IELTSFever Academic IELTS Reading Test 143

Reading Passage 1

You should spend about 20 minutes on Questions 1-13, which are based on the IELTSFever Academic IELTS Reading Test 143 Reading Passage Plant Scents below.

Walking with dinosaurs

Peter L. Falkingham and his colleagues at Manchester University are developing techniques which look set to revolutionize our understanding of how dinosaurs and other extinct animals behaved.

{A}. The media image of palaeontologists who study prehistoric life is often of field workers camped in the desert in the hot sun, carefully picking away at the rock surrounding a large dinosaur bone. But Peter Falkingham has done little of that for a while now. Instead, he devotes himself to his computer. Not because he has become inundated with paperwork, but because he is a new kind of paleontologist: a computational paleontologist.

{B}. What few people may consider is that uncovering a skeleton, or discovering a new species, is where the research begins, not where it ends. What we really want to understand is how the extinct animals and plants behaved in their natural habitats. Dr Bill Sellers and Phil Manning from the University of Manchester use a 'genetic algorithm' – a kind of computer code that can change itself and 'evolve' – to explore how extinct animals like dinosaurs, and our own early ancestors, walked and stalked.

{C}. The fossilized bones of a complete dinosaur skeleton can tell scientists a lot about the animal, but they do not make up the complete picture and the computer can try to fill the gap. The computer model is given a digitized skeleton and the locations of known muscles. The model then randomly activates the muscles. This, perhaps unsurprisingly, results almost without fail in the animal falling on its face. So the computer alters the activation pattern and tries again … usually to similar effect. The modelled dinosaurs quickly 'evolve'. If there is any improvement, the computer discards the old pattern and adopts the new one as the base for alteration. Eventually, the muscle activation pattern evolves a stable way of moving, the best possible solution is reached, and the dinosaur can walk, run, chase or graze. Assuming natural selection evolves the best possible solution too, the modelled animal should be moving in a manner similar to it's now-extinct counterpart. And indeed, using the same method for living animals (humans, emu and ostriches) similar top speeds were achieved on the computer as in reality. By comparing their cyberspace results with real measurements of living species, the Manchester team of paleontologists can be confident in the results computed showing how extinct prehistoric animals such as dinosaurs moved.

{D}. The Manchester University team have used computer simulations to produce a model of a giant meat-eating dinosaur. It is called an acrocanthosaurus which literally means 'high spined lizard' because of the spines which run along its backbone. It is not really known why they are there but scientists have speculated they could have supported a hump that stored fat and water reserves. There are also those who believe that the spines acted as a support for a sail. Of these, one half think it was used as a display and could be flushed with blood and the other half think it was used as a temperature-regulating device. It may have been a mixture of the two. The skull seems out of proportion with its thick, heavy body because it is so narrow and the jaws are delicate and fine. The feet are also worthy of note as they look surprisingly small in contrast to the animal as a whole. It has a deep broad tail and powerful leg muscles to aid locomotion. It walked on its back legs and its front legs were much shorter with powerful claws.

{E}. Falkingham himself is investigating fossilized tracks, or footprints, using computer simulations to help analyze how extinct animals moved. Modern-day trackers who study the habitats of wild animals can tell you what animal made a track, whether that animal was walking or running, sometimes even the sex of the animal. But a fossil track poses a more considerable challenge to interpret in the same way. A crucial consideration is knowing what the environment including the mud, or sediment, upon which the animal walked was like millions of years ago when the track was made. Experiments can answer these questions but the number of variables is staggering. To physically recreate each scenario with a box of mud is extremely time-consuming and difficult to repeat accurately. This is where computer simulation comes in.

{G}. Falkingham uses computational techniques to model a volume of mud and control the moisture content, consistency, and other conditions to simulate the mud of prehistoric times. A footprint is then made in the digital mud by a virtual foot. This footprint can be chopped up and viewed from any angle and stress values can be extracted and calculated from inside it. By running hundreds of these simulations simultaneously on supercomputers, Falkingham can start to understand what types of footprint would be expected if an animal moved in a certain way over a given kind of ground. Looking at the variation in the virtual tracks, researchers can make sense of fossil tracks with greater confidence.

