

## Reading test 7

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You should spend about 20 minutes on Questions 1-15, which are based on Passage 1 below.

### Questions 1-5

Reading Passage 1 has five paragraphs, A-E. Choose the most suitable heading for each paragraph from the list of headings below. Write the appropriate numbers (I-VIII) on your Answer Sheet. There are more headings than paragraphs, so you will not use them all.

1. Paragraph A	List of headings:
2. Paragraph B	I Glacial Continents
3. Paragraph C	II Formation and Growth of Glaciers
4. Paragraph D	III Glacial Movement
5. Paragraph E	IV Glaciers in the Last Ice Age
	V Glaciers Through the Years
	VI Types of Glaciers
	VII Glacial Effects on Landscapes
	VIII Glaciers in National Parks

## Glaciers

### A

Besides the earth's oceans, glacier ice is the largest source of water on earth. A glacier is a massive stream or sheet of ice that moves underneath itself under the influence of gravity. Some glaciers travel down mountains or valleys, while others spread across a large expanse of land. Heavily glaciated regions such as Greenland and Antarctica are called continental glaciers. These two ice sheets encompass more than 95 percent of the Earth's glacial ice. The Greenland ice sheet is almost 10,000 feet thick in some areas, and the weight of this glacier is so heavy that much of the region has been depressed below sea level. Smaller glaciers that occur at higher elevations are called alpine or valley glaciers. Another way of classifying glaciers is in terms of their internal temperature. In temperate glaciers, the ice within the glacier is near its melting point. Polar glaciers, in contrast, always maintain temperatures far below melting.

### B

The majority of the earth's glaciers are located near the poles, though glaciers exist on all continents, including Africa and Oceania. The reason glaciers are generally formed in high alpine regions is that they require cold temperatures throughout the year. In these areas where

there is little opportunity for summer ablation (loss of mass), snow changes to compacted form and then crystallised ice. During periods in which melting and evaporation exceed the amount of snowfall, glaciers will retreat rather than progress. While glaciers rely heavily on snowfall, other climactic conditions including freezing rain, avalanches, and wind, contribute to their growth. One year of below average precipitation can stunt the growth of a glacier tremendously. With the rare exception of surging glaciers, a common glacier flows about 10 inches per day in the summer and 5 inches per day in the winter. The fastest glacial surge on record occurred in 1953, when the Kutiah Glacier in Pakistan grew more than 12 kilometres in three months.

## C

The weight and pressure of ice accumulation causes glacier movement. Glaciers move out from under themselves, via plastic deformation and basal slippage. First, the internal flow of ice crystals begins to spread outward and downward from the thickened snow pack also known as the zone of accumulation. Next, the ice along the ground surface begins to slip in the same direction. Seasonal thawing at the base of the glacier helps to facilitate this slippage. The middle of a glacier moves faster than the sides and bottom because there is no rock to cause friction. The upper part of a glacier rides on the ice below. As a glacier moves it carves out a U-shaped valley similar to a riverbed, but with much steeper walls and a flatter bottom.

## D

Besides the extraordinary rivers of ice, glacial erosion creates other unique physical features in the landscape such as horns, fjords, hanging valleys, and cirques. Most of these land-forms do not become visible until after a glacier has receded. Many are created by moraines, which occur at the sides and front of a glacier. Moraines are formed when material is picked up along the way and deposited in a new location. When many alpine glaciers occur on the same mountain, these moraines can create a horn. The Matterhorn, in the Swiss Alps is one of the most famous horns. Fjords, which are very common in Norway, are coastal valleys that fill with ocean water during a glacial retreat. Hanging valleys occur when two or more glacial valleys intersect at varying elevations. It is common for waterfalls to connect the higher and lower hanging valleys, such as in Yosemite National Park. A cirque is a large bowl-shaped valley that forms at the front of a glacier. Cirques often have a lip on their down slope that is deep enough to hold small lakes when the ice melts away.

## E

Glacier movement and shape shifting typically occur over hundreds of years. While presently about 10 percent of the earth's land is covered with glaciers, it is believed that during the last Ice Age glaciers covered approximately 32 percent of the earth's surface. In the past century, most glaciers have been retreating rather than flowing forward. It is unknown whether this

glacial activity is due to human impact or natural causes, but by studying glacier movement, and comparing climate and agricultural profiles over hundreds of years, glaciologists can begin to understand environmental issues such as global warming.

