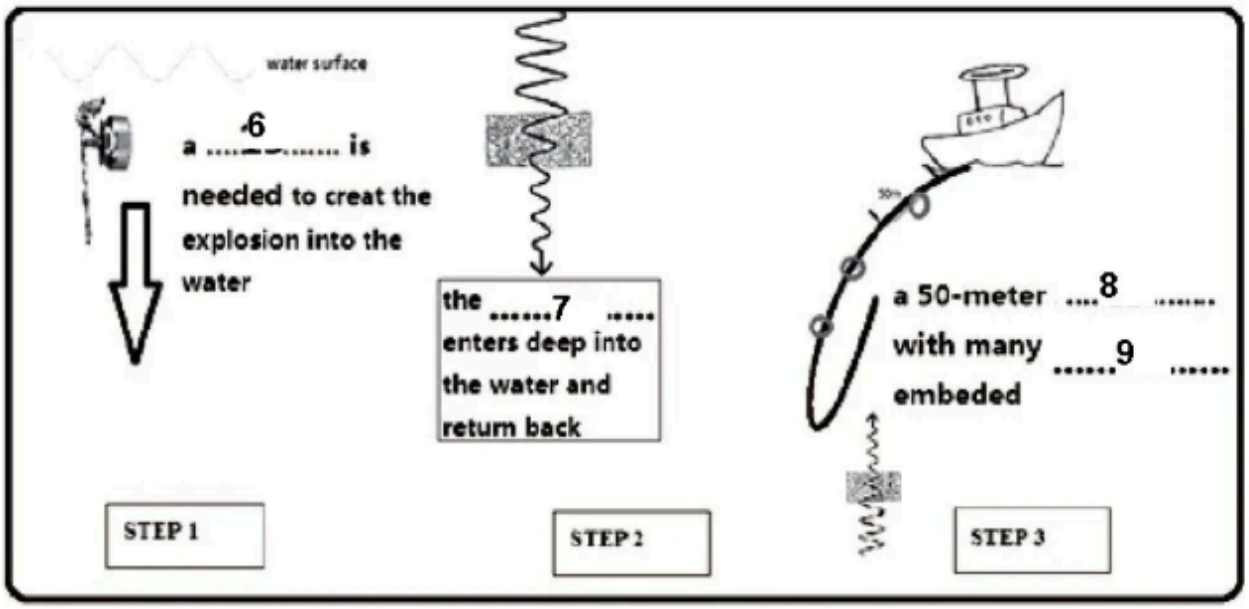
4 Historical climate changes can be detected by the analysis of the sediment in the lake.

5 The greatest obstacle to the research of scientists had been the interference by the locals due to their indigenous believes.

Đề thi thật 3 Detection of a meteorite Lake

Questions 6-9

There are three steps of collecting data from the lake as followings, please fill the blanks



G

Team members spent about four weeks in Ghana collecting the data. They worked seven days a week, arriving at the lake just after sunrise. On a good day, when everything went as planned, the team could collect data and be back at the dock by early afternoon. Except for a few relatively minor adjustments, the equipment and the boat worked well. Problems that arose were primarily non-scientific – tree stumps, fishing nets, cultural barriers, and occasional misunderstandings with local villagers.

H

Lake Bosumtwi, the largest natural freshwater lake in the country, is sacred to the Ashanti people, who believe their souls come to the lake to bid farewell to their god. The lake is also the primary source of fish for the 26 surrounding villages. Conventional canoes and boats are forbidden. Fishermen travel on the lake by floating on traditional planks they propel with small paddles. Before the research project could begin, Scholz and his Ghanaian counterparts had to secure special permission from tribal chiefs to put the R/V Kilindi on the lake.

I

When the team began gathering data, rumors flew around the lake as to why the researchers were there. "Some thought we were dredging the lake for gold, others thought we were going to drain the lake or that we had bought the lake," Cattaneo says. "But once the local people understood why we were there, they were very helpful."

Questions 10-14

Complete the following summary of the paragraph of Reading Passage.

Using NO MORE THAN THREE WORDS from the Reading Passage for each answer.

Write your answers in boxes 10-14 on your answer sheet.

The boat-double R/V Kilindi crossed the lake was dismantled and stored in a 10..... . The technology they used called 11..... ; They created sound energy into 1000-2000 metres into the bottom of the lake and used separate equipment to collect the returned waves. Then the data had been analyzed and processed in the 12..... Scholz also added that they were now building 13..... . View of the sediment or sub-image in the bottom of the lake. The whole set of equipment works well yet the ship should avoid physical barrier including tree stumps or 14..... . Floating on the surface of the lake.