

SECTION 1

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

Dino discoveries

When news breaks of the discovery of a new species of dinosaur, you would be forgiven for thinking that the scientists who set out in search of the fossils are the ones who made the find. The reality tells a different story, as Cavan Scott explains. WWW.THEIELTSHUB.COM

The BBC series Planet Dinosaur used state-of-the-art computer graphics to bring to life the most impressive of those dinosaurs whose remains have been discovered in the past decade. One of these is Gigantoraptor erlianensis. Discovered in 2005, it stands more than three metres high at the hip and is the biggest bird-like dinosaur ever unearthed. Yet its discoverer, Xu Xing of Beijing's Institute of Vertebrate Palaeontology and Paleoanthropology, was not even looking for it at the time. He was recording a documentary in the Gobi Desert, Inner Mongolia.

'The production team were filming me and a geologist digging out what we thought were sauropod bones,' says Xu. 'When I realised the fossils were something else entirely,' Gigantoraptor, as it later became known, turned out to be an oviraptorid, a theropod with a bird-like beak. Its size was staggering. The largest oviraptorid previously discovered had been comparable in size to an emu: the majority were about as big as a turkey. Here was a creature that was probably about eight metres long, if the bone analysis was anything to go by. WWW.THEIELTSHUB.COM

Sometimes it is sheer opportunism that plays a part in the discovery of a new species. In 1999, the National Geographic Society announced that the missing link between dinosaurs and modern birds had finally been found. Named Archaeoraptor liaoningensis, the fossil in question appeared to have the head and body of a bird, with the hind legs and tail of a 124-million-year-old dromaeosaur - a family of small theropods that include the bird-like Velociraptor made famous by Jurassic Park films.

There was a good reason why the fossil looked half-bird, half-dinosaur. CT scans almost immediately proved the specimen was bogus and had been created by an industrious Chinese farmer who had glued two separate fossils together to create a profitable hoax.

But while the palaeontologists behind the announcement were wiping egg off their faces, others, including Xu were taking note. The head and body of the fake composite belonged to *Yanornis martini*, a primitive fish-eating bird from around 120 million years ago. The dromaeosaur tail and hind legs, however, were covered in what looked like fine proto feathers. That fossil turned out to be something special. In 2000. Xu named it *Microraptor* and revealed that it had probably lived in the treetops. Although it couldn't fly. its curved claws provided the first real evidence that dinosaurs could have climbed trees. Three years later. Xu and his team discovered a closely related *Microraptor* species which changed everything. 'Microraptor had two salient features.' Xu explains, long feathers were attached not just to its forearms but to its legs and claws. Then we noticed that these long feathers had asymmetrical vanes, a feature often associated with flight capability. This meant that we might have found a flying dinosaur.' WWW.THEIELTSHUB.COM

Some extraordinary fossils have remained hidden in a collection and almost forgotten. For the majority of the 20th century, the palaeontology community had ignored the frozen tundra of north Alaska. There was no way, scientists believed that cold-blooded dinosaurs could survive in such bleak, frigid conditions. But according to Alaskan dinosaur expert Tony Fiorillo. they eventually realised they were missing a trick.

The first discovery of dinosaurs in Alaska was actually made by a geologist called Robert Liscomb in 1961.' says Fiorillo. 'Unfortunately, Robert was killed in a rockslide the following year, so his discoveries languished in a warehouse for the next two decades.' In the mid-1980s, managers at the warehouse stumbled upon the box containing Liscomb's fossils during a spring clean. The bones were sent to the United States Geological Survey, where they were identified as belonging to *Edmontosaurus*. a duck-billed hadrosaur. Today, palaeontologists roam this frozen treasure trove searching for remains locked away in the permafrost.

The rewards are worth the effort. While studying teeth belonging to the relatively intelligent *Troodon* theropod. Fiorillo discovered the teeth of the Alaskan *Troodon* were double the size of those of its southern counterpart. 'Even though the morphology of individual teeth resembled

that of Troodon. the size was significantly larger than the Troodon found in warmer climates. Fiorillo says that the reason lies in the Troodon's large eyes, which allowed it to hunt at dawn and at dusk - times when other dinosaurs would have struggled to see. In the polar conditions of Cretaceous Alaska, where the Sun would all but disappear for months on end, this proved a useful talent. Troodon adapted for life in the extraordinary light regimes of the polar world. With this advantage, it took over as Alaska's dominant theropod.' explains Fiorillo.

