IELTS Mock Test 2023 December

Reading Practice Test 2

HOW TO USE

You have 2 ways to access the test

1. Open this URL **https://link.intergreat.com/GHlFd** on your computer
2. Use your mobile device to scan the QR code attached

READING PASSAGE 1

You should spend about 20 minutes on ***Questions 1-14****, which are based on Reading Passage 1 below.*

Nature works for Nature Work PLA

A

A dozen years ago, scientists at Cargill got the idea of converting lactic acid made from corn into plastic while examining possible new uses for materials produced from corn wet milling processes. In the past, several efforts had been made to develop plastics from lactic acid, but with limited success. Achieving this technological breakthrough didn't come easily, but in time the efforts did succeed. A fermentation and distillation process using com was designed to create a polymer suitable for a broad variety of applications.

B

As an agricultural based firm, Cargill had taken this product as far as it could by 1997. The company needed a partner with access to plastics markets and polymerization capabilities, and began discussions with The Dow Chemical Company. The next step was the formation of the joint venture that created Cargill Dow LLC. Cargill Dow's product is the world's first commercially available plastic made from annually renewable resources such as com:

Nature Works™ PLA is a family of packaging polymers (carbon-based molecules) made from non-petroleum based resources.
Ingeo is a family of polymers for fibers made in a similar manner.

C

By applying their unique technology to the processing of natural plant sugars, Cargill Dow has created a more environmentally friendly material that reaches the consumer in clothes, cups, packaging and other products. While Cargill Dow is a stand-alone business, it continues to leverage the agricultural processing, manufacturing and polymer expertise of the two parent companies in order to bring the best possible products to market.

D

The basic raw materials for PLA are carbon dioxide and water. Growing plants, like com, take these building blocks from the atmosphere and the soil. They are combined in the plant to make carbohydrates (sucrose and starch) through a process driven by photosynthesis. The process for making Nature Works PLA begins when a renewable resource such as corn is milled, separating starch from the raw material. Unrefined dextrose, in turn, is processed from the starch.

E

Cargill Dow turns the unrefined dextrose into lactic acid using a fermentation process similar to that used by beer and wine producers. This is the same lactic acid that is used as a food additive and is found in muscle tissue in the human body. Through a special condensation process, a lactide is formed. This lactide is purified through vacuum distillation and becomes a polymer (the base for NatureWorks PLA) that is ready for use through a solvent-free melt process. Development of this new technology allows the company to “harvest” the carbon that living plants remove from the air through photosynthesis. Carbon is stored in plant starches, which can be broken down into natural plant sugars. The carbon and other elements in these natural sugars are then used to make NatureWorks PLA.

F

Nature Works PLA fits all disposal systems and is fully compostable in commercial composting facilities. With the proper infrastructure, products made from this polymer can be recycled back to a monomer and re-used as a polymer. Thus, at the end of its life cycle, a product made from Nature Works PLA can be broken down into its simplest parts so that no sign of it remains.

G

PLA is now actively competing with traditional materials in packaging and fiber applications throughout the world; based on the technology’s success and promise, Cargill Dow is quickly becoming a premier player in the polymers market. This new polymer now competes head-on with petroleum-based materials like polyester. A wide range of products that vary in molecular weight and crystallinity can be produced, and the blend of physical properties of PLA makes it suited for a broad range of fiber and packaging applications. Fiber and non-woven applications include clothing, fiberfill, blankets and wipes. Packaging applications include packaging films and food and beverage containers.

H

As Nature Works PLA polymers are more oil- and grease-resistant and provide a better flavor and aroma barrier than existing petroleum-based polymers, grocery retailers are increasingly using this packaging for their fresh foods. As companies begin to explore this family of polymers, more potential applications are being identified. For example, PLA possess two

properties that are particularly useful for drape fabrics and window furnishings. Their resistance to ultraviolet light is particularly appealing as this reduces the amount of fading in such fabrics, and their refractive index is low, which means fabrics constructed from these polymers can be made with deep colors without requiring large amounts of dye. In addition, sportswear makers have been drawn to the product as it has an inherent ability to take moisture away from the skin and when blended with cotton and wool, the result is garments that are lighter and better at absorbing moisture.