{H}. The application of computational techniques in paleontology is becoming more prevalent every year. As computer power continues to increase, the range of problems that can be tackled and questions that can be answered will only expand.

Question 1-6

Do the following statements agree with the information given in Reading Passage 1? In boxes 1-6 on your answer sheet, write.

YES	if the statement agrees with the writer
NO	if the statement does not agree with the writer
NOT GIVEN	if there is no information about this in the passage

(1). In his study of prehistoric life, Peter Falkinghom rarely spends time on outdoor research those days.

(2). Several attempts are usually needed before the computer model of a dinosaur used by Sellers and Manning manages to stay upright.

(3). When the Sellers and Manning computer model was used for people, it showed them moving faster than they are physically able to.

(4). Some palaeontologists have expressed reservations about the conclusions reached by the Manchester team concerning the movement of dinosaurs.

(5). An experienced tracker can analyse fossil footprints as easily as those made by live animals.

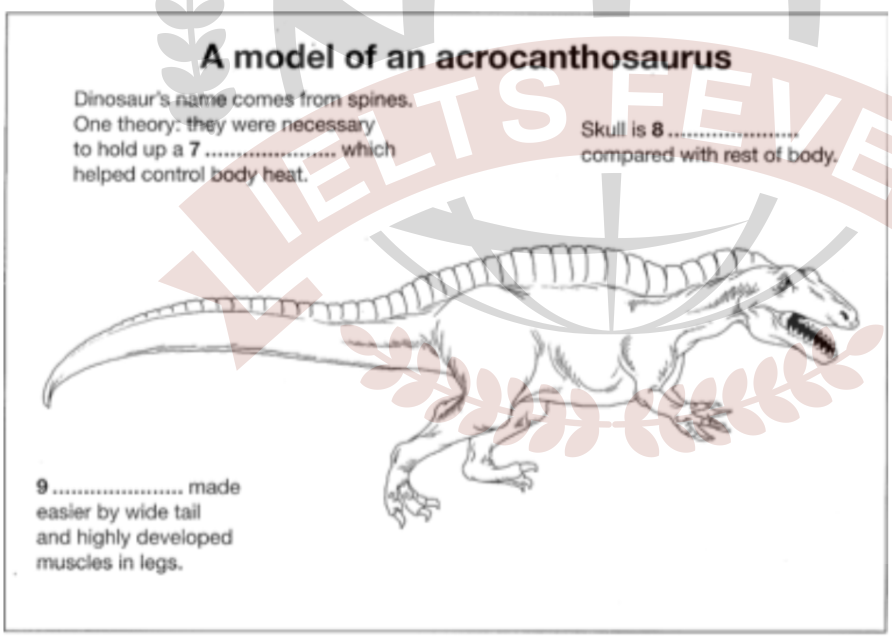
(6). Research carried out into the composition of prehistoric mud has been found to be inaccurate.

Questions 7-9

Label the diagram below.

