IELTSFever Academic Reading Test 89

Reading Passage 1

You should spend about 20 minutes on Questions 1-13 which are based on the IELTSFever Academic IELTS Reading Test 89 Reading Passage 1 below.

Copy your Neighbour

{A} THERE'S no animal that symbolises rainforest diversity quite as spectacularly as the tropical butterfly. Anyone lucky enough to see these creatures flitting between patches of sunlight cannot fail to be impressed by the variety of their patterns. But why do they display such colourful exuberance? Until recently, this was almost as pertinent a question as it had been when the 19th-century naturalists, armed only with butterfly nets and insatiable curiosity, battled through the rainforests. These early explorers soon realised that although some of the butterflies' bright colours are there to attract a mate, others are warning signals. They send out a message to any predators: "Keep off, we're poisonous." And because wearing certain patterns affords protection, other species copy them. Biologists use the term "mimicry rings" for these clusters of impostors and their evolutionary idol.

{B} But here's the conundrum. "Classical mimicry theory says that only a single ring should be found in any one area," explains George Beccaloni of the Natural History Museum, London. The idea is that in each locality there should be just the one pattern that best protects its wearers. Predators would quickly learn to avoid it and eventually all mimetic species in a region should converge upon it. "The fact that this is patently not the case has been one of the major problems in mimicry research," says Beccaloni. In pursuit of a solution to the mystery of mimetic exuberance, Beccaloni set off for one of the megacentres for butterfly diversity, the point where the western edge of the Amazon basin meets the foothills of the Andes in Ecuador. "It's exceptionally rich, but comparatively well collected, so I pretty much knew what was there, says Beccaloni." The trick was to work out how all the butterflies were organised and how this related to mimicry."

{C} Working at the Jatun Sacha Biological Research Station on the banks of the Rio Napo, Beccaloni focused his attention on a group of butterflies called ithomines. These distant relatives of Britain's Camberwell Beauty are abundant throughout Central and South America and the Caribbean. They are famous for their bright colours, toxic bodies and complex mimetic relationships. "They can comprise up to 85 per cent of the individuals in a mimicry ring and their patterns are mimicked not just by butterflies, but by other insects as diverse as damselflies and true bugs," says Philip De Vries of the Milwaukee Public Museum's Center for Biodiversity Studies.

{D} Even though all ithomiinae are poisonous, it is in their interests to evolve to look like one another because predators that learn to avoid one species will also avoid others that resemble it. This is known as Müllerian mimicry. Mimicry rings may also contain insects that are not toxic,

but gain protection by looking like a model species: an adaptation called Batesian mimicry. So strong is an experienced predator's avoidance response that even quite inept resemblance gives some protection. "Often there will be a whole series of species that mimic, with varying degrees of verisimilitude, a focal or model species," says John Turner from the University of Leeds. "The results of these deceptions are some of the most exquisite examples of evolution known to science." In addition to colour, many mimics copy behaviours and even the flight pattern of their model species.

{E} But why are there so many different mimicry rings? One idea is that species flying at the same height in the forest canopy evolve to look like one another. "It had been suggested since the 1970s that mimicry complexes were stratified by flight height," says De Vries. The idea is that wing colour patterns are camouflaged against the different patterns of light and shadow at each level in the canopy, providing a first line of defence against predators." But the light patterns and wing patterns don't match very well," he says. And observations show that the insects do not shift in height as the day progresses and the light patterns change. Worse still, according to De Vries, this theory doesn't explain why the model species is flying at that particular height in the first place.

{F} "When I first went out to Ecuador, I didn't believe the flight height hypothesis and set out to test it," says Beccaloni."A few weeks with the collecting net convinced me otherwise. They really flew that way." What he didn't accept, however, was the explanation about light patterns. "I thought, if this idea really is true, and I can work out why, it could help explain why there are so many different warning patterns in any one place. Then we might finally understand how they could evolve in such a complex way." The job was complicated by the sheer diversity of species involved at Jatun Sacha. Not only were there 56 ithomiine butterfly species divided among eight mimicry rings, there were also 69 other insect species, including 34 day-flying moths and a damselfly, all in a 200-hectare study area. Like many entomologists before him, Beccaloni used a large bag-like net to capture his prey. This allowed him to sample the 2.5 metres immediately above the forest floor. Unlike many previous workers, he kept very precise notes on exactly where he caught his specimens.

