IELTS ACADEMIC READING PRACTICE TEST

Time Allowed: 60 minutes
Number of Questions: 40
Instructions: Read the following three passages and answer the questions. Write your answers on a separate answer sheet.

READING PASSAGE 1

You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 below.

The History of Glassmaking

The story of glass is as old as civilization itself. While the origins of glass are shrouded in mystery, the earliest known man-made glass objects, primarily beads, date back to around 3500 BC in Mesopotamia and Egypt. These were likely created accidentally as a by-product of metalworking or pottery. It was not until around 1500 BC that the first glass vessels appeared, crafted using a laborious core-forming technique where a removable clay core was dipped into molten glass.

A significant breakthrough came in the 1st century BC with the invention of **glassblowing** in the Syro-Palestinian region, arguably by Phoenician craftsmen. This revolutionary technique involved inflating a gather of molten glass at the end of a hollow tube. It dramatically increased production speed, lowered costs, and allowed for unprecedented shapes and forms. The Roman Empire embraced this technology, and glassware became a common household item, not just a luxury for the elite. Roman glassmakers also began to produce the first window panes, albeit of poor transparency.

Following the decline of Rome, the center of glassmaking expertise shifted to the Islamic world and Byzantium. Islamic artisans excelled in decorative techniques like staining, gilding, and enamel painting, producing intricate mosque lamps and vessels. Meanwhile, in early Medieval Europe, glassmaking was largely confined to monasteries, producing simple glass for windows and beakers.

The Renaissance saw Venice, particularly the island of **Murano**, emerge as the epicenter of European glassmaking. Famed for its clarity and brilliance, Venetian *cristallo* (a nearly colorless glass) and elaborate *latticino* (threads of embedded white glass) became highly coveted. To protect trade secrets and prevent fires, the Venetian government ordered all glass furnaces moved to Murano in 1291. Venetian techniques and styles dominated Europe for centuries.

The next great leap forward was the development of **lead crystal** in England in the late 17th century by George Ravenscroft. By adding lead oxide to the melt, he produced glass with a higher refractive index, resulting in exceptional sparkle, weight, and sonic quality—ideal for fine drinking glasses and cut glass.

The Industrial Revolution mechanized glass production. The **cylinder sheet process** in the early 19th century allowed for larger, better-quality window glass. However, the most transformative invention was the **automatic bottle-blowing machine** by Michael Owens in 1903, which made glass containers ubiquitous. In the 20th century, the **float glass process**, invented by Sir Alastair Pilkington in the 1950s, revolutionized flat glass manufacturing by floating molten glass on a bed of molten tin, creating perfectly parallel, polished sheets with minimal distortion. This is how almost all architectural and automotive glass is made today.

From ancient beads to fiber optic cables, glassmaking has continually evolved, blending art, craft, and science to meet human needs.

Questions 1-5

Complete the diagram below.
*Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.*
Write your answers in boxes 1-5 on your answer sheet.

Evolution of Key Glassmaking Techniques

1. **c. 3500 BC:** First man-made glass objects (beads) in Mesopotamia/Egypt. Likely an **1** ..... of other crafts.
2. **c. 1500 BC:** First vessels made using the **2** ..... technique.
3. **1st Century BC:** Invention of **3** ..... in the Syro-Palestinian region. Enabled mass production.
4. **Late 17th Century:** George Ravenscroft develops **4** ..... in England, creating heavier, sparklier glass.
5. **1950s:** Sir Alastair Pilkington invents the **5** ..... process for flawless flat glass.

Questions 6-10

Do the following statements agree with the information given in Reading Passage 1?
In boxes 6-10 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

6. The first glass objects were created intentionally for decorative use.

7. The Roman Empire was responsible for the initial development of glassblowing.
8. During the Medieval period, European glass production was mainly for religious institutions.
9. Venetian glassmakers were relocated to Murano primarily for their own safety.
10. The float glass process is used mainly for producing bottles and containers.