*Choose **NO MORE THAN ONE WORD** from the passage for each answer.*

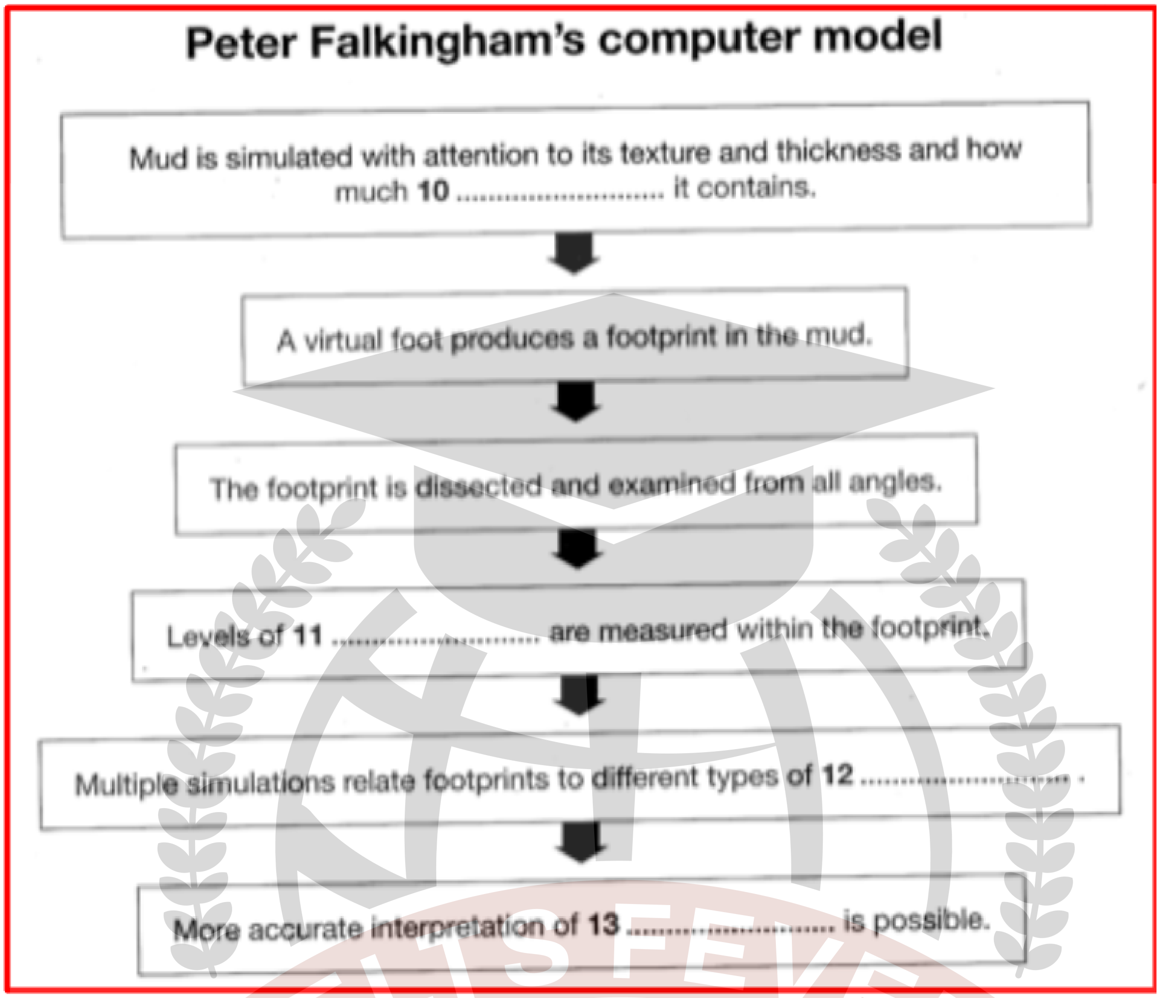
Write your answers in boxes 7-9 on your answer sheet.



Question 10-13

Complete the flow-chart below

*Write **NO MORE THAN TWO WORDS** for each answer*



Reading Passage 2

You should spend about 20 minutes on Questions 14-26, which are based on the IELTSFever Academic IELTS Reading Test 143 Reading Passage Biological control of pests below.

Biological control of pests

The continuous and reckless use of synthetic chemicals for the control of pests which pose a threat to agricultural crops and human health is proving to be counter- productive. Apart from engendering widespread ecological disorders, pesticides have contributed to the emergence of a new breed of chemical-resistant, highly lethal superbugs.

According to a recent study by the Food and Agriculture Organisation (FAO), more than 300 species of agricultural pests have developed resistance to a wide range of potent chemicals. Not to be left behind are the disease-spreading pests, about 100 species of which have become immune to a variety of insecticides now in use.

One glaring disadvantage of pesticides' application is that, while destroying harmful pests, they also wipe out many useful non-targeted organisms, which keep the growth of the pest population in check. This results in what agro ecologists call the 'treadmill syndrome'. Because of their tremendous breeding potential and genetic diversity, many pests are known to withstand synthetic chemicals and bear offspring with a built-in resistance to pesticides .

