IELTSFever Academic IELTS Reading Test 167

Reading Passage 1

You should spend about 20 minutes on Questions 1-13, which are based on the IELTSFever Academic IELTS Reading Test 167 Reading passage ***Nanotechnology Its Development and Uses*** *below.*

Nanotechnology Its Development and Uses

{A} Nanotechnology has been hailed by many as being a twentieth-century miracle of science. Essentially, nanotechnology, a term derived from Greek, translating literally as 'dwarf technology' is, as the origin of its name suggests, engineering at the atomic level. Scientists work with particles of substances known as 'nanoparticles' which may measure no more than 1 nanometre or a billionth of a meter. That's around 40,000 times smaller than the width of the average human hair. Whilst some of these substances derived from carbon compounds are manufactured, others, such as metals, are naturally occurring or arise as a by-product of another process e.g. volcanic ash or smoke from wood burning. What makes these substances of such scientific interest is that their minute size facilitates medical and technological processes that would otherwise be impossible.

{B} It may be something of a revelation for many of us to learn that nanotechnology - or its concept - is far from cutting-edge science. In fact, nanotechnology as an idea was first referred to in an influential lecture by American physicist, Richard Feynman, as far back as 1959. During the lecture, entitled 'There's Plenty of Room at the Bottom', Feynman outlined the basic concept of nanotechnology. Individual atoms and molecules, he claimed, could in the future be created by a physical process. Such a process, he envisaged, would involve the building of a set of precise tools to build and operate another proportionally smaller set. The building of increasingly minute tools at the microscopic level would in turn produce ultra-microscopic materials, later to become known as 'nanoparticles'.

{C} Strangely, what should have sparked a scientific revolution was then virtually forgotten about for the next 15 years. In 1974, a Japanese scientist, Norio Taniguchi, of the Tokyo University of Science reintroduced Feynman's theory and put a new name to an old concept, referring to the science as 'nanotechnology'. However, it wasn't until nearly a decade later, in the 1980s, that the way was paved for nanotechnology to leave the realm of theoretical science and become reality. Two major scientific developments within a relatively short period were to enable the practical application of nanotechnology. The invention of the Scanning Tunnelling Microscope (STM), combined with the discovery of nano-sized particles termed 'fullerenes', was to prove a turning point in nanotechnology.

{D} Fullerenes are derived from carbon molecules and, in common with other nanoparticles, possess chemical and physical properties that are of huge scientific interest. The potential value of fullerenes for medical science was first raised in 2003 and in 2005 when the scientific magazine 'Chemistry and Biology' ran an article describing the use of fullerenes as light-activated antimicrobial agents. Since then, fullerenes have been used for several biomedical applications ranging from X-ray imaging to treating cancer by targeting cancer cells. In addition, these nanoparticles have been used in the manufacture of commercial products, from sunscreen to cosmetics and some food products. Furthermore, nanoparticles of metals, like gold and silver, have been used in environmental clean-ups of oil slicks and other forms of pollution. The remarkable properties of nanoparticles are down to two main factors: their greater surface-to-weight ratio, compared to larger particles which promote the attachment of substances to their surface, and their minute size which allows them to penetrate cell membranes. These properties are of great benefit, for example in medicine, as drugs to fight cancer or AIDS can be attached to nanoparticles to reach their target cell in the human body.

{E} However, despite the amazing properties attributed to nanoparticles such as fullerenes, nanotechnology has yet to win wider universal acceptance in scientific circles. The very properties that make nanoparticles so valuable to technology and medical science are also the ones that make them potentially so toxic. Such properties are potentially lethal if toxic substances attach themselves to the same nanoparticles, thereby delivering a fatal toxin through the cell membranes into the cells themselves. The toxic effect of these compounds is further increased since their size permits them to enter the bloodstream and hence the body's major organs. Furthermore, the nanoparticles in themselves are essentially a foreign element being introduced to the body. Unlike foreign elements, such as bacteria, the body has no natural immune system to deal with these ultramicroscopic particles. Scientists have yet to convince the nanotechnology skeptics that the potential side effects of nanoparticles are more than compensated for by the advantages that they confer. It may be, however, that opposition to this technology is no more than a general distrust of scientific innovation. In fact, Urban Wiesing from the University of Tubingen has been quoted as saying “Many of the risks associated with nanotechnology have at least been of the risks associated with nanotechnology have at least been encountered in part in other technologies as well." He also believes that regulations can be put in place to minimize such risks. This is a view echoed by the Federal Environment Agency which proposes that such risks are vastly outweighed by the potential benefits of nanotechnology, in particular for the environment.