Questions 11-13

Answer the questions below.
*Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.*

11. Which 20th-century invention made glass bottles widely available?
12. Apart from its sparkle, what two qualities of lead crystal are mentioned as being superior?
13. What modern application of glass is mentioned in the final sentence of the passage?

READING PASSAGE 2

You should spend about 20 minutes on Questions 14-26, which are based on Reading Passage 2 below.

The Mystery of Animal Migration

Animal migration is one of nature's most spectacular phenomena, encompassing journeys of staggering length and precision. From the Arctic tern's pole-to-pole flight to the monarch butterfly's multi-generational trek across North America, these movements are fundamental to survival, driven by seasonal changes, breeding needs, or food scarcity. Yet, the mechanisms by which animals navigate across vast, featureless landscapes remain a complex and fascinating area of scientific inquiry.

The most basic navigational tool is **piloting**, using familiar landmarks. This is effective for short-range migrations or the final stages of a journey. For longer distances, however, animals require more sophisticated systems. A significant breakthrough in understanding came with the discovery of **celestial navigation**. In the 1950s, German ornithologist Gustav Kramer demonstrated through experiments with caged starlings that birds use the sun as a compass. Later studies showed that many nocturnal migrants, such as indigo buntings, use star patterns, effectively learning a 'star map' in their youth.

Perhaps the most astonishing navigational sense is the ability to detect the Earth's **magnetic field**—a sense known as magnetoreception. Species like sea turtles, homing pigeons, and certain bacteria are known to possess this ability. Scientists propose two main hypotheses for how it works. The first involves magnetic particles, likely magnetite, found in the brains or beaks of birds and the noses of fish. These particles could act like a microscopic compass needle. The second

hypothesis suggests a quantum mechanical process where light-sensitive molecules in the eyes, called cryptochromes, form radical pairs whose chemistry is influenced by magnetic fields, potentially creating a visual pattern or 'light sense' of magnetism.

Migration is not merely a physical but also a physiological feat. It requires immense energy reserves. Many birds undergo hyperphagia (intense eating) to build fat stores. Their bodies are highly adapted for endurance flight: hollow bones reduce weight, and their cardiovascular and respiratory systems are exceptionally efficient. Some, like the bar-tailed godwit, can fly non-stop for over 11,000 kilometers, a journey that pushes physiological limits to the extreme.

The timing of migration is equally critical and is governed by **circadian and circannual rhythms**—internal biological clocks synchronized with day length (photoperiod). These clocks trigger hormonal changes that prepare the animal for the journey, influencing restlessness (*Zugunruhe* in birds) and feeding behavior.

However, this intricate system is under threat. **Climate change** is disrupting the synchrony between migration arrival and peak food availability (e.g., insect hatches or plant blooms). Light pollution disorients nocturnal migrants, causing fatal collisions. Habitat loss along migratory corridors—'flyways' for birds or 'swimways' for marine creatures—removes essential stopover sites for rest and refueling.

Understanding migration is more than an academic pursuit; it is crucial for conservation. By tracking animals via satellite tags, geolocators, and citizen science reports, researchers can identify critical habitats and the precise impacts of human activity. This knowledge is vital to implement protections like marine protected areas along migration routes or regulations on building lighting during key migration windows. The mystery of *how* animals navigate is slowly being unraveled, but the greater challenge now is ensuring they still have a world to navigate through.

Questions 14-18

*Reading Passage 2 has seven paragraphs, **A-G**.*
Which paragraph contains the following information?
*Write the correct letter, **A-G**, in boxes 14-18 on your answer sheet.*

14. A description of how some animals prepare their bodies for the high energy cost of travelling.
15. The role of internal biological clocks in determining when to migrate.
16. An example of an experiment that changed our understanding of bird navigation.
17. The various human-made dangers that migrating animals now face.
18. Two possible explanations for a particular biological mechanism used in navigation.