Finding itself at the top of the food chain, the dinosaur evolved to giant proportions. WWW.THEIELTSHUB.COM

It is true that some of the most staggering of recent developments have come from palaeontologists being in the right place at the right time, but this is no reflection on their knowledge or expertise. After all, not everyone knows when they've stumbled upon something remarkable. When Argentine sheep farmer Guillermo Heredia uncovered what he believed was a petrified tree trunk on his Patagonian farm in 1988. he had no way of realising that he'd found a 1.5-metre- long tibia of the largest sauropod ever known to walk the Earth. Argentinosaurus was 24 metres long and weighed 75 tonnes. The titanosaur was brought to the attention of the scientific community in 1993 by Rodolfo Coria and Jose Bonaparte of the National Museum of Natural Sciences in Buenos Aires. Coria points out that most breakthroughs are not made by scientists, but by ordinary folk. 'But the real scientific discovery is not the finding; it's what we learn from that finding.' While any one of us can unearth a fossil, it takes dedicated scientists to see beyond the rock.

Questions 1-6

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

In boxes **1-6** on your answer sheet, write -

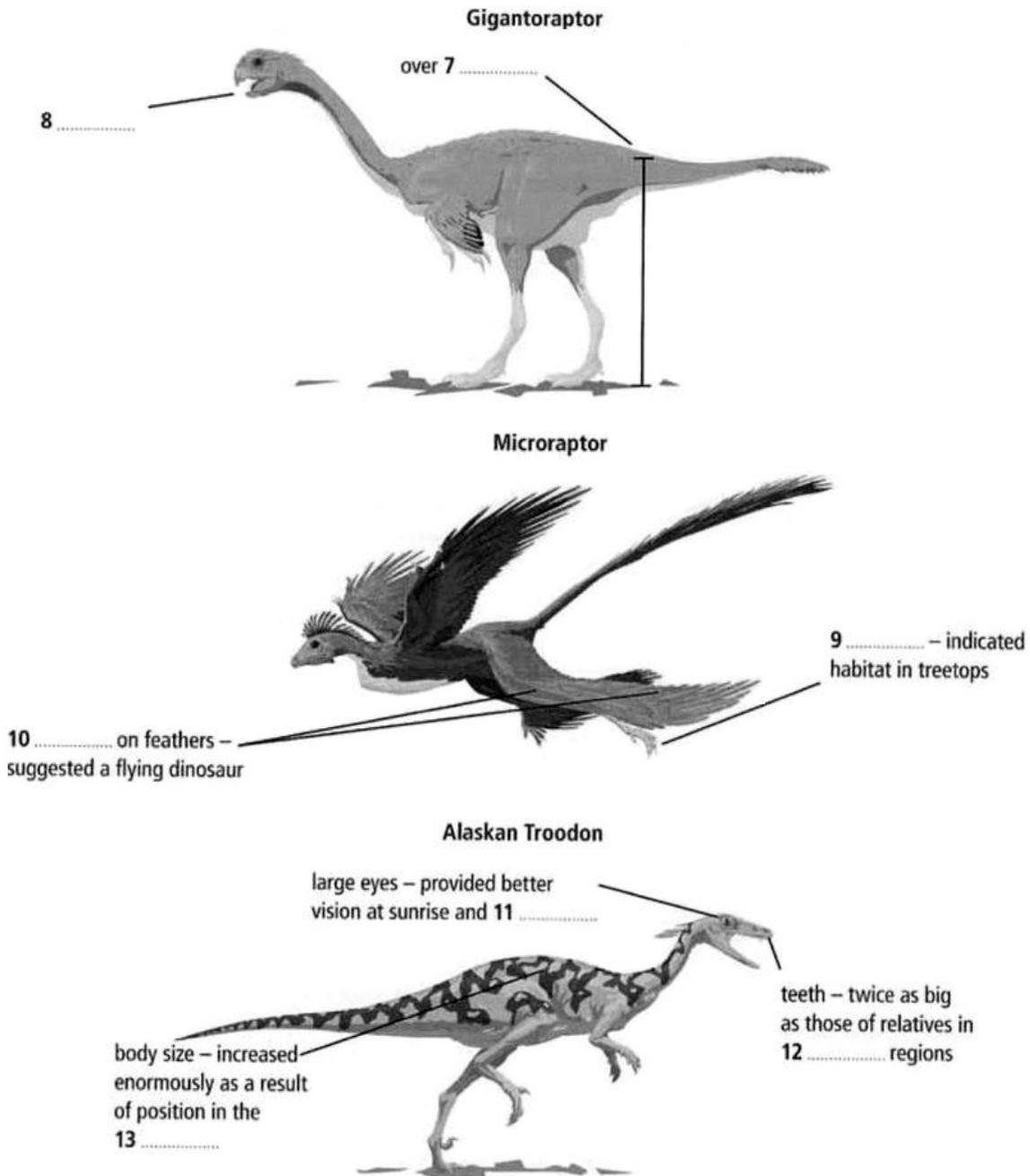
- TRUE** if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this