{G} The attention to detail paid off. Beccaloni found that the mimicry rings were flying at two quite separate altitudes. "Their use of the forest was quite distinctive," he recalls. "For example, most members of the clear winged mimicry ring would fly close to the forest floor, while the majority of the 12 species in the tiger-winged ring fly high up." Each mimicry ring had its own characteristic flight height.

{H} However, this being practice rather than theory, things were a bit fuzzy. "They'd spend the majority of their time flying at a certain height. But they'd also spend a smaller proportion of their time flying at other heights," Beccaloni admits. Species weren't stacked rigidly like passenger jets waiting to land, but they did appear to have a preferred airspace in the forest. So far, so good, but he still hadn't explained what causes the various groups of ithomiinae and their chromatic consorts to fly in formations at these particular heights.

{I}Then Beccaloni had a bright idea. "I started looking at the distribution of ithomiine larval food plants within the canopy," he says. "For each one I'd record the height to which the host plant

grew and the height above the ground at which the eggs or larvae were found. Once I got them back to the field station's lab, it was just a matter of keeping them alive until they pupated and then hatched into adults which I could identify."

Questions 1-5

The reading Passage has seven paragraphs A-I.

Which paragraph contains the following information?

Write the correct letter A-I, in boxes 1-5 on your answer sheet.

NB You may use any letter more than once.

(1) Criticism against flight height theory of butterfly

(2) Explained why Beccaloni carried out research in Ecuador.

(3) Different mimicry ring flies at different height

(4) The method of catching butterfly by Beccaloni

(5) Not all Mimicry patterns are toxic information sent out from insects.

Do the following statements agree with the information given in Reading Passage 1? In boxes 6-11 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

(6) All butterflies' colours of wings reflect the sense of warning to other predators.

(7) Insects may imitate butterflies' wing pattern as well.

(8) Flying Altitude of butterflies is determined by their food.

(9) Beccaloni agreed with the flight height hypothesis and decided to reassure its validity.

(10) Jatun Sacha has the richest diversity of breeds in the world.

(11) Beccaloni has more detailed records on the location of butterfly collections than others.

Questions 12-13

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

Write your answers in boxes 12-13 on your answer sheet.

Question 12 Which is correct about butterflies' flight altitude ?

(A) Flight height theory already established

(B) Butterfly always flies at a certain height

(C) It is like the airplane's flying phenomenon

(D) Each butterfly has its own favorable height

Question 13 Which is correct about Beccaloni's next investigation after flight height?

(A) Some certain statistics have already been collected

(B) Try to find connections between larval

(C) height and adult ones It's very difficult to raise butterfly larval

(D) Different larval favors different kinds of trees

Reading Passage 2

You should spend about 20 minutes on Questions 14-28 which are based on the IELTSFever Academic IELTS Reading Test 89 Reading Passage 2 below.

The Leatherback Turtle

{A} When it comes to physiology, the leatherback turtle is, in some ways, more like a reptilian whale than a turtle. While all other sea turtles have hard, bony shells, the inky-blue carapace of the leatherback is somewhat flexible and almost rubbery to the touch. It swims farther into the cold of the northern and southern oceans than any other sea turtle, and it deals with the chilly waters in a way unique among reptiles.

{B} A warm-blooded turtle may seem to be a contradiction in terms. Nonetheless, an adult leatherback can maintain a body temperature of between 25 and 26°C (77-79°F) in seawater that is only 8°C (46.4°F). Accomplishing this feat requires adaptations both to generate heat in the turtle's body and to keep it from escaping into the surrounding waters. Leatherbacks apparently do not generate internal heat the way we do, or the way birds do, as a by-product of cellular metabolism. A leatherback may be able to pick up some body heat by basking at the surface; its dark, almost black body color may help it to absorb solar radiation. However, most of its internal heat comes from the action of its muscles.