Questions 19-22

*Look at the following list of animals/insects (**A-E**) and the navigational methods below.*
Match each animal/insect with the correct navigational method.
*Write the correct letter, **A-E**, in boxes 19-22 on your answer sheet.*

Navigational Methods
i. Uses the position of the stars.
ii. Is believed to use light-sensitive molecules to detect magnetic fields.
iii. Uses recognised landmarks on a local scale.
iv. Uses the position of the sun.

Animals/Insects
19. Nocturnal migrating birds (e.g., indigo bunting)
20. Homing pigeons
21. Birds in Gustav Kramer's experiment
22. Animals completing the final stage of their journey

Questions 23-26

Complete the summary below.
*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*
Write your answers in boxes 23-26 on your answer sheet.

Threats to Migration and Conservation Efforts

Migration is increasingly endangered by human activity. **23** ..... is altering seasonal patterns, causing a mismatch between animal arrival and food sources. Artificial lights can lead to **24** ..... for night-flying species. Furthermore, the destruction of crucial **25** ..... sites along migration routes depletes energy reserves. Scientists are using tracking technology to gather data, which can inform conservation strategies such as creating protected areas or managing **26** ..... during migration periods.

READING PASSAGE 3

You should spend about 20 minutes on Questions 27-40, which are based on Reading Passage 3 below.

The Enigma of the Viking Sunstone

Norse sagas from the 10th-11th centuries AD speak of a mysterious *sólarsteinn* (sunstone) that Viking sailors used to locate the sun on cloudy days or below the horizon to navigate the North Atlantic. For centuries, this was dismissed as mere legend. However, modern scientific investigation suggests these tales may hold a kernel of truth, pointing to a sophisticated understanding of light polarization.

Vikings were skilled navigators, using landmarks, bird behavior, whale sightings, and star observations. Yet, these methods would have been useless during the prolonged cloud cover common in the northern seas. The sunstone, if it existed, would have been the key to their transatlantic voyages. In the 1960s, Danish archaeologist Thorkild Ramskou hypothesized that the sunstone could have been a crystal capable of detecting the polarization of sunlight.

Sunlight becomes partially polarized—its waves oscillating in a specific plane—as it scatters through the atmosphere. This polarization forms a consistent pattern centered on the sun, invisible to the human eye but detectable by some animals and certain minerals. The principle is simple: by rotating a polarizing crystal and looking through it towards the sky, one can find a point where the crystal appears darkest or lightest, indicating the plane of polarization and thus the hidden sun's position.

The prime candidate for the sunstone is **Iceland spar**, a transparent calcite crystal known to have been used by the Vikings and found in a British shipwreck from the Elizabethan era. Calcite has a property called birefringence: it splits a light ray in two. When held up to polarized light and rotated, it creates a distinct doubling effect, allowing a skilled user to pinpoint the sun's azimuth with remarkable accuracy, even at twilight.

A landmark 2011 study led by Guy Ropars demonstrated that Iceland spar could indeed locate the sun within a few degrees under complete cloud cover or after sunset. Subsequently, in 2018, a team examining the wreck of an English warship sunk in 1592 found a piece of Iceland spar aboard, its surfaces worn smooth, suggesting repeated use as a navigational tool. This provided the first tangible archaeological link between such a crystal and seafaring.

Sceptics, however, urge caution. They argue that while the theory is plausible, no sunstone has ever been found in a definitive Viking navigational context. The sagas are poetic and unreliable as historical records. Furthermore, using a sunstone effectively requires significant skill and knowledge of the crystal's properties—knowledge that may have been lost.

Despite the scepticism, the sunstone theory offers an elegant solution to a historical puzzle. It bridges the gap between Viking technological achievement and their documented navigational feats. It represents not a magical artifact, but an application of natural philosophy—an early empirical science. The enigma of the sunstone continues to captivate, serving as a powerful reminder that ancient peoples possessed ingenuity and observational skills that modern science is only now beginning to reconstruct and appreciate.

