BURLINGTON IELTS ACADEMIC VOLUME 2 TEST 2

READING PASSAGE 1

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

How much do you really know?

Adapted from 'The Dunning-Kruger effect: On being ignorant of one's own ignorance'. Copyright © 2011 Elsevier Inc[1]

Allow me to begin with a statement that I hope will not be too controversial. That statement is that people live their lives under the shadow of their own inevitable ignorance. People simply do not know everything about everything. There are holes in their knowledge and gaps in their expertise. I, for example, can name many areas in which my knowledge is incomplete, or non-existent. I know nothing about the latest developments in astrophysics, and little about current European art. If you want to know about good places to eat in Sydney, Australia, I am not the best person to ask.

Of course, many people may argue that ignorance is unavoidable, stating that most, if not all, of the things people are ignorant about are related to obscure topics that do not have much impact on their daily lives. Some economists, for example, have put forward the viewpoint that most ignorance is rational, in that there are areas of knowledge where gaining expertise has no tangible benefit and is therefore not worthwhile.

I believe that these views on ignorance are mistaken. In my view, there are two main ways that ignorance does impact on people's day-to-day lives. First, I wish to argue that the limit of a person's knowledge is often reached far sooner than we might expect. For example, in contemporary society, people must filter a large volume of news about scientific facts on such important issues as the environment, medical treatment and biotechnology. In that regard, the US-based National Science Foundation, in its biannual survey of scientific knowledge, has found large gaps in the American population's grasp of basic scientific facts. In its 2008 survey of roughly 1,500 United States adults, only 51% could successfully identify that it was the Earth that revolved around the Sun (rather than the other way around).

But it is the second assertion that may be more important, that people don't really know where their knowledge ends, and their ignorance begins. It is perhaps, ironic that the one thing people are most likely to be ignorant about is the extent of their own ignorance – where it starts, where it stops, and all the space it fills in between. Arguing that ignorance tends to be invisible can be difficult, because many people may have a hard time relating to it. If they try to introspect about ignorance in their own life, they will come up empty. But there is a manifestation that is quite visible, and that people do relate to. It is not the ignorance they witness in themselves; rather it is the ignorance they witness in others.

For any given skill, some people have more expertise, and some have less – some a lot less. What about those people with low levels of expertise? Do they recognise it? According to the argument presented here, people with substantial gaps in their knowledge or expertise should not be able to recognise those gaps. Despite potentially making error after error, they should tend to think they are doing just fine. In short, those who are incompetent, for lack of a better term, have little insight into their incompetence an assertion that has come to be known as the Dunning-Kruger effect. This is the form of ignorance that is visible to people in everyday life.

[1]Dunning D 2011 The Dunning-Kruger effect: on being ignorant of one's own ignorance. Advances in Experimental Psychology **44**. 247-296.

When it comes to the judgment of performance based on knowledge, poor performers may face a double burden. First, gaps in their expertise may lead them to make many mistakes. Second, those exact same expertise gaps may lead them to be unable to recognise when they were making mistakes and when other people were choosing more wisely. To further illustrate this, consider the processes of assessing whether a sentence is grammatically correct. The process of assessment relies on the same set of skills needed to produce a grammatically correct sentence in the first place. We can conclude that if poor performers have knowledge or skill gaps that cause them to produce errors, those same skill gaps will prevent them from accurately spotting those errors in their output.

However, pointing out people's skill and knowledge gaps does not necessarily motivate then to overcome their limitations. In a recent study on emotional intelligence, business school students were given an individual 'emotional intelligence score' and shown how it related to national norms. Researchers then offered the students the opportunity to buy a book about 'emotionally intelligent management at a 50% discount. Of the students with the highest emotional intelligence scores, 64% wanted to purchase the book. Of the students with the lowest scores, only 19% were interested. It is interesting to consider why lower scoring students were resistant to acknowledging their own ignorance and taking action to fill their knowledge and skill gaps. It may be that motivational defences aimed at keeping self-esteem high - are to blame.

Is it possible that ignorance really is bliss? We often view high levels of confidence as a positive attribute, energising people to achieve their goals, even seemingly impossible ones. But could ignorance be an advantage? In moments when people must act decisively, perhaps being wise is not such a good idea.

Questions 1–4

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

Write the correct letter in boxes 1–4 on your answer sheet.

1 The writer uses the example of restaurants in Sydney in order to:

A show the inevitability of ignorance.

B illustrate that everyone has areas of ignorance.

C emphasise other people's lack of knowledge.

D make their statements less controversial.

2 The writer mentions that economic analysis was used to illustrate that people:

A are unaware of their own ignorance.

B are not harmed by their own ignorance.

C may not benefit by improving their knowledge.