I

PLA combines inexpensive large-scale fermentation with chemical processing to produce a value-added polymer product that improves the environment as well. The source material for PLA is a natural sugar found in plants such as com and using such renewable feedstock presents several environmental benefits. As an alternative to traditional petroleum-based polymers, the production of PLA uses 20%-50% less fossil fuel and releases a lower amount of greenhouse gasses than comparable petroleum-based plastic; carbon dioxide in the atmosphere is removed when the feedstock is grown and is returned to the earth when the polymer is degraded. Because the company is using raw materials that can be regenerated year after year, it is both cost-competitive and environmentally responsible.

Questions 1 - 4

Write the letters **A-F** *in boxes* **1-4** *on your answer sheet.*

A	A
B	B
C	C
D	D
E	E
F	F

1 [ ] Scientists manage to

2 [ ] Cargill needs to have contacts with

3 [ ] Nature work is used for

4 [ ] Ingeo is used to

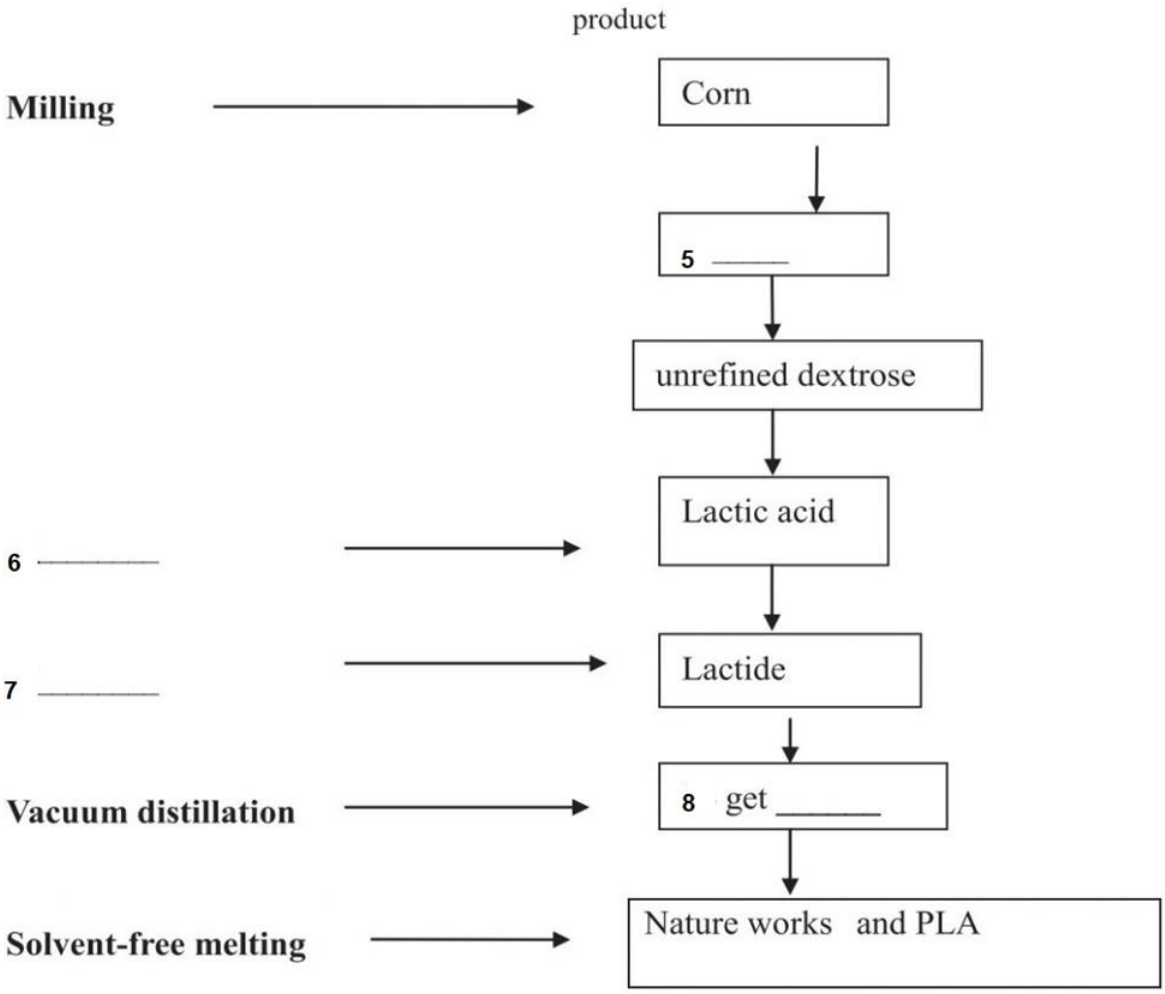
Questions 5 - 8

Complete the following summary of the paragraphs of Reading Passage.

Using **NO MORE THAN TWO WORDS** from the Reading Passage for each answer.

Write your answers in boxes **5-8** *on your answer sheet.*

{OPTION}



Process: the production of PLA

5 _____

6 _____

7 _____

8 _____

Question 9 - 10

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

Write your answers in boxes **9-10** *on your answer sheet.*

9 Why did choose the PLA as material for food packaging?

A ○ It smells good

B ○ It can save food freshness

C ○ It can be used on other materials

D ○ Some other things need to be revised about it.

10 What is PLA packaging is used for?

A ○ absorbing moisture

B ○ composting facilities

C ○ Packaging fresh food

D ○ manufacturing

Questions 11 - 12

Which two features of PLA are correct?

A ☐ It is made of renewable raw materials

B ☐ It involves the removal of carbon dioxide

C ☐ It is no use of fossil fuel product