Questions 1-5

*The text has five paragraphs, **A-E**. Which paragraphs contain the following information?*

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

Question (1) promising beginnings

Question (2) definition of a revolutionary technology

Question (3) repackaging an old idea

Question (4) dubious attributes

Question (5) the foundation of a new technology

Questions 6-10

Choose the correct letter, **A, B, C or D.** Write your answers in boxes **6-10** on your answer sheet.

Question (6) Nanotechnology

[A] has limited value.

[B] is not related to science.

[C] incites controversy.

[D] poses insurmountable safety issues.

Question (7) In the beginning, nanotechnology was

[A] overlooked as a science.

[B] considered to be irrelevant.

[C] highly unpopular.

[D] regarded as being revolutionary.

Question (8) Nanoparticles are a product of

[A] manufacturing processes alone.

[B] natural and manufacturing processes.

[C] purely biological processes.

[D] environmental factors alone.

Question (9) Nanotechnology remained a purely theoretical science until

[A] other technologies caught up with it.

[B] scientists were better able to understand its practical applications.

[C] Taniguchi convinced other scientists of its practical value.

[D] a scientist invented a new technology.

Question (10) Safety concerns about nanotechnology are

[A] completely unfounded.

[B] exaggerated by its detractors.

[C] real but manageable.

[D] misunderstood.

Questions 11-13

Complete the sentences.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer.

A major **(11)**_____ in the field of nanotechnology came with the discovery of fullerenes and the invention of the Scanning Tunnelling Microscope.

Amongst scientists, nanotechnology has not met with **(12)**_____

The ability of nanoparticles to penetrate **(13)**_____ is somewhat of a mixed blessing.

Reading Passage 2

*You should spend about 20 minutes on Questions 14-26, which are based on the IELTSFever Academic IELTS Reading Test 167 Reading Passage **Amazon Rainforest of Peru** below.*

Amazon Rainforest of Peru

{A} A cement maker proudly speaks about the brief history of the road: this main road was part of an incentive program supported by the US's fund to help local people to find economic alternatives to harvesting coca, from which cocaine is produced. Four years later, the road is a global vacuum from which timber from the Peruvian rainforest is taken to China. Some wood will be polished into luxury parquet flooring for high-quality homes in Shanghai and Beijing. More wood will be used in Chinese factories and made into patio furniture, decking or flooring in North America and Europe.

{B} Going down the street, muddy tracks show the old forest known as Monte Alto, where local farmers have been using the sunlight that comes through the openings in the forest canopy to

grow a variety of food crops, like cassava, sweet potatoes, bananas, and plantains. They are also growing a few cash crops like coffee and cacao. This also helps to fund essential services like schools and hospitals.

{C} As a tree ecologist and student studying about the timber trade, I am here researching a kind of Dipteryx known in the region as shihuahuaco (its international trade name is cumaru) and researching its movements from the Amazonian forest to Chinese factories. Although shihuahuaco is not particularly high profile, ecologists call it a “keystone” tree, as its large seeds are an essential food source for forest herbivores in the dry season, whilst its hollow rooms are utilized as the nesting place of parrots and macaws. It is so hard that local residents to use big shihuahuaco trees as a shelter when strong storms bring trees down.

{D} My trip began in the company of a great group of people who were logging from the sawmill town in Pucallpa. A two-day trip into the forest guided us beyond the road’s end to a community called Esperanza, or “Hope.” In the middle of a flourishing Chacra – a farm typical of the area – there was a temporary logging camp. As well as their productive farming, the chacra had a family business called the Medinas which offered a refuge for birds, wild piglets, and primates saved from logged areas. From there, I walked through Monte Alto with my logging friends for 10 days, which they were soon to cut.

{E} The adult trees were colossal, reaching heights of up to 50 meters and a width of 1.3 meters, towering above their huge buttresses which spread up to 5 meters around the main trunk. There were one or two such trees per hectare and most of them were put forward for the long voyage across the Pacific. Whilst we found approximately 250 seedlings and saplings, there were only two young trees that had reached the canopy and therefore could be expected to harvest into adults.

{F} I don’t want to be sentimental about trees. On one of my last nights in the rainforest when speaking to the company’s chief woodsman Pedro, I felt reassured about the situation. Pedro said, “At least there are the Medias arbolitos.” “What, little trees?” I asked. The next day Pedro showed me the trees he was referring to. We walked up the hill and Pedro stopped in front of a very healthy-looking young shihuahuaco growing in the sun. “When do you expect to harvest them?” I had to ask. I hope he wasn’t planning to profile them in a few years.