#### Questions 6-10

Do the following statements agree with the information in Passage 1? In boxes 6-10 on your Answer Sheet write

TRUE if the statement is true according to the passage.

FALSE if the statement contradicts the passage.

NOT GIVEN if there is no information about this in the passage.

6. Glaciers exist only near the north and south poles.
7. Glaciers are formed by a combination of snow and other weather conditions.
8. Glaciers normally move at a rate of about 5 to 10 inches a day.
9. All parts of the glacier move at the same speed
10. During the last Ice Age, average temperatures were much lower than they are now.

#### Questions 11-15

Match each definition below with the term it defines.

Write the letter of the term, A-H, on your Answer Sheet. There are more terms than definitions, so you will not use them all.

Definition	Term
11. a glacier formed on a mountain	A fjord
12. a glacier with temperatures well below freezing	B alpine glacier
13. a glacier that moves very quickly	C horn
14. a glacial valley formed near the ocean	D polar glacier
15. a glacial valley that looks like a bowl	E temperate glacier
	F hanging valley
	G cirque
	H surging glacier

#### Reading Passage 2

**You should spend about 20 minutes on Questions 16-28, which are based on Passage 2 below.**

#### **Irish Potato Famine**

A

In the ten years following the Irish potato famine of 1845, over 750,000 Irish people died, including many of those who attempted to immigrate to countries such as the United States and Canada. Prior to the potato blight, one of the main concerns in Ireland was overpopulation. In the early 1500s, the country's population was estimated at less than three million, but by 1840 this number had nearly tripled. The bountiful potato crop, which contains almost all of the nutrients that a person needs for survival, was largely to blame for the population growth. However, within five years of the failed crop of 1845, the population of Ireland was reduced by a quarter. A number of factors contributed to the plummet of the Irish population, namely the Irish dependency on the potato crop, the British tenure system, and the inadequate relief efforts of the English.

B

It is not known exactly how or when the potato was first introduced to Europe, however, the general assumption is that it arrived on a Spanish ship sometime in the 1600s. For more than one hundred years, Europeans believed that potatoes belonged to a botanical family of a poisonous breed. It was not until Marie Antoinette wore potato blossoms in her hair in the mid-eighteenth century that potatoes became a novelty. By the late 1700s, the dietary value of the potato had been discovered, and the monarchs of Europe ordered the vegetable to be widely planted.

C

By 1800, the vast majority of the Irish population had become dependent on the potato as its primary staple. It wasn't uncommon for an Irish potato farmer to consume more than six pounds of potatoes a day. Families stored potatoes for the winter and even fed potatoes to their livestock. Because of this dependency, the unexpected potato blight of 1845 devastated the Irish. Investigators at first suggested that the blight was caused by static energy, smoke from railroad trains, or vapours from underground volcanoes; however, the root cause was later discovered as an airborne fungus that travelled from Mexico. Not only did the disease destroy the potato crops, it also infected all of the potatoes in storage at the time. Their families were dying from famine, but weakened farmers had retained little of their agricultural skills to harvest other crops. Those who did manage to grow things such as oats, wheat, and barley relied on earnings from these exported crops to keep their rented homes.

D

While the potato blight generated mass starvation among the Irish, the people were held captive to their poverty by the British tenure system. Following the Napoleonic Wars of 1815, the English had turned their focus to their colonial land holdings. British landowners realised that the best way to profit from these holdings was to extract the resources and exports and

charge expensive rents and taxes for people to live on the land. Under the tenure system, Protestant landlords owned 95 percent of the Irish land, which was divided up into five-acre plots for the people to live and farm on. As the population of Ireland grew, however, the plots were continuously subdivided into smaller parcels. Living conditions declined dramatically, and families were forced to move to less fertile land where almost nothing but the potato would grow.

E

During this same period of colonisation. The Penal Laws were also instituted as a means of weakening the Irish spirit. Under the Penal Laws, Irish peasants were denied basic human rights, such as the right to speak their own native language, seek certain kinds of employment, practice their faith, receive education, and own land. Despite the famine that was devastating Ireland, the landlords had little compassion or sympathy for tenants unable to pay their rent. Approximately 500,000 Irish tenants were evicted by their landlords between 1845 and 1847. Many of these people also had their homes burned down and were put in jail for overdue rent.