{C} Leatherbacks keep their body heat in three different ways. The first, and simplest, is size. The bigger the animal is, the lower as surface-to-volume ratio; for every ounce of body mass, there is proportionately less surface through which heat can escape. Leatherbacks are the largest turtles on Earth, growing up to seven feet (two meters) long and exceeding 2,000 pounds (900 kilograms). An adult leatherback is twice the size of the biggest cheloniid sea turtles and will therefore take longer to cool off. Maintaining a high body temperature through sheer bulk is called gigantothermy. It works for elephants, for whales, and, perhaps, it worked for many of the larger dinosaurs. It apparently works, in a smaller way, for some other sea turtles. Large loggerhead and green turtles can maintain their body temperature at a degree or two above that of the surrounding water, and gigantothermy is probably the way they do it. However, these animals have additional means of staying warm. Muscular activity helps, too, and an actively swimming green turtle may be 7°C (12.6° F) warmer than the waters it swims through.

{D} Gigantothermy, though, would not be enough to keep a leatherback warm in cold northern waters. It is not enough for whales, which supplement it with a thick layer of insulating blubber (fat). Leatherbacks do not have blubber, but they do have a reptilian equivalent: thick, oil-saturated skin, with a layer of fibrous, fatty tissue just beneath a. Insulation protects the leatherback everywhere but on its head and flippers. Because the flippers are comparatively thin and blade like, they are the one part of the leatherback that is likely to become chilled. There is not much that the turtle can do about this without compromising the aerodynamic shape of the flipper. The problem is that as blood flows through the turtle's flippers, it risks losing enough heat to lower the animal's central body temperature when it returns. The solution is to allow the flippers to cool down without drawing heat away from the rest of the turtle's body. The leatherback accomplishes this by arranging the blood vessels in the base of its flippers into a countercurrent exchange system.

{E} In a countercurrent exchange system, the blood vessels carrying cooled blood from the flippers run close enough to the blood vessels carrying warm blood from the body to pick up some heat from the warmer blood vessels; thus, the heat is transferred from the outgoing to the ingoing vessels before it reaches the flipper itself. This is the same arrangement found in an old-fashioned steam radiator, in which the coiled pipes pass heat back and forth as water courses through them. The leatherback is certainly not the only animal with such an arrangement; gulls have a countercurrent exchange in their legs. That is why a gull can stand on an ice floe without freezing.

{F} All this applies, of course, only to an adult leatherback. Hatchlings are simply too small to conserve body heat, even with insulation and countercurrent exchange systems. We do not know how old, or how large, a leatherback has to be before it can switch from a cold blooded to a warm-blooded mode of life. Leatherbacks reach their immense size in a much shorter time than it takes other sea turtles to grow. Perhaps their rush to adulthood is driven by a simple need to keep warm.

{G} The ability to maintain warm body temperatures in cold water allows leatherbacks to have the widest global distribution of all reptile species, and possibly of any vertebrate. They can be found in the tropic and temperate waters of the Atlantic, Pacific, and Indian Oceans, as well as the Mediterranean Sea. Adult leatherbacks also traverse as far north as Canada and Norway and as far south as New Zealand and South America. Leatherbacks also undertake the longest migrations between breeding and feeding areas of any sea turtle, averaging 3,700 miles (6,000 kilometers) each way. After mating at sea, females come ashore during the breeding season to nest. The nighttime ritual involves excavating a hole in the sand, depositing around 8o eggs, filling the nest, leaving a large, disturbed area of sand that makes detection by predators difficult, and finally returning to the sea.

{H} Although their distribution is wide, the number of leatherback turtles has seriously declined during the last century. Now the species that has survived for more than a hundred million years is facing extinction. The Pacific population of leatherback sea turtles is falling at an alarming rate due to egg harvest, fishery bycatch, coastal development, and highly variable food availability: as few as 2,300 adult females now remain, making the Pacific leatherback the world's most endangered marine turtle population. Some Pacific populations have disappeared entirely from certain areas, such as Malaysia. The number of leatherbacks in the Atlantic appears to be stable, but scientists believe that it, too, will decline due to the large numbers of adults being killed accidentally by fishing fleets. Scientists around the world are tracking and studying leatherbacks to learn more about these reptilian giants and how they can be saved.

Question 14-17

Which paragraph contains the following information?