D ☐ It uses renewable raw resources

E ☐ It is sustenance which can absorb the CO2 in the atmosphere

Questions 13 - 14

Which two features of PLA are correct?

A ☐ It takes in moisture of skin

B ☐ It is waterproof

C ☐ comfortable sportswear

D ☐ It's fading under the sun

E ☐ It is only made in deep color

READING PASSAGE 2

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

Renewable Energy

An insight into the progress in renewable energy research

A

The race is on for the ultimate goal of renewable energy: electricity production at prices that are competitive with coal-fired power stations, but without coal's pollution. Some new technologies are aiming to be the first to push coal from its position as Australia's chief source of electricity.

B

At the moment the front-runner in renewable energy is wind technology. According to Peter Bergin of Australian Hydro, one of Australia's leading wind energy companies, there have been no dramatic changes in windmill design for many years, but the cumulative effects of numerous small improvements have had a major impact on cost. 'We're reaping the benefits of 30 years of research in Europe, without have to make the same mistakes that they did,' Mr Bergin says.

C

Electricity can be produced from coal at around 4 cents per kilowatt-hour, but only if the environmental costs are ignored. 'Australia has the second cheapest electricity in the world, and this makes it difficult for renewable to compete,' says Richard Hunter of the Australian Ecogeneration Association (AEA). Nevertheless, the AEA reports: 'The production cost of a kilowatt-hour of wind power is one-fifth of what it was 20 years ago,' or around 7 cents per kilowatt-hour.

D

Australian Hydro has dozens of wind monitoring stations across Australia as part of its aim to become Australia's pre-eminent renewable energy company. Despite all these developments,

wind power remains one of the few forms of alternative energy where Australia is nowhere near the global cutting edge, mostly just replicating European designs.