The havoc that the 'treadmill syndrome' can bring about is well illustrated by what happened to cotton farmers in Central America. In the early 1940s, basking in the glory of chemical based intensive agriculture, the farmers avidly took to pesticides as a sure measure to boost crop yield. The insecticide was applied eight times a year in the mid-1940s, rising to 28 in a season in the mid-1950s, following the sudden proliferation of three new varieties of chemical-resistant pests.

By the mid-1960s, the situation took an alarming turn with the outbreak of four more new pests, necessitating pesticide spraying to such an extent that 50% of the financial outlay on cotton production was accounted for by pesticides. In the early 1970s, the spraying frequently reached 70 times a season as the farmers were pushed to the wall by the invasion of genetically stronger insect species.

Most of the pesticides in the market today remain inadequately tested for properties that cause cancer and mutations as well as for other adverse effects on health, says a study by United States environmental agencies. The United States National Resource Defense Council has found that DDT was the most popular of a long list of dangerous chemicals in use.

In the face of the escalating perils from indiscriminate applications of pesticides, a more effective and ecologically sound strategy of biological control, involving the selective use of natural enemies of the pest population, is fast gaining popularity - though, as yet, it is a new field with limited potential. The advantage of biological control in contrast to other methods is that it provides a relatively low-cost, perpetual control system with a minimum of detrimental side-effects. When handled by experts, bio-control is safe, non-polluting and self-dispersing.

The Commonwealth Institute of Biological Control (CIBC) in Bangalore, with its global network of research laboratories and field stations, is one of the most active, non-commercial research agencies engaged in pest control by setting natural predators against parasites. CIBC also serves as a clearing-house for the export and import of biological agents for pest control world-wide.

CIBC successfully used a seed-feeding weevil, native to Mexico, to control the obnoxious parthenium weed, known to exert devious influence on agriculture and human health in both India and Australia. Similarly the Hyderabad-based Regional Research Laboratory (RRL), supported by CIBC, is now trying out an Argentinian weevil for the eradication of water hyacinth, another dangerous weed, which has become a nuisance in many parts of the world. According to Mrs Kaiser Jamil of RRL, 'The Argentinian weevil does not attack any other plant and a pair of adult bugs could destroy the weed in 4-5 days.' CIBC is also perfecting the technique for breeding parasites that prey on 'disapene scale' insects - notorious defoliants of fruit trees in the US and India.

How effectively biological control can be pressed into service is proved by the following examples. In the late 1960s, when Sri Lanka's flourishing coconut groves were plagued by leaf-mining hispides, a larval parasite imported from Singapore brought the pest under control. A natural predator indigenous to India, Neodumetia sangawani, was found useful in controlling the Rhodes grass-scale insect that was devouring forage grass in many parts of the US. By using Neochetina bruchi, a beetle native to Brazil, scientists at Kerala Agricultural University freed a 12-kilometre-long canal from the clutches of the weed Salvinia molesta, popularly called 'African Payal' in Kerala. About 30,000 hectares of rice fields in Kerala are infested by this weed.

Questions 14-17:

Choose the correct letter, A, B, C, or 0.

Write the correct letter in boxes 14-17 on your answer sheet.

Question 14 The use of pesticides has contributed to

(A) a change in the way ecologies are classified by agroecologists.

(B) an imbalance in many ecologies around the world.

(C) the prevention of ecological disasters in some parts of the world.

(D) an increase in the range of ecologies which can be usefully farmed.

Question 15 The Food and Agriculture Organisation has counted more than 300 agricultural pests which

(A) are no longer responding to most pesticides in use.

(B) can be easily controlled through the use of pesticides.

(C) continues to spread disease in a wide range of crops.

(D) may be used as part of bio-control replacement of pesticides.

Question 16 Cotton farmers in Central America began to use pesticides

(A) because of an intensive government advertising campaign.

(B) in response to the appearance of new varieties of pest.

(C) as a result of changes in the seasons and the climate.

(D) to ensure more cotton was harvested from each crop.

Question 17 By the mid-1960s, cotton farmers in Central America found that pesticides

(A) were wiping out 50% of the pests plaguing the crops.

(B) were destroying 50% of the crops they were meant to protect.

(C) were causing a 50% increase in the number of new pests reported.

(D) were costing 50% of the total amount they spent on their crops.