Questions 27-31

Choose the correct letter, ***A, B, C or D****.*
Write the correct letter in boxes 27-31 on your answer sheet.

27. The primary purpose of Reading Passage 3 is to
    A. describe the various navigation methods used by Viking sailors.
    B. evaluate evidence for and against the existence of a Viking navigational tool.
    C. explain the scientific principle of light polarization in detail.
    D. argue that Viking sagas are accurate historical documents.
28. According to the passage, traditional Viking navigation methods were problematic because
    A. Vikings did not understand astronomy.
    B. the North Atlantic had few visible landmarks.
    C. they were ineffective in overcast conditions.
    D. they relied on unreliable animal behavior.
29. What is the key property of Iceland spar that makes it suitable as a 'sunstone'?
    A. Its ability to glow in the dark.
    B. Its magnetic properties.
    C. Its birefringence, or double refraction of light.
    D. Its rarity in Northern Europe.
30. The 2018 discovery of Iceland spar on a shipwreck was significant because it
    A. proved Vikings sailed on English warships.
    B. was the first time Iceland spar had been scientifically tested.
    C. provided physical evidence linking the crystal to maritime navigation.
    D. confirmed all descriptions found in the Norse sagas.

31. What point do sceptics of the sunstone theory make?
    A. Iceland spar is too fragile to have been used on ships.
    B. The scientific principles behind it are flawed.
    C. There is no direct archaeological proof from the Viking Age.
    D. Polarized light cannot be detected through clouds.

Questions 32-35

Complete the flow-chart below.
*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*

How a Calcite Sunstone Might Have Been Used

- The sailor looks at the sky through a piece of **32** ..... .
- He rotates the crystal until it creates a specific **33** ..... effect (two images).
- This alignment reveals the **34** ..... of the polarized light.
- From this information, the sailor can deduce the **35** ..... of the hidden sun.

Questions 36-40

Do the following statements agree with the claims of the writer in Reading Passage 3?
In boxes 36-40 on your answer sheet, write:

YES - if the statement agrees with the claims of the writer
NO - if the statement contradicts the claims of the writer
NOT GIVEN - if it is impossible to say what the writer thinks about this

36. The Viking sagas are the only historical source that mentions a sunstone.
37. Thorkild Ramskou was the first scientist to test an Iceland spar crystal under laboratory conditions.
38. Using a sunstone effectively required specialised training and experience.
39. The author believes the sunstone theory definitively proves Viking superiority over other navigators.
40. The writer concludes that the sunstone is an example of early scientific thinking applied to a practical problem.

ANSWER KEY

Reading Passage 1

1. by-product
2. core-forming

3. glassblowing
4. lead crystal
5. float glass
6. FALSE
7. FALSE
8. TRUE
9. NOT GIVEN
10. FALSE
11. automatic bottle-blowing machine / Owens machine
12. weight, (and) sonic quality (in either order)
13. fibre optic cables

Reading Passage 2

14. D
15. E
16. B
17. F
18. C
19. i
20. ii
21. iv
22. iii
23. Climate change
24. fatal collisions (or collisions)
25. stopover / habitat
26. building lighting / light(ing)

Reading Passage 3

27. B
28. C
29. C
30. C
31. C
32. Iceland spar / calcite (crystal)
33. doubling
34. plane
35. azimuth / position
36. NOT GIVEN
37. NOT GIVEN
38. YES
39. NO
40. YES

How to Use This Test:

1. **Simulate Exam Conditions:** Time yourself strictly (60 minutes total, no extra time to transfer answers).
2. **Answer Sheet:** Write your answers on a separate sheet with numbers 1-40.
3. **Check Your Answers:** Use the key to mark your work.
4. **Analyze Mistakes:** For every error, figure out *why* you got it wrong (misinterpreted question, skimmed too fast, didn't understand a synonym, etc.).
5. **Vocabulary:** Make a list of all unknown words from the passages, especially those that helped answer questions.