Questions 14-16

Choose THREE letters, A-F.

Write your answers in boxes **14-16** on your answer sheet.

The list below gives some features of shihuahuaco.

Which **THREE** ways are mentioned by the writer of the text?

[A] a field to grow varied sustainable food crops

[B] a habitat for parrots and macaws

[C] a shelter for natives against a natural disaster

[D] a village of palm-thatch houses

[E] a road to help local people in finding economic alternatives

[F] an ecologist named it a keystone tree

Questions 17-19

Answer the questions below, using **NO MORE THAN TWO WORDS** from the IELTSFever Academic IELTS Reading Test 167 passage for each answer.

Write your answers in boxes **17-19** on your answer sheet.

Question (17) What is the name given to the old forest of the Amazon?

Question (18) What is the international trade name of shihuahuaco?

Question (19) What is the typical farmland area that is used as a temporary logging camp?

Questions 20-26

IELTSFever Academic IELTS Reading Test 167 Passage 2 has six paragraphs labeled **A-F.**

Which paragraph contains the following information?

Write the correct letter **A-F** in boxes **20-26** on your answer sheet.

NB You may use any letter more than once.

Question (20) the self-rescue measures there to cover essentials

Question (21) the dimensions of timber

Question (22) the road sponsored by the United States fund to aid relief work schemes

Question (23) an anecdote for the writer

Question (24) a short camping trip of the writer

Question (25) practical sides of shihuahuaco

Question (26) the export of timber

Reading Passage 3

You should spend about 20 minutes on Questions 27-40, which are based on the IELTSFever Academic IELTS Reading Test 167 Reading Passage ***Examining the placebo effect*** *below.*

Examining the placebo effect

The fact that taking a fake drug can powerfully improve some people's health – the so-called placebo effect – was long considered an embarrassment to the serious practice of pharmacology, but now things have changed.

{A} Several years ago, Merck, a global pharmaceutical company, was falling behind its rivals in sales. To make matters worse, patents on five blockbuster drugs were about to expire, which would allow cheaper generic products to flood the market. In interviews with the press, Edward Scolnick, Merck's Research Director, presented his plan to restore the firm to pre-eminence. The key to his strategy was expanding the company's reach into the antidepressant, market, where Merck had trailed behind, while competitors like Pfizer and GlaxoSmithKline had created some of the best-selling drugs in the world. "To remain dominant in the future", he told one media company, "we need to dominate the central nervous system."

{B} His plan hinged on the success of an experimental anti-depressant codenamed MK-869. Still, in clinical trials, it was a new kind of medication that exploited brain chemistry in innovative ways to promote feelings of well-being. The drug tested extremely well early on, with minimal side effects. Behind the scenes, however, MK-869 was starting to unravel. True, many test subjects treated with the medication felt their hopelessness and anxiety lift. But so did nearly the same number who took a placebo, a look-alike pill made of milk sugar or another inert substance given to groups of volunteers in subsequent clinical trials to gauge the effectiveness of the real drug by comparison. Ultimately, Merck's venture into the anti-depressant market failed. In the jargon of the industry, the trials crossed the "futility boundary".

{C} MK-869 has not been the only much-awaited medical breakthrough to be undone in recent years by the placebo effect and it's not only trials of new drugs that are crossing the futility boundary. Some products that have been on the market for decades are faltering in more recent follow-up tests. It's not that the old medications are getting weaker, drug developers say. It's as

if the placebo effect is somehow getting stronger. The fact that an increasing number of medications are unable to beat sugar pills has thrown the industry into crisis. The stakes could hardly be higher. To win FDA* approval, a new medication must beat a placebo in at least two authenticated trials. In today's economy, the fate of a well-established company can hang on the outcome of a handful of tests.

{D} Why are fake pills suddenly overwhelming promising new drugs and established medicines alike? The reasons are only just beginning to be understood. A network of independent researchers is doggedly uncovering the inner workings and potential applications of the placebo effect. A psychiatrist, William Potter, who knew that some patients really do seem to get healthier for reasons that have more to do with a doctor's empathy than with the contents of a pill, was baffled by the fact that drugs he had been prescribing for years seemed to be struggling to prove their effectiveness. Thinking that a crucial factor may have been overlooked, Potter combed through his company's database of published and unpublished trials— including those that had been kept secret because of high placebo response. His team aggregated the findings from decades of anti-depressant trials, looking for patterns and trying to see what was changing over time. What they found challenged some of the industry's basic assumptions about its drug-vetting process. Assumption number one was that if a trial were managed correctly, a medication would perform as well or badly in a Phoenix hospital as in a Bangalore clinic. Potter discovered, however, that geographic location alone could determine the outcome. By the late 1990s, for example, the anti-anxiety drug Diazepam was still beating placebo in France and Belgium. But when the drug was tested in the US, it was likely to fail. Conversely, a similar drug, Prozac, performed better in America than it did in western Europe and South Africa. It was an unsettling prospect FDA approval could hinge on where the company chose to conduct a trial.