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

(14) How leatherbacks generate body heat

(15) Reason why the leatherback turtles are facing extinction

(16) A comparison made to a device to explain a mechanism in body system

(17) A special circulation system in body can not guarantee turtles' warm blooded life mode

Question 18-22

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

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) Leatherbacks maintain its warmth mostly through picking up external heat.

(19) The bigger the size of a animal the warmer its body temperature can be

(20) The low temperature of the flippers does not pose a serious threat to the leatherback turtle's heath.

(21) The countercurrent exchange system is only found in the leatherback turtles.

(22) The number of leatherbacks in the Indian Oceans is gradually increasing.

Question 23-28

Complete the summary with the list of words below Write the correct letter A-I in boxes 23-28 on your answer sheet

Adult leatherback turtles are **23**_____ To maintain their body temperature, they generate heat through **24** _and basking at the surface and keep their body heat through sheer size, **25**_____ and a special system of blood vessels in the base of their **26**_____

A leatherback has to reach a certain **27**_____ to switch from a cold blooded mode to a warm-blooded mode of life. Even though leatherbacks have a wide global distribution, their number has seriously declined as a result of **28**_____ especially intense egg collection and fisheries bycatch.

List of words

A warm-blooded	D gigantothermy	G insulation	J size
B flippers	E muscle activities	H countercurrent	K age
C cold-blooded	F human activities	I exchange	

Reading Passage 3

You should spend about 20 minutes on Questions 29-40 which are based on the IELTSFever Academic IELTS Reading Test 89 Reading Passage 3 below.

Artists Fingerprints

Works of art often bear the fingerprints of the artist who created them. Such crucial evidence usually goes unnoticed even by connoisseurs, art experts and conservators. If present, such evidence could be valuable in clarifying questions about authorship and dating.

{A} The unique character of ridges on our hands has been recognized for thousands of years. The study of ancient pottery for example reveals the utilization of fingerprint impressions in the clay as a maker's mark. In prehistoric times, we find examples of handprints in cave painting. Only as recently as 1858 did Sir William Herschel establish its use for identification. In 1888, Sir Francis Galton undertook to refine and formulate Herschel's observations. Identification by fingerprint was first adopted in England in 1905 and received general acceptance worldwide in 1908.

{B} The combination of a number of characteristics in a given finger impression is specific to a particular print. The placing of reliance on fingerprint evidence has always been on the assumption (now accepted as a fact, ks.ipredicting.com, copyright) that no two fingers can have identical ridge characteristics. Galton's mathematical conclusions predicted the possible existence of some 64 billion different fingerprint patterns. The functionality of this technique is that the probability for the existence of two identical finger impressions from different individuals is nil and no such possibility has ever been noticed in any part of the world at any time.

{C} The individuality of a fingerprint is not determined by its general shape or pattern but by the careful study of its ridge characteristics. Since at a scene of crime, usually only partial prints are found, comparison of a relatively small number of characteristics is accepted in legal practice. In a judicial proceeding, a point-by-point comparison must be demonstrated by the fingerprint expert. This is exactly the principle that must be followed in art related fingerprint issues.

{D} Artists in the area of the visual arts use their hands for creation. Their tools, such as brushes often isolate them from the surface they are working on. Inaccurate deposits of paint are often corrected by modeling with the fingertip. Some artists used the fingertip to soften the marks left by the brush by gently tapping or stroking the still wet surface. In some instances, the fingertip was used for literally 'stamping' the fine network of ridges onto the painting.

{E} The eventual authentication of a painting by J. M. W. Turner entitled Landscape with Rainbow in 1993 is a good illustration of the process. The painting was discovered in the early 1980's. Biros took the painting to the Tate Gallery, in London, to show it to the world's leading Turner experts and connoisseurs. The verdict was unanimous - the painting was a tattered imitation. However, fingerprint evidence was discovered on the painting during restoration, appropriately documented and re-examined by a veteran expert from the RCMP. A match was found between a fingerprint on ``Landscape with Rainbow and fingerprints photographed on

another Turner painting, 'Chichester Canal'. When an independent fingerprint examination by John Manners of the West Yorkshire Police confirmed the conclusions that the fingerprints on both paintings were identical, the unbelievers changed their minds. In addition, it is well known that Turner always worked alone and had no assistants. This reduces the chances of accidental contribution substantially. The painting, originally bought for a few hundred dollars, finally sold for close to $200,000 at auction at Phillips in London in 1995.