1. Xu Xing went to the Gobi Desert to check fossil evidence of the existence of Gigantoraptor erlianensis.

2. The announcement made by the National Geographic Society in 1999 was based on false evidence.
3. Like Gigantoraptor, Yanomis martini was first discovered in China.
4. The bones originally discovered by Robert Liscomb changed the attitude of palaeontologists towards north Alaska.
5. According to Fiorillo. the name Troodon means 'wounding tooth'.
6. Guillermo Heredia had suspected that his find was a dinosaur fossil.

Questions 7-13

Complete the labels on the diagrams below. WWW.THEIELTSHUB.COM



SECTION 2

You should spend about 20 minutes on **Questions 14- 26**, which are based on Passage below. WWW.THEIELTSHUB.COM

Eco-Resort Management

A. Ecotourism is often regarded as a form of nature-based tourism and has become an important alternative source of tourists. In addition to providing the traditional resort-leisure product, it has been argued that ecotourism resort management should have a particular focus on best-practice environmental management, an educational and interpretive component, and direct and indirect contributions to the conservation of the natural and cultural environment (Ayala, 1996).

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B. Couran Cove Island Resort is a large integrated ecotourism-based resort located south of Brisbane on the Gold Coast, Queensland, Australia. As the world's population becomes increasingly urbanised, the demand for tourist attractions which are environmentally friendly, serene and offer amenities of a unique nature, has grown rapidly. Couran Cove Resort, which is one such tourist attractions, is located on South Stradbroke Island, occupying approximately 150 hectares of the island. South Stradbroke Island is separated from the mainland by the Broadwater, a stretch of sea 3 kilometers wide. More than a century ago, there was only one Stradbroke Island, and there were at least four aboriginal tribes living and hunting on the island. Regrettably, most of the original island dwellers were eventually killed by diseases such as tuberculosis, smallpox and influenza by the end of the 19th The second ship wreck on the island in 1894, and the subsequent destruction of the ship (the Cambus Wallace) because it contained dynamite, caused a large crater in the sandhills on Stradbroke Island. Eventually, the ocean broke through the weakened land form and Stradbroke became two islands. Couran Cove Island Resort is built on one of the world's few naturally-occurring sand lands, which is home to a wide range of plant communities and one of the largest remaining remnants of the rare Livistona rainforest left on the Gold Coast. Many mangrove and rainforest areas, and Melaleuca Wetlands on South Stradbroke Island (and in Queensland) have been cleared, drained or filled for residential, industrial, agricultural or urban development in the first half of the 20th century. Farmer and graziers finally abandoned South Stradbroke Island in 1939 because the vegetation and the soil conditions there were not suitable for agricultural

activities.

SUSTAINABLE PRACTICES OF COURAN COVE RESORT

Being located on an offshore island, the resort is only accessible by means of water transportation. The resort provides hourly ferry service from the marina on the mainland to and from the island. Within the resort, transport modes include walking trails, bicycle tracks and the beach train. The reception area is the counter of the shop which has not changed in 8 years at least. The accommodation is an octagonal "Bure". These are large rooms that are clean but! The equipment is tired and in some cases just working. Our ceiling fan only worked on high speed for example. Beds are hard but clean, there is television, radio, an old air conditioner and a small fridge. These "Bures" are right on top of each other and night noises do carry so be careful what you say and do. The only thing is the mosquitos but if you forget to bring mosquito repellent they sell some on the island.