Questions 18-21:

Do the following statements agree with the claims of the writer in Reading Passage 2?

In boxes 18-21 on your answer sheet, write

YES	if the statement agrees with the writer
NO	if the statement does not agree with the writer
NOT GIVEN	if there is no information about this in the passage

(18) Disease-spreading pests respond more quickly to pesticides than agricultural pests do.

(19) A number of pests are now born with an innate immunity to some pesticides.

(20) Biological control entails using synthetic chemicals to try and change the genetic make-up of the pests' offspring.

(21) Bio-control is free from danger under certain circumstances.

Questions 22-26:

Complete each sentence with the correct ending, A-I, below.

Write the correct letter, A-I, in boxes 22-26 on your answer sheet.

(A) forage grass.
(B) rice fields.
(C) coconut trees.
(D) fruit trees.
(E) water hyacinth.
(F) parthenium weed.
(G) Brazilian beetles.
(H) grass-scale insects.
(I) larval parasites.

(22) Disapene scale insects feed on

(23) Neodumetia sangawani ate

(24) Leaf-mining hispides blighted

(25) An Argentinian weevil may be successful in wiping out

(26) Salvinia molesta plagues

Reading Passage 3

You should spend about 20 minutes on Questions 27-40, which are based on the IELTSFever Academic IELTS Reading Test 143 Reading Passage The Deep Sea below.

The Deep Sea

{A}. At a time when most think of outer space as the final frontier, we must remember that a great deal of unfinished business remains here on earth. Robots crawl on the surface of Mars, and spacecraft exit our solar system, but most of our planet has still never been seen by human eyes. It seems ironic that we know more about impact craters on the far side of the moon than about the longest and largest mountain range on earth. It is incredible that human beings crossed a quarter of a million miles of space to visit our nearest celestial neighbour before penetrating just two miles deep into the earth's own waters to explore the Midocean Ridge. And it would be hard to imagine a more significant part of our planet to investigate – a chain of volcanic mountains 42,000 miles long where most of the earth‟s solid surface was born, and where vast volcanoes continue to create new submarine landscapes.

{B}. The figure we so often see quoted 71% of the earth‟s surface – understates the oceans‟ importance. If you consider three-dimensional volumes instead, the land dwellers‟ share of the planet shrinks even more toward insignificance: less than 1% of the total. Most of dying oceans‟ enormous volume, lies deep below the familiar surface. The upper sunlit layer, by one estimate, contains only 2 or 3% of the total space available to life. The other 97% of the earth‟s biosphere lies deep beneath the water‟s surface, where sunlight never penetrates. Until recently, it was impossible to study the deep ocean directly. By the sixteenth century, diving bells allowed people to stay underwater for a short time: they could swim to the hell to breathe air trapped underneath it rather than return to the surface. Later, other devices, including pressurized or armoured suits, heavy‟ metal helmets, and compressed air supplied through hoses from dying surfaces, allowed at least one diver to reach 500 feet or so. It was 1930 when a biologist named William Beebe and his engineering colleague Otis Barton sealed themselves into a new kind of diving craft, an invention that finally allowed humans to penetrate beyond the shallow sunlit layer of the sea and the history of deep-sea exploration began. Science then was largely incidental – something that happened along the way. In terms of technical ingenuity and human bravery, this part of the story is every bit as amazing as the history of early aviation. Yet many of these individuals, and the deep-diving vehicles that they built and tested, are not well known.

{C}. It was not until the 1970s that deep-diving manned submersibles were able to reach the mid ocean Ridge and begin making major contributions to a wide range of scientific questions. A burst of discoveries followed in short order. Several of these profoundly changed the whole field of science and their implications are still not fully understood. For example, biologists may now be seeing – in the strange communities of microbes and animals that live around deep volcanic vents – clues to the origin of life on earth. No one even knew that these communities existed before explorers began diving to the bottom in a submersible. Entering the deep, black abyss presents unique challenges for which humans must carefully prepare if they wish to survive. It is an unforgiving environment, both harsh and strangely beautiful, that few who have not experienced it firsthand can fully appreciate. Even the most powerful searchlights penetrate the only lens of feet. Suspended particles scatter tile light and water itself is less transparent than air; it absorbs and scatters light. The ocean also swallows other types of electromagnetic radiation, including radio signals. That is why many deep-sea vehicles dangle from tethers. Inside those tethers, copper wires or fibre optic strands transmit signals that would dissipate and die if broadcast into open water.