{E} Mistaken assumption number two was that the standard tests used to gauge volunteers' improvement in trials yielded consistent results. Potter and his colleagues discovered that ratings by trial observers varied significantly from one testing site to another. It was like finding out that the judges in a tight race each had a different idea about the placement of the finish line. After some coercion by Potter and others, the National Institute of Health (NIH) focused on the issue in 2000, hosting a three-day conference in Washington, and this conference launched a new wave of placebo research in academic laboratories in the US and Italy that would make significant progress toward solving the mystery of what was happening in clinical trials.

{F} In one study last year, Harvard Medical School researcher Ted Kaptchuk devised a clever strategy for testing his volunteers' response to varying levels of therapeutic ritual. The study focused on a common but painful medical condition that costs more than $40 billion a year worldwide to treat. First, the volunteers were placed randomly in one of three groups. One group was simply put on a waiting list; researchers know that some patients get better just because they sign up for a trial. Another group received placebo treatment from a clinician who declined to engage in small talk. Volunteers in the third group got the same fake treatment from a clinician who asked them questions about symptoms, outlined the causes of the illness, and displayed optimism about their condition.

{G} Not surprisingly, the health of those in the third group improved the most. In fact, just by participating in the trial, volunteers in this high-interaction group got as much relief as did people taking the two leading prescription drugs for the condition. And the benefits of their "bogus" treatment persisted for weeks afterward, contrary to the belief – widespread in the pharmaceutical industry – that the placebo response is short-lived. Studies like this open the door to hybrid treatment strategies that exploit the placebo effect to make real drugs safer and more effective, as Potter says- "To really do the best for your patients, you want the best placebo response plus the best drug response".

Questions 27-31

Do the following statements agree with the claims of the writer?

In boxes **27-31** 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

Question (27) Merck's experience with MK-869 was unique.

Question (28) These days, a small number of unsuccessful test results can ruin a well-established drug company.

Question (29) Some medical conditions are more easily treated by a placebo than others.

Question (30) It was to be expected that the third group in Kaptchuk's trial would do better than the other two groups.

Question (31) Kaptchuk's research highlights the fact that combined drug and placebo treatments should be avoided.

Questions 32-36

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

Merck and MK-869
As a result of concerns about increasing **(32)**_____ in the drugs industry, the pharmaceutical company Merck decided to increase its **(33)**_____in the anti-depressant market. The development of the drug MK-869 was seen as the way forward. Initially, MK-869 had some **(34)**_____ but later trials revealed a different picture. Although key **(35)**_____ could be treated with the drug, a sugar pill was proving equally effective. In the end, the **(36)**_____ indicated that it was pointless continuing with the development of the drug.

(A) activity	(D) patients	(G) symptoms
(B) prices	(E) tests	(H) competition
(C) success	(F) diseases	(I) criticism

Questions 37-40

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

In boxes **37-40** on your answer sheet, write **A, B, C or D.**

Question (37) Which of the following is true of William Potter's research?

[A] It was based on recently developed drugs that he had recommended.

[B] It included trial results from a range of drug companies.

[C] Some of the trial results he investigated had not been made public.

[D] Some of his findings were not accepted by the drug industry.

Question (38) What did William Potter's research reveal about the location of drugs trials?

[A] The placebo effect was weakest in the US.

[B] Results were not consistent around the world.

[C] Results varied depending on the type of hospital.

[D] The FDA preferred drugs to be tested in different countries.

Question (39) What does the tight race refer to in line 80?

[A] the standard tests

[B] consistent results

[C] ratings by trial observers

[D] testing sites

Question (40) What significant discovery was made by Ted Kaptchuk?

[A] The effects of a placebo can last longer than previously thought.

[B] Patients' health can improve while waiting to undergo a trial.

[C] Patients respond better to placebo if they are treated by the same clinician throughout the trial.

[D] Those conducting a placebo trial need to know the subjects' disorders well.