{F} In 1998, three envelopes containing old correspondence had been purchased in an antique shop. One of the envelopes postmarked April 2, 1915 was found to contain a drawing folded in half. The drawing depicts a woman's head. It is executed in red chalk with an inscription written in reverse with brown ink. The design is faded and worn. Some spots suggest foxing and subsequent discoloration. The paper is yellowed and contaminated.

{G} The newly discovered design bears great similarity to that of the Head of St Anne by Leonardo da Vinci, (RL 12533) in the Windsor Collection since 1629. The medium is different, red chalk being used instead of black. The scale of the two images is different so offsetting (copying by contact transference) is not a satisfactory explanation for the new drawing. When the paper was first examined, several fingerprints were noticed on the verso. One of them was found clear and containing many ridges suitable for comparison, however, no analysis was done at the time due to the lack of reference material. Many of Leonardo's works are not easily accessible and fingerprint data either does not exist or is not published.

{H} By chance, on March 30, 1999, several clear and usable fingerprints were found on an unusually good detail photo in a publication on Leonardo. The photograph of Leonardo's St Jerome, in the Vatican Museum, revealed no less than 16 partial fingertip marks. The importance of this is that the fingerprints are left in the still wet paint and without doubt the use of the fingertip served to model paint. Since the authorship of the painting of St Jerome is unquestioned by scholarship and has always been ascribed to Leonardo, the conclusion that these fingerprints are his would be hard to argue against.

{I} The fingerprints on the St Jerome illustration were scanned and enlarged so comparisons could be made with the fingerprint on the newly discovered drawing. One of them proved to match. The result of our analyses was presented on March 31, 1999 to fingerprint examiner Staff Sergeant André Turcotte for an independent assessment. He agreed with the findings and confirmed the conclusion. The fingerprint on the St Jerome painting in the Vatican and the newly discovered drawing were created by the same finger.

{J] Remember, the authentication approach should rest on strict considerations and rigorous methodology. Only prints that are clearly from the original creative process are admitted for consideration. The reference samples should ideally come from unquestioned works of art with good provenance. Spurious contributors must be eliminated such as assistants who may have touched the painting while still wet. A match is never made unless corroborated by at least one fully trained and experienced fingerprint examiner.

Questions 29-32

The reading Passage has ten paragraphs A-J.

Which paragraph contains the following information?

Write the correct letter A-J, in boxes 29-32 on your answer sheet.

(29) Mention of fingerprint identification in the legal process.

(30) The author's advice on fingerprint authentication of arts.

(31) The use of fingerprints in ancient times.

(32) The medium comparison between two drawings.

Questions 33-37

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

Write the correct letters in boxes 33-37 on your answer sheet.

(33) The fingerprint in ancient pottery

(34) The science of fingerprint identification

(35) The authentication of a painting without a signature

(36) Landscape with Rainbow

(37) When painting, artists

(A) might use fingers to remove unwanted paint left by brushes.

(B) revealed the utilization of clay.

(C) was first used on Galton's mathematical assumption.

(D) was left to identify the person who made it.

(E) was restored at a high expense.

(F) was finally determined at an appropriate price.

(G) has been accepted as a reliable system available.

(H) was preserved at the Windsor Collection.

I could be authenticated by comparing fingerprints from other sources.

Questions 38-40

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

Write your answers in boxes 38-40 on your answer sheet.

Question 38 The attribution of Landscape with Rainbow to Turner

(A) was in overwhelming consensus at the beginning.

(B) was first brought forward by the West Yorkshire Police.

(C) was rejected by the Biros.

(D) was not exactly located for years.

Question 39 The drawing of a woman's head contained in the envelope

(A) was finished in 1915.

(B) was executed in brown ink.

(C) was in poor condition.

(D) was folded for protection.

Question 40 The drawing of The Head of St Anne

(A) is the work of Leonardo da Vinci

(B) is softer due to fading and contamination.

(C) bears some fingerprints on the verso.

(D) is in the Vatican Museum.