F

The majority of the British officials in the 1840s adopted the laissez-faire philosophy, which supported a policy of non-intervention in the Irish plight. Prime Minister Sir Robert Peel was an exception. He showed compassion toward the Irish by making a move to repeal the Corn Laws, which had been put in place to protect British grain producers from the competition of foreign markets. For this hasty decision, Peel quickly lost the support of the British people and was forced to resign. The new Prime Minister, Lord John Russell, allowed assistant Charles Trevelyan to take complete control over all of the relief efforts in Ireland. Trevelyan believed that the Irish situation should be left to Providence. Claiming that it would be dangerous to let the Irish become dependent on other countries, he even took steps to close food depots that were selling corn and to redirect shipments of corn that were already on their way to Ireland. A few relief programs were eventually implemented, such as soup kitchens and workhouses; however, these were poorly run institutions that facilitated the spread of disease, tore apart families, and offered inadequate food supplies considering the extent of Ireland's shortages.

G

Many of the effects of the Irish potato famine are still evident today. Descendants of those who fled Ireland during the 1840s are dispersed all over the world. Some of the homes that were evacuated by absentee landlords still sit abandoned in the Irish hills. A number of Irish descendants still carry animosity toward the British for not putting people before politics. The potato blight itself still plagues the Irish people during certain growing seasons when weather conditions are favourable for the fungus to thrive.

The passage has seven paragraphs, A-G.

Which paragraph contains the following information?

Write the correct letter in boxes 16-20 on your Answer Sheet

- 16. the position of the British government towards the potato famine
- 17. a description of the system of land ownership in Ireland
- 18. early European attitudes toward the potato
- 19. explanation of the lack of legal protection for Irish peasants
- 20. the importance of the potato in Irish society

### **Questions 21-28**

**Complete each sentence with the correct ending, A-L from the box at the top of the next page. Write the correct letter in boxes 21-28 on your Answer Sheet. There are more endings than sentences, so you won't use them all.**

### **Sentence Beginnings**

- 21. At first Europeans didn't eat potatoes
- 22. European monarchs encouraged potato growing
- 23. The potato blight was devastating to the Irish
- 24. Farmers who grew oats, wheat, and barley didn't eat these crops
- 25. Many Irish farmers lived on infertile plots
- 26. Many Irish farmers were arrested
- 27. Sir Robert Peel lost his position as prime minister
- 28. Soup kitchens and workhouses didn't relieve the suffering

### **Sentence Endings**

- A because they couldn't pay the rent on their farms.
- B because railroad trains caused air pollution.
- C because potatoes were their main source of food.
- D because Charles Trevelyan took over relief efforts.
- E because they needed the profits to pay the rent.
- F because they weren't well-managed.
- G because there wasn't enough land for the increasing population.
- H because his efforts to help the Irish were unpopular among the British.
- I because they believed that potatoes were poisonous.
- J because the British instituted penal laws.

K because it was discovered that potatoes are full of nutrients.

L because Marie Antoinette used potato blossoms as decoration

### **Reading Passage 3**

**You should spend about 20 minutes on Questions 29-40, based on Reading Passage 3.**

#### **Anaesthesiology**

Since the beginning of time, man has sought natural remedies for pain. Between 40 and 60 A.D., Greek physician, Dioscorides travelled with the Roman armies, studying the medicinal properties of plants and minerals. His book, *De materia medica*, written in five volumes and translated into at least seven languages, was the primary reference source for physicians for over sixteen centuries. The field of anaesthesiology, which was once nothing more than a list of medicinal plants and makeshift remedies, has grown into one of the most important fields in medicine.

Many of the early pain relievers were based on myth and did little to relieve the suffering of an ill or injured person. The mandragora (now known as the mandrake plant) was one of the first plants to be used as an anaesthetic. Due to the apparent screaming that the plant made as it was pulled from the ground, people in the Middle Ages believed that the person who removed the mandrake from the earth would either die or go insane. This superstition may have resulted because the split root of the mandrake resembled the human form. In order to pull the root from the ground, the plant collector would loosen it and tie the stem to an animal. It was believed that the safest time to uproot a mandrake was in the moonlight, and the best animal to use was a black dog. In his manual, Dioscorides suggested boiling the root with wine and having a man drink the potion to remove sensation before cutting his flesh or burning his skin. Opium and Indian hemp were later used to induce sleep before a painful procedure or to relieve the pain of an illness. Other remedies such as cocaine did more harm to the patient than good as people died from their addictions. President Ulysses S. Grant became addicted to cocaine before he died of throat cancer in 1885.