{D}. Another challenge is that the temperature near the bottom in very deep water typically hovers just four degrees above freezing, and submersibles rarely have much insulation. Since water absorbs heat more quickly than air, the cold down below seems to penetrate a diving capsule far more quickly than it would penetrate, say, a control van up above, on the deck of the mother ship. And finally, the abyss clamps down with crushing pressure on anything that enters it. „This force is like air pressure on land, except that water is much heavier than air. At sea level on land, we don‟t even notice 1 atmosphere of pressure, about 15 pounds per square inch, the weight of the earth‟s blanket of air. In the deepest part of the ocean, nearly seven miles down, it‟s about 1,200 atmospheres, 18,000 pounds per square inch. A square-inch column of lead would crush down on your body with equal force if it were 3,600 feet tall.

{E}. Fish that live in the deep don‟t feel the pressure, because they are filled with water from their environment. It has already been compressed by abyssal pressure as much as water can be (which is not much). A diving craft, however, is a hollow chamber, rudely displacing the water around it. That chamber must withstand the full brunt of deep-sea pressure – thousands of pounds per square inch. If seawater with that much pressure behind it ever finds a way to break inside, it explodes through the hole with laserlike intensity. It was into such a terrifying environment that the first twentieth-century explorers ventured.

Questions 27-30:

Write the correct letter. A, B, C or D, in boxes 27-30 on your answer sheet.

Question 27. In the first paragraph, the writer finds it surprising that ……………………

(A). we send robots to Mars rattier than to the sea bed.

(B). We choose to explore the least accessible side of the moon.

(C). people reached the moon before they explored the deepest parts of the earth's oceans.

(D). spaceships are sent beyond our solar system instead of exploring it.

Question 28. The writer argues that saying 71 % of the earth's surface is the ocean is not accurate because of it ………………

(A). ignores the depth of the world's oceans.

(B). is based on an estimated volume.

(C). overlooks the significance of landscape features.

(D). refers to the proportion of water in which life is possible.

Question 29. How did the diving bell help divers?

(A). It allowed each diver to carry a supply of air underwater.

(B). It enabled piped air to reach deep below the surface.

(C). It offered access to a reservoir of air below the surface.

(D). It meant that they could dive as deep as 500 feet.

Question 30. What point does the writer make about scientific discoveries between 1930 and 1970?

(A). They were rarely the primary purpose of deep-sea exploration.

(B). The people who conducted experiments were not professional scientists.

(C). Many people refused to believe the discoveries that were made.

(D). They involved the use of technologies from other disciplines.

Questions 31-36

Do the following statements agree with the views of the writer in Reading Passage 3?

In boxes 31-36 on your answer sheet, write

YES	if the statement agrees with the writer
NO	if the statement does not agree with the writer
NOT GIVEN	if there is no information about this in the passage

(31). The Mid-ocean Ridge is largely the same as when the continents emerged.

(32). We can make an approximate calculation of the percentage of the ocean which sunlight penetrates.

(33). Many unexpected scientific phenomena came to light when exploration of the Mid-ocean Ridge began.

(34). The number of people exploring the abyss has risen sharply in the 21st century.

(35). One danger of the darkness is that deep-sea vehicles become entangled in vegetation.

(36). The construction of submersibles offers little protection from the cold at great depths.

Questions 37-40:

Complete the summary using the list of words A-I below.

Deep diving craft
A diving craft has to be **37**………………….. enough to cope with the enormous pressure of the abyss, which is capable of crushing almost anything. Unlike creatures that live there, which are not **38**....................... because they contain compressed water, a submersible is filled with **39**…………………… If it has a weak spot in its construction, there will be a **40**…………………….. explosion of water into the craft.

(A). ocean	**(D).** hollow	**(G).** energetic
(B). air	**(E).** sturdy	**(H).** violent
(C). deep	**(F).** atmosphere	**(I).** heavy