D may suffer economic disadvantages as a result of ignorance.

3 The author gave the example of the National Science Foundation survey to illustrate:

A people's lack of knowledge.

B that lack of knowledge can be measured.

C the importance of scientific knowledge.

D that ignorance is normal.

4 The Dunning-Kruger effect is summarised as:

A a measure of people's ignorance.

B ignorance not being recognised by the ignorant.

C the frequency with which errors are made.

D the ability of intelligent people to recognise their limitations.

Questions 5–7

Do the following statements agree with the claims of the writer in Reading Passage 1?

In boxes 5–7 on the answer sheet write

YES	*if the statement agrees with the claims of the writer*
NO	*if the statement contradicts the claims of the writer*
NOT GIVEN	*if it is impossible to say what the writer thinks about this*

5 The author suggests that ignorant people face a 'double burden' because recognising errors requires knowledge.

6 Weaker students often feel discouraged when trying to improve.

7 The author concludes that ignorance is never beneficial.

Questions 8–13

*Complete the summary using the list of words, **A–H**, below.*

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

Not recognising, not knowing

Ignorance is much easier to recognise in others than in ourselves. The **8** …… of people's ignorance can sometimes be surprising, when what appears to be self- **9** …… facts are unknown to large proportions of a population. Yet, these people are often **10** …… of these gaps in their own knowledge. Even when making **11** …… errors, some will not recognise their ignorance or incompetence, especially those with the least skill or knowledge. This can be because the skills needed to recognise an error depend on the skill being **12** …….. . Another reason may be defensive; people ignoring their failings in order to preserve their self- **13** ……. .

A	repeated	**B**	evident	**C**	respect	**D**	tested
E	mistake	**F**	unaware	**G**	knowing	**H**	extent

READING PASSAGE 2

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

Questions 14–20

Reading Passage 2 has eight paragraphs, **A–H**.

Choose the correct heading for each paragraph from the list of headings below.

*Write the correct number, **i–x**, in boxes 14–20 on your answer sheet.*

List of Headings

i	World traditions
ii	Promoting weight loss
iii	Digestive tract benefits
iv	A way forward
v	An alternative product
vi	Benefits beyond the gut
vii	Replacing harmful bacteria
viii	Getting enough good bacteria
ix	Commercial innovations
x	Market trends

Example	Answer
Paragraph **A**	**viii**

14 Paragraph **B**

15 Paragraph **C**

16 Paragraph **D**

17 Paragraph **E**

18 Paragraph **F**

19 Paragraph **G**

20 Paragraph **H**

Healthy bacteria

Adapted from 'Non-dairy probiotic beverages. Copyright © 2013 International Food Research Journal.[2]

A Probiotics are foods that contain live microorganisms, which, when consumed in sufficient numbers, can provide health benefits that go beyond general nutrition by improving the microbial balance in the intestines. For foods to be considered probiotic, the microorganisms must be alive and present in high numbers – generally more than 109 cells per daily intake. Probiotic products, therefore, should indicate the minimum daily amount a person needs to consume in order to experience specific health benefits. These benefits may include cancer prevention, and improved immune, digestive and respiratory function. It has been suggested that the longevity seen in some European societies may be related to the high intake of fermented milk. It is also thought that the lactic acid produced as a result of sugar fermentation can be of particular benefit.

[2]Vasudha S and Mishra HN 2013 Non-dairy probiotic beverages. International Food Research Journal **20**(1): 7-15.

B Health professionals are increasingly promoting the health benefits of food with added live microbes (probiotics) particularly for children and populations with a high risk of disease. Several probiotic strains have been shown to prevent or alleviate infantile diarrhoea, while there is growing evidence that probiotics have a potential therapeutic benefit for patients suffering from bowel disorders. A few studies indicate that consumption of fermented dairy products containing the microbes *Lactobacilli* or *Bifidobacteria*, or the regular intake of lactic acid bacteria, lowers the risk of some gut and urinary tract cancers. Studies carried out on the effects of lactic acid bacteria have shown reduced severity of constipation and improved bowel function in otherwise healthy people.

C In addition to benefits to the digestive system, probiotics can improve other aspects of our health. Bacterial cultures, yoghurt starter cultures and probiotic cultures are known to improve lactose digestion for people suffering from intolerance to dairy products. Probiotics have also been used successfully in the management of eczema (a skin disease) in infants. There are also numerous studies that demonstrate that probiotic cultures can improve natural immunity in healthy people.