The modern field of anaesthetics dates to the incident when nitrous oxide (more commonly known as laughing gas) was accidentally discovered. Humphrey Davy, the inventor of the miner's lamp, discovered that inhaling the toxic compound caused a strange euphoria, followed by fits of laughter, tears, and sometimes unconsciousness. U.S. dentist, Horace Wells, was the first on record to experiment with laughing gas, which he used in 1844 to relieve pain during a tooth extraction. Two years later, Dr. William Morton created the first anaesthetic machine. This apparatus was a simple glass globe containing an ether-soaked sponge. Morton considered ether a good alternative to nitrous oxide because the numbing effect lasted considerably

longer. His apparatus allowed the patient to inhale vapours whenever the pain became unbearable. In 1846, during a trial experiment in Boston, a tumor was successfully removed from a man's jaw area while he was anaesthetised with Morton's machine.

The first use of anaesthesia in the obstetrics field occurred in Scotland by Dr. James Simpson. Instead of ether, which he considered irritating to the eyes, Simpson administered chloroform to reduce the pain of childbirth. Simpson sprinkled chloroform on a handkerchief and allowed labouring women to inhale the fumes at their own discretion. In 1853, Queen Victoria agreed to use chloroform during the birth of her eighth child. Soon the use of chloroform during childbirth was both acceptable and fashionable. However, as chloroform became a more popular anaesthetic, knowledge of its toxicity surfaced, and it was soon obsolete.

After World War II, numerous developments were made in the field of anaesthetics. Surgical procedures that had been unthinkable were being performed with little or no pain felt by the patient. Rather than physicians or nurses who administered pain relief as part of their profession, anaesthesiologists became specialists in suppressing consciousness and alleviating pain. Anaesthesiologists today are classified as perioperative physicians, meaning they take care of a patient before, during, and after surgical procedures. It takes over eight years of schooling and four years of residency until an anaesthesiologist is prepared to practice in the United States. These experts are trained to administer three different types of anaesthetics: general, local, and regional. General anaesthetic is used to put a patient into a temporary state of unconsciousness. Local anaesthetic is used only at the affected site and causes a loss of sensation. Regional anaesthetic is used to block the sensation and possibly the movement of a larger portion of the body. As well as controlling the levels of pain for the patient before and throughout an operation, anaesthesiologists are responsible for monitoring and controlling the patient's vital functions during the procedure and assessing the medical needs in the post-operative room.

The number of anaesthesiologists in the United States has more than doubled since the 1970s, as has the improvement and success of operative care. In addition, complications from anaesthesiology have declined dramatically. Over 40 million anaesthetics are administered in the United States each year, with only 1 in 250,000 causing death.

### **Questions 29-34**

**Do the following statements agree with the information in Passage 3? In boxes 29-34 on your Answer Sheet, write**

TRUE if the statement is true according to the passage.

FALSE if the statement contradicts the passage.

NOT GIVEN inhere is no information about this in the passage.



29. Dioscorides' book, De materia medica, fell out of use after 60 A.D.
30. Mandragora was used as an anaesthetic during the Middle Ages.
31. Nitrous oxide can cause the user to both laugh and cry.
32. During the second half of the 19th century, most dentists used anaesthesia .
33. Anaesthesiologists in the United States are required to have 12 years of education and training.
34. There are fewer anaesthesiologists in the United States now than in the past.

### Questions 35-40

**Match each fact about anaesthesia with the type of anaesthetic that it refers to. There are more types of anaesthetics listed than facts, so you won't use them all. Write the correct letter, A-H in boxes 35-40 on your Answer Sheet.**

Fact about anaesthesia	Type of anaesthetic
35. used by sprinkling on a handkerchief	A general anaesthetic
36. used on only one specific part of the body	B local anaesthetic
37. used by boiling with wine	C regional anaesthetic
38. used first during a dental procedure	D chloroform
39. used to stop feeling over a larger area of the body	E ether
40. used in the first anaesthetic machine	F nitrous oxide
	G opium
	H mandrake