As an ecotourism-based resort, most of the planning and development of the attraction has been concentrated on the need to co-exist with the fragile natural environment of South Stradbroke Island to achieve sustainable development. WWW.THEIELTSHUB.COM

WATER AND ENERGY MANAGEMENT

C. South Stradbroke Island has groundwater at the centre of the island, which has a maximum height of 3 metres above sea level. The water supply is recharged by rainfall and is commonly known as an unconfined freshwater aquifer. Couran Cove Island Resort obtains its water supply by tapping into this aquifer and extracting it via a bore system. Some of the problems which have threatened the island's freshwater supply include pollution, contamination and over-consumption. In order to minimise some of these problems, all laundry activities are carried out on the mainland. The resort considers washing machines as onerous to the island's freshwater supply, and that the detergents contain a high level of phosphates which are a major source of water pollution. The resort uses LPG-power generation rather than a diesel-powered plant for its energy supply, supplemented by wind turbine, which has reduced greenhouse emissions by 70% of diesel-equivalent generation methods. Excess heat recovered from the generator is used to heat the swimming pool. Hot water in the eco-cabins and for some of the resort's vehicles are solar-

powered. Water efficient fittings are also installed in showers and toilets. However, not all the appliances used by the resort are energy efficient, such as refrigerators. Visitors who stay at the resort are encouraged to monitor their water and energy usage via the in-house television system, and are rewarded with prizes (such as a free return trip to the resort) accordingly if their usage level is low.

CONCLUDING REMARKS WWW.THEIELTSHUB.COM

D. We examined a case study of good management practice and a pro-active sustainable tourism stance of an eco-resort. In three years of operation, Couran Cove Island Resort has won 23 international and national awards, including the 2001 Australian Tourism Award in the 4-Star Accommodation category. The resort has embraced and has effectively implemented contemporary environmental management practices. It has been argued that the successful implementation of the principles of sustainability should promote long-term social, economic and environmental benefits, while ensuring and enhancing the prospects of continued viability for the tourism enterprise. Couran Cove Island Resort does not conform to the characteristics of the Resort Development Spectrum, as proposed by Prideaux (2000). According to Prideaux, the resort should be at least at Phase 3 of the model (the National tourism phase), which describes an integrated resort providing 3-4 star hotel-type accommodation. The primary tourist market in Phase 3 of the model consists mainly of interstate visitors. However, the number of interstate and international tourists visiting the resort is small, with the principal visitor markets comprising locals and residents from nearby towns and the Gold Coast region. The carrying capacity of Couran Cove does not seem to be of any concern to the Resort management. Given that it is a private commercial ecotourist enterprise, regulating the number of visitors to the resort to minimize damage done to the natural environment on South Stradbroke Island is not a binding constraint. However, the Resort's growth will eventually be constrained by its carrying capacity, and quantity control should be incorporated in the management strategy of the resort.

Questions 14-18

Choose the correct letter, A, B, C or D.

Write your answers in boxes **14-18** on your answer sheet.

- 14.** The Stradbroke became two islands
- A. by an intended destruction of the ship of the Cambus Wallace
 - B. by an explosion of dynamite on a ship and following nature erosion
 - C. by the movement sandhills on Stradbroke Island
 - D. by the volcanic eruption on island WWW.THEIELTSHUB.COM
- 15.** Why are laundry activities for the resort carried out on the mainland
- A. In order to obtain its water supply via a bore system
 - B. In order to preserve the water and anti-pollution
 - C. In order to save the cost of installing onerous washing machines
 - D. In order to reduce the level of phosphates in water around
- 16.** What is the major water supplier in South Stradbroke Island is by
- A. desalinizing the sea water
 - B. collecting the rainfall
 - C. transporting from the mainland
 - D. boring ground water
- 17.** What is applied for heating water on Couran Cove Island Resort
- A. the LPG-power
 - B. a diesel-powered plant
 - C. the wind power
 - D. the solar-power
- 18.** What does, as the managers of resorts believe, the prospective future focus on
- A. more awards of for resort's accommodation
 - B. sustainable administration and development in a long run
 - C. Economic and environmental benefits for the tourism enterprise
 - D. successful implementation the Resort Development Spectrum

Questions 19-23

Complete the following summary using **NO MORE THAN TWO WORDS** from the Reading Passage for each answer.
Write your answers in boxes 19-23 on your answer sheet.