E

While wind may currently lead the way, some consider a number of technologies under development have more potential. In several cases, Australia is at the forefront of global research in the area. Some of them are very site-specific, ensuring that they may never become dominant market players. On the other hand, these newer developments are capable of providing more reliable power, avoiding the major criticism of windmills – the need for back-up on a calm day.

F

One such development uses hot, dry rocks. Deep beneath South Australia, radiation from elements contained in granite heats the rocks. Layers of insulating sedimentation raise the temperatures in some location to 250° centigrade. An Australian firm, Geoenergy, is proposing to pump water 3.5 kilometres into the earth, where it will travel through tiny fissures in the granite, heating up as it goes until it escapes as steam through another drilled hole.

G

No greenhouse gases are produced, but the system needs some additional features if it is to be environmentally friendly. Dr Prue Chopra, a geophysicist at the Australian National University and one of the founders of Geoenergy, note that the steam will bring with it radon gas, along through a heat exchanger and then sent back underground for another cycle. Technically speaking, hot dry rocks are not a renewable source of energy. However, the Australian source is so large it could supply the entire country's needs for thousands of years at current rates of consumption.

H

Two other proposals for very different ways to harness sun and wind energy have surfaced recently. Progress continues with Australian company EnviroPower's plans for Australia's first solar chimney near Mildura, in Victoria. Under this scheme, a tall tower will draw hot air from a greenhouse built to cover the surrounding 5 km². As the air rises, it will drive a turbine* to produce electricity. The solar tower combines three very old technologies – the chimney, the turbine and the greenhouse – to produce something quite new. It is this reliance on proven engineering principles that led Enviropower's CEO, Richard Davies, to state: There is no doubt this technology will work, none at all.'

I

This year, Enviropower recognized that the quality of sunlight in the Mildura district will require a substantially larger collecting area than was previously thought. However, spokesperson kay Firth says that a new location closer to Mildura will enable Enviropower to balance the

increased costs with extra revenue. Besides saving in transmission costs, the new site 'will mean increased revenue from tourism and use of power for telecommunications. We'll also be able to use the outer 500 metres for agribusiness.' Wind speeds closer to the tower will be too high for farming.

J

Another Australian company, Wavetech, is achieving success with ways of harvesting the energy in waves. Wavetech's invention uses a curved surface to push waves into a chamber, where the flowing water column pushes air back and forth through a turbine. Wavetech was created when Dr Tim Devine offered the idea to the world leader in wave generator manufacturers, who rather surprisingly rejected it. Dr Devine responded by establishing Wavetech and making a number of other improvements to generator design. Wavetech claims that, at appropriate sites, 'the cost of electricity produced with our technology should be below 4 cents per kilowatt-hour.

K

The diversity of forms of greenhouse – friendly energy under development in Australia is remarkable. However, support on a national level is disappointing. According to Richard Hunter of the AEA, 'Australia has huge potential for wind, sun and wave technology. We should really be at the forefront, but the reality is we are a long way behind.'

Questions 15 - 21

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

In boxes 15-26 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

15 [ ] In Australia, alternative energies are less expensive than conventional electricity.

16 [ ] Geoenergy needs to adapt its system to make it less harmful to the environment.

17 [ ] Dr Prue Chopra has studied the effects of radon gas on the environment.

18 [ ] Hot, dry rocks could provide enough power for the whole of

Australia.

19 [ ] The new Enviropower facility will keep tourists away.

20 [ ] Wavetech was established when its founders were turned down by another company.

21 [ ] According to AEA, Australia is a world leader in developing renewable energy.

Questions 22-27

Look at the following statements (Questions 8-13) and the list of companies below.

Match each statement with the correct company, **A-D**.

*Write the correct letter, **A-D**, in boxes 8-13 on your answer sheet.*

NB *You may use any letter more than once.*

22 [ ] During the process, harmful substances are prevented from escaping.