D While most probiotic foods available today are milk-based, consumers' preferences are increasingly moving to plant-based dietary supplements, which are either free from or have minimal cholesterol content. This trend can be seen in the U.S. where there is a fast-growing market for plant-based dietary supplements. In addition, some Asian diets include relatively few dairy-based foods, with plant-based foods making up the majority of the daily intake. This means that lactose intolerance is more common among Asian people which may further discourage the consumption of dairy products. Besides its influence on wider dietary habits, lactose intolerance discourages many Asian people from consuming milk. Based on this evidence, it may be concluded that plant-based probiotics have the potential to become popular in countries around the world.

E Globally, there is a wide variety of non-dairy fermented drinks to choose from. Many of these are non-alcoholic and use cereal grains as the main ingredient. Not only are cereal grains an important source of protein, carbohydrates, vitamins, minerals and fibre, but they also act as prebiotics, that is, they stimulate the growth of the *Lactobacilli* and *Bifidobacteria* already present in the gut. Some *Lactobacilli* require a fermented carbohydrate in order to grow and the fermentation of cereal grains may be a cheap way to obtain prebiotics that promote gut health.

F Boza, a beverage consumed in Bulgaria, Albania, Turkey and Romania is made from wheat, rye, millet, maize and other cereals mixed with sugar. An analysis of Bulgarian boza shows that it mainly consists of yeasts and lactic acid bacteria. Bushera is a traditional beverage prepared in the western highlands of Uganda, consumed by both young children and adults. Pozol, a refreshing beverage consumed in south-eastern Mexico, is made by cooking maize to make a dough which is wrapped in banana leaves and left to ferment. The fermented dough is suspended in water and drunk.

G Fruit-juice-based functional beverages (drinks that provide a specific health benefit), fortified with probiotic ingredients, are being developed by a number of commercial food manufacturers. Fruit juices are popular as they have taste profiles that are pleasing to all age groups and are generally seen as healthy and refreshing so are the perfect vehicle for added, probiotic ingredients. Advances in biotechnology have made it possible to change some of the characteristics of fruit and vegetables through a process of bioengineering. This too could provide an ideal medium for probiotic cultures.

H The increasing number of people adopting a vegetarian or vegan diet and the increasing demand for cholesterol-free probiotics have encouraged scientists to explore new ways to deliver probiotic products to consumers. Much of this research focuses on fruit and vegetable juices. As the interest in non-dairy functional beverages increases globally, we can expect a wider range of probiotic drinks in the future. There is genuine interest in the development of non-dairy-based functional beverages with probiotics because they serve as a healthy alternative to dairy probiotics, are cholesterol free and can also be enjoyed by lactose-intolerant consumers.

Questions 21–26

Look at the list of products and their features below.

Match the products to the features.

*Write the correct letter, **A**, **B** or **C** in boxes 21-26 on your answer sheet.*

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

List of Products	
A	Dairy-based probiotics
B	Non-dairy probiotics
C	Both dairy and non-dairy probiotics

21 promote longer life expectancy

22 provide the benefits of lactic acid

23 lessen lactose intolerance

24 are compatible with existing diets

25 have long-established use

26 are produced in appealing flavours

READING PASSAGE 3

*You should spend about 20 minutes on **Questions 27–40**, which are based on Reading Passage 3 below.*

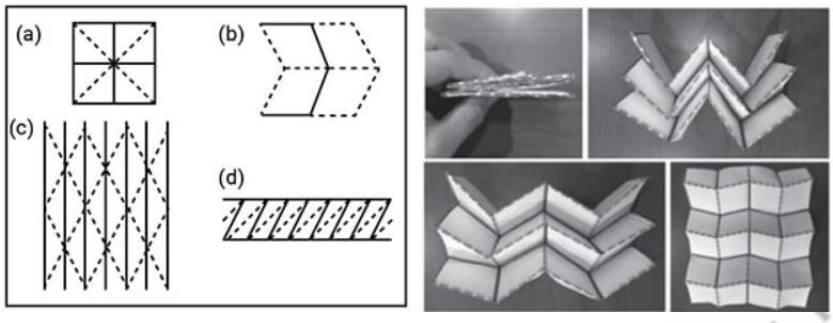
Origami and Engineering

Adapted from 'A review of origami applications in mechanical engineering'. Copyright © 2015 Institution of Mechanical Engineers.[3]

The word origami, the ancient art of paper folding, combines the Japanese roots ori, meaning 'folded', and kami, meaning 'paper'. Despite origami's long aesthetic history as an art form, the vast majority of practical applications have emerged in the last 50 years. Advances in computer science, number theory, and computational geometry have paved the way for powerful new analysis and design techniques, which now extend far beyond the art itself. Mechanical engineering has always been concerned with devices that allow relative motion between components. This relative motion has many similarities to folding. However, the field of mechanical engineering origami is a recent development, and it is leading to new and useful results.