Being located away from the mainland, tourists can attain the resort only by **19**..... in a regular service. Within the resort, transports include trails for walking or tracks for both **20**..... and the

beach train. The on-island equipment is old-fashioned which is barely working such as the **21**..... overhead. There is television, radio, an old **22**..... and a small fridge. And you can buy the repellent for **23**..... if you forget to bring some.

Questions 24-26

Choose THREE correct letters among, A-E.

Write your answers in boxes **24-26** on your answer sheet.

What is true as to the contemporary situation of Couran Cove Island Resort in the last paragraph

- A.** Couran Cove Island Resort goes for more eco-friendly practices.
- B.** The accommodation standard only conforms to the Resort Development Spectrum of Phase 3.
- C.** Couran Cove Island Resort should raise the accommodation standard and build more facilities. WWW.THEIELTSHUB.COM
- D.** The principal group visiting the resort is international tourists.
- E.** Its carrying capacity will restrict the future business' expansion.

SECTION 3

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

Mind readers

It may one day be possible to eavesdrop on another person's inner voice.

As you begin to read this article and your eyes follow the words across the page, you may be aware of a voice in your head silently muttering along. The very same thing happens when we write: a private, internal narrative shapes the words before we commit them to text.

What if it were possible to tap into this inner voice? Thinking of words does, after all, create characteristic electrical signals in our brains, and decoding them could make it possible to piece together someone's thoughts. Such an ability would have phenomenal prospects, not least for people unable to communicate as a result of brain damage. But it would also carry profoundly worrisome implications for the future of privacy.

The first scribbled records of electrical activity in the human brain were

made in 1924 by a German doctor called Hans Berger using his new invention - the electroencephalogram (EEG). This uses electrodes placed on the skull to read the output of the brain's billions of nerve cells or neurons. By the mid-1990s, the ability to translate the brain's activity into readable signals had advanced so far that people could move computer cursors using only the electrical fields created by their thoughts.

The electrical impulses such innovations tap into are produced in a part of the brain called the motor cortex, which is responsible for muscle movement. To move a cursor on a screen, you do not think 'move left' in natural language. Instead, you imagine a specific motion like hitting a ball with a tennis racket. Training the machine to realise which electrical signals correspond to your imagined movements, however, is time consuming and difficult. And while this method works well for directing objects on a screen, its drawbacks become apparent when you try using it to communicate. At best, you can use the cursor to select letters displayed on an on-screen keyboard. Even a practised mind would be lucky to write 15 words per minute with that approach. Speaking, we can manage 150. WWW.THEIELTSHUB.COM

Matching the speed at which we can think and talk would lead to devices that could instantly translate the electrical signals of someone's inner voice into sound produced by a speech synthesiser. To do this, it is necessary to focus only on the signals coming from the brain areas that govern speech. However, real mind reading requires some way to intercept those signals before they hit the motor cortex.

The translation of thoughts to language in the brain is an incredibly complex and largely mysterious process, but this much is known: before they end up in the motor cortex, thoughts destined to become spoken words pass through two 'staging areas' associated with the perception and expression of speech.

The first is called Wernicke's area, which deals with semantics - in this case, ideas based in meaning, which can include images, smells or emotional memories. Damage to Wernicke's area can result in the loss of semantic associations: words can't make sense when they are decoupled from their meaning. Suffer a stroke in that region, for example, and you will have trouble understanding not just what others are telling you, but

what you yourself are thinking.

The second is called Broca's area, agreed to be the brain's speech-processing centre. Here, semantics are translated into phonetics and ultimately, word components. From here, the assembled sentences take a quick trip to the motor cortex, which activates the muscles that will turn the desired words into speech.

Injure Broca's area, and though you might know what you want to say, you just can't send those impulses.

When you listen to your inner voice, two things are happening. You 'hear' yourself producing language in Wernicke's area as you construct it in Broca's area. The key to mind reading seems to lie in these two areas.

(line 44) The work of Bradley Greger in 2010 broke new ground by marking the first-ever excursion beyond the motor cortex into the brain's language centres. His team used electrodes placed inside the skull to detect the electrical signatures of whole words, such as 'yes', 'no', 'hot', 'cold', 'thirsty', 'hungry', etc. Promising as it is. This approach requires a new signal to be learned for each new word. English contains a quarter of a million distinct words. And though this was the first instance of monitoring Wernicke's area, it still relied largely on the facial motor cortex. WWW.THEIELTSHUB.COM

Greger decided there might be another way. The building blocks of language are called phonemes, and the English language has about 40 of them - the 'kuh' sound in 'school', for example, the 'sh' in 'shy'. Every English word contains some subset of these components. Decode the brain signals that correspond to the phonemes, and you would have a system to unlock any word at the moment someone thinks it.