23 [ ] Water is used to force air through a special device.

24 [ ] Techniques used by other countries are being copied.

25 [ ] The system can provide services other than energy production.

26 [ ] It is planned to force water deep under the ground.

27 [ ] Original estimates for part of the project have been revised.

READING PASSAGE 3

You should spend about 20 minutes on ***Questions 28-40****, which are based on Reading Passage 3 below.*

Alfred Nobel: The man behind the Nobel Prize

A

Since 1901, the Nobel Prize has been honoring men and women from all corners of the globe for outstanding achievements in physics, chemistry, medicine, literature, and for work in peace. The foundations for the prize were laid in 1895 when Alfred Nobel wrote his last will, leaving much of his wealth to the establishment of the Nobel Prize.

B

Alfred Nobel was born in Stockholm on October 21, 1833. His father Immanuel Nobel was an engineer and inventor who built bridges and buildings in Stockholm. In connection with his construction work, Immanuel Nobel also experimented with different techniques for blasting rocks. Successful in his industrial and business ventures, Immanuel Nobel was able, in 1842, to bring his family to St. Petersburg. There, his sons were given a first-class education by private teachers. The training included natural sciences, languages and literature. By the age of 17, Alfred Nobel was fluent in Swedish, Russian, French, English and German. His primary interests were in English literature and poetry as well as in chemistry and physics. Alfred's father, who wanted his sons to join his enterprise as engineers, disliked Alfred's interest in poetry and found his son rather introverted.

C

In order to widen Alfred's horizons, his father sent him abroad for further training in chemical engineering. During a two year period, Alfred Nobel visited Sweden, Germany, France and the United States. In Paris, the city he came to like best, he worked in the private laboratory of Professor T. J. Pclouze, a famous chemist. There he met the young Italian chemist Ascanio Sobrero who, three years earlier, had invented nitroglycerine, a highly explosive liquid. But it was considered too dangerous to be of any practical use. Although its explosive power greatly

exceeded that of gunpowder, the liquid would explode in a very unpredictable manner if subjected to heat and pressure. Alfred Nobel became very interested in nitroglycerine and how it could be put to practical use in construction work. He also realized that the safety problems had to be solved and a method had to be developed for the controlled detonation of nitroglycerine.

D

After his return to Sweden in 1863, Alfred Nobel concentrated on developing nitroglycerine as an explosive. Several explosions, including one (1864) in which his brother Emil and several other persons were killed, convinced the authorities that nitroglycerine production was exceedingly dangerous. They forbade further experimentation with nitroglycerine within the Stockholm city limits and Alfred Nobel had to move his experimentation to a barge anchored on Lake Malaren. Alfred was not discouraged and in 1864 he was able to start mass production of nitroglycerine. To make the handling of nitroglycerine safer Alfred Nobel experimented with different additives. He soon found that mixing nitroglycerine with kieselguhr would turn the liquid into a paste which could be shaped into rods of a size and form suitable for insertion into drilling holes. In 1867 he patented this material under the name of dynamite. To be able to detonate the dynamite rods he also invented a detonator (blasting cap) which could be ignited by lighting a fuse. These inventions were made at the same time as the pneumatic drill came into general use. Together these inventions drastically reduced the cost of blasting rock, drilling tunnels, building canals and many other forms of construction work.

E

The market for dynamite and detonating caps grew very rapidly and Alfred Nobel also proved himself to be a very skillful entrepreneur and businessman. Over the years he founded factories and laboratories in some 90 different places in more than 20 countries. Although he lived in Paris much of his life he was constantly traveling. When he was not traveling or engaging in business activities Nobel himself worked intensively in his various laboratories, first in Stockholm and later in other places. He focused on the development of explosives technology as well as other chemical inventions including such materials as synthetic rubber and leather, artificial silk, etc. By the time of his death in 18%, he had 355 patents.