First, it is important to understand some common terms associated with origami. A crease is a fold, either convex (mountain) or concave (valley). Collectively, all the creases make up the crease pattern. The waterbomb base, the Miura-ori pattern, the Yoshimura pattern, and the diagonal pattern are all rigid-foldable crease patterns. The first two can be expanded in all directions, the Yoshimura pattern is capable of translational motion (up and down and side to side) and the diagonal pattern allows for rotary motion.

[3]Turner N, Goodwine B and Sen M 2016 A review of origami applications in mechanical engineering. Journal of Mechanical Engineering Science **230**(14): 2345-2362



Left: Common origami crease patterns include (a) waterbomb base, (b) Miura- ori pattern, (c) Yoshimura pattern, and (d) diagonal pattern. Dashed lines show mountain folds while solid lines show valley folds. Right: a model of an expanding Miura-ori pattern.

The material used to create origami is critical. Artistic origami uses paper which is an elastic material that prefers to be flat, but other materials are more useful for engineering. One challenge in moving from theoretical origami to engineering origami is that materials have a finite thickness, unlike in mathematical models that assume zero thickness. To address this, the volume of edges on valley sides can be trimmed to avoid self-intersection. If the material is properly assembled and creased so that it can locally bend and deform to the desired shape, 3D structures can be made or self-folded with ease.

Engineering origami can be used in a number of ways by the packaging industry. Most engineering applications of origami use materials that are more rigid than paper. More rigid materials often form the packaging of consumer goods and engineering origami can be used to develop automated folding processes and to ensure that the packaging is efficient. One recent example of origami in packaging is the flat-folding rigid shopping bag. The solution allows the base of the bag to remain rigid, while the upper portion (separated by a crease) is more flexible.

A larger-scale variation on the theme of packaging is the development of shipping containers. The transportation of empty containers is inevitable in the shipping industry and several attempts have been made to manufacture foldable shipping containers to save space. Simplicity and durability in unfolding and folding of the containers is a must and lightweight materials should be used to keep the weight down. So far, two major foldable containers have been introduced into the market, but neither were commercially successful as they were heavy and were significantly more expensive than standard containers.

Origami techniques using rigid materials have long been used by the space industry in the construction of solar panels and inflatable booms for deployable space structures. The Miura-ori pattern was first introduced for the deployment of solid solar panels in space and continues to be used. This pattern is ideal for folding solar panels because it meets the requirements of being both rigid and flat-foldable. It has also been used to create lithium-ion batteries that bend, twist, and fold, commonly referred to as deformable energy storage devices.

There are a number of other applications for origami. Car airbag design involves folding an airbag into a compact state that allows it to be unfolded in milliseconds. In addition, classic origami geometries are being used to create antennas and other electronic devices designed to collapse to small sizes. Antennas that will fit into a pocket, for example can be used for long distance communication when paired with other devices. Several designs for collapsible cylinders based on the *Yoshimura pattern* have already been developed.

Origami is an art form that is currently finding many engineering applications in order to successfully implement these new techniques, progress is required in four key areas. Firstly, we need a better understanding of folding algorithms in order to fold intricate 3D structures efficiently. Secondly, we need to find ways to increase the mechanical efficiency of folding to cut costs. Thirdly, there is a need for research into entirely new crease patterns that allow folding in innovative and more effective ways. Finally, design approaches and methodologies in origami engineering need to be standardised.

Questions 27–30

*Complete each sentence with the correct ending **A–G**, below.*

*Write the correct letter, **A–G**, in boxes 27–30 on your answer sheet.*

27 Wider use of engineering origami was made possible

28 The Yoshimura pattern differs from the Miura-ori pattern

29 Theoretical models differ from practical applications

30 Folding along valley sides differs from folding along mountain edges

A	as it allows greater extension in the third dimension.
B	by the use of plastic materials.
C	by origami's long and rich history.
D	by developments in several fields of science.
E	as it has a greater number of fold types.
F	as adjustment for the thickness of the material is required.
G	as they involve materials not found in nature.

Questions 31–35

Do the following statements agree with the information given in Reading Passage 3?

In boxes 31–35 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*

31 Common engineering materials have similar properties to paper.

32 The development of folded shopping bags was the result of consumer demand.

33 Collapsible shipping containers have been successfully produced.

34 Foldable lithium-ion batteries have been used in space.

35 The Yoshimura pattern allows the construction of circular designs.

Questions 36–40

Complete the sentences below.

*Choose **ONE WORD ONLY** from the passage for each answer.*

Write your answers in boxes 36–40 on your answer sheet.

36 The art of origami has long been admired for its …… qualities.

37 Folding results in relative …… between components in a structure.

38 Circular motion is allowed by the …… pattern.

39 Production costs could be reduced by increasing the …… of folds.

40 New crease patterns may become even further …… .