In 2011, Eric Leuthardt and his colleague Gerwin Schalk positioned electrodes over the language regions of four fully conscious people and were able to detect the phonemes 'oo', 'ah', 'eh' and 'ee'. What they also discovered was that spoken phonemes activated both the language areas and the motor cortex, while imagined speech - that inner voice - boosted the activity of neurons in Wernicke's area. Leuthardt had effectively read his subjects' minds. 'I would call it brain reading,' he says. To arrive at

whole words, Leuthardt's next step is to expand his library of sounds and to find out how the production of phonemes translates across different languages.

For now, the research is primarily aimed at improving the lives of people with locked-in syndrome, but the ability to explore the brain's language centres could revolutionise other fields. The consequences of these findings could ripple out to more general audiences who might like to use extreme hands-free mobile communication technologies that can be manipulated by inner voice alone. For linguists, it could provide previously unobtainable insight into the neural origins and structures of language. Knowing what someone is thinking without needing words at all would be functionally indistinguishable from telepathy.

Questions 27-32

Do the following statements agree with the claims of the writer in the Reading Passage?

In boxes **27-32** 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

27. Our inner voice can sometimes distract us when we are reading or writing.

28. The possibility of reading minds has both positive and negative implications.

29. Little progress was made in understanding electrical activity in the brain between 1924 and the mid-1990s. WWW.THEIELTSHUB.COM

30. Machines can be readily trained to interpret electrical signals from the brain that correspond to movements on a keyboard.

31. Much has been written about the potential use of speech synthesisers with paralysed patients.

32. It has been proven that the perception and expression of speech occur in different parts of the brain.

Questions 33-36

Complete each sentence with the correct ending, A-G.

33. In Wernicke's area, our thoughts

- 34.** It is only in Broca's area that ideas we wish to express
35. The muscles that articulate our sentences
36. The words and sentences that we speak

- A.** receive impulses from the motor cortex.
B. pass directly to the motor cortex.
C. are processed into language.
D. require a listener.
E. consist of decoded phonemes.
F. are largely non-verbal. WWW.THEIELTSHUB.COM
G. match the sounds that they make.

Questions 37-40

Choose the correct letter, **A, B, C** or **D**.

Write your answers in boxes **37-40** on your answer sheet.

- 37.** What does the underlined phrase 'broke new ground' in line 44 mean?
A. built on the work of others
B. produced unusual or unexpected results
C. proved earlier theories on the subject to be false
D. achieved something that had not been done before
- 38.** What was most significant about Leuthardt and Schalk's work?
A. They succeeded in grouping certain phonemes into words.
B. They linked the production of certain phonemes to recognisable brain activity. WWW.THEIELTSHUB.COM
C. Their methods worked for speakers of languages other than English.
D. Their subjects were awake during the course of their experiments.
- 39.** What does the writer conclude about mind reading?
A. It could become a form of entertainment.
B. It may contribute to studies on language acquisition.
C. Most people are keenly awaiting the possibility of doing it.
D. Mobile technologies may become unreliable because of it.
- 40.** What is the main purpose of the writer of this passage?
A. to give an account of the developments in mind-reading research
B. to show how scientists' attitudes towards mind reading have changed WWW.THEIELTSHUB.COM
C. to explain why mind-reading research should be given more funding
D. to fully explore the arguments for and against mind reading

ANSWER KEY

1. FALSE
2. TRUE
3. NOT GIVEN
4. TRUE
5. NOT GIVEN
6. FALSE
7. three metres
8. bird-like beak
9. curved claws
10. asymmetrical vanes
11. dusk
12. warmer
13. food chain

14. B
15. B
16. D
17. D
18. B
19. ferry
20. bicycle
21. fan/ceiling fan
22. air conditioner
23. mosquitos/mosquito
24. 25. & 26. A, C, E [in any order]

27. NOT GIVEN
28. YES
29. NO
30. NO
31. NOT GIVEN
32. YES
33. F
34. C
35. A
36. E
37. D
38. B
39. B
40. A