F

Intensive work and travel did not leave much time for private life. At the age of 43, he was feeling like an old man. At this time he advertised in a newspaper “Wealthy, highly-educated elderly gentleman seeks the lady of mature age, versed in languages, as secretary and supervisor of household.” The most qualified applicant turned out to be an Austrian woman, Countess Bertha Kinsky. After working a very short time for Nobel she decided to return to Austria to marry Count Arthur von Suttner. In spite of this Alfred Nobel and Bertha von Suttner remained friends and kept writing letters to each other for decades. Over the years Bertha von Suttner became increasingly critical of the arms race. She wrote a famous book, Lay Down Your

Arms and became a prominent figure in the peace movement. No doubt this influenced Alfred Nobel when he wrote his final will which was to include a Prize for persons or organizations who promoted peace. Several years after the death of Alfred Nobel, the ***Norwegian Storting*** (Parliament) decided to award the 1905 Nobel Peace Prize to Bertha von Suttner.

G

Alfred Nobel died in San Remo, Italy, on December 10, 1896. When his will was opened it came as a surprise that his fortune was to be used for Prizes in Physics, Chemistry, Physiology or Medicine, Literature and Peace. The executors of his will were two young engineers, Ragnar Sohlman and Rudolf Lilljequist. They set about forming the Nobel Foundation as an organization to take care of the financial assets left by Nobel for this purpose and to coordinate the work of the Prize-Awarding Institutions. This was not without its difficulties since the will was contested by relatives and questioned by authorities in various countries.

H

Alfred Nobel's greatness lay in his ability to combine the penetrating mind of the scientist and inventor with the forward-looking dynamism of the industrialist. Nobel was very interested in social and peace-related issues and held what were considered radical views in his era. He had a great interest in literature and wrote his own poetry and dramatic works. The Nobel Prizes became an extension and a fulfillment of his lifetime interests.

Questions 28-33

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

In boxes 28-33 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

28 [ ] The first Nobel Prize was awarded in 1895.

29 [ ] Nobel's father wanted his son to have a better education than what he had had.

30 [ ] Nobel was an unsuccessful businessman.

31 [ ] Bertha von Suttner was selected by Nobel himself for the first peace prize.

32 [ ] The Nobel Foundation was established after the death of Nobel

33 [ ] Nobel's social involvement was uncommon in the 1800s.

Questions 34 - 40

Complete the notes below using **NO MORE THAN TWO WORDS** from the passage.

Write your answers in boxes 34-40 on your answer sheet.

Education:

Having accumulated a great fortune in his business, Nobel's father determined to give his son the best education and sent him abroad to be trained in 34 [ ] during Nobel's study in Paris, he worked in a private laboratory, where he came in contact with a young engineer 35 [ ] and his invention nitroglycerine, a more powerful explosive than 36 [ ].

Benefits in construction works:

Nobel became really interested in this new explosive and experimented on it. But nitroglycerine was too dangerous and was banned for experiments within the city of 37 [ ]. So Nobel had to move his experiments to a lake. To make nitroglycerine easily usable, Nobel invented dynamite along with 38 [ ]. while in the meantime 39 [ ] became popular, all of which dramatically lowered the 40 [ ] of construction works.

Solution:

Part 1: Question 1 - 13

1. B
2. C
3. F
4. A
5. starch
6. fermentation
7. condensation
8. polymer
9. B
10. C
11/12. A,C
13/14. A,D

Part 2: Question 15 - 27

15. FALSE
16. TRUE
17. NOT GIVEN
18. TRUE
19. FALSE
20. TRUE
21. FALSE
22. B
23. D
24. A
25. C
26. B

27 C

Part 3: Question 28 - 40

28 FALSE

29 NOT GIVEN

30 FALSE

31 FALSE

32 TRUE

33 TRUE

34 chemical engineering

35 Ascanio Sobrero

36 gunpower

37 Stockholm

38 detonator

39 pneumatic drill

40 cost