IELTSFever Academic Reading Test 96

Reading Passage 1

You should spend about 20 minutes on Questions 1-13, which are based on the IELTSFever Academic IELTS Reading Test 96 Reading Passage Life code: unlocked! below.

Life code:

unlocked!

{A} On an airport shuttle bus to the Kavli Institute for Theoretical Physics in Santa Barbara, Calif., Chris Wiggins took a colleague's advice and opened a Microsoft Excel spreadsheet. It had nothing to do with the talk on biopolymer physics he was invited to give. Rather the columns and rows of numbers that stared back at him referred to the genetic activity of budding yeast. Specifically, the numbers represented the amount of messenger RNA (MRNA) expressed by all 6,200 genes of the yeast over the course of its reproductive cycle. "It was the first time I ever saw anything like this," Wiggins recalls of that spring day in 2002. "How to make sense of all this data?"

{B} Instead of shirking from this question, the 36-year-old applied mathematician and physicist at Columbia University embraced it-and now six years later he thinks he has an answer. By foraying into fields outside his own, Wiggins has drudged up tools from a branch of artificial intelligence called machine learning to model the collective protein- making activity of genes from real-world biological data. Engineers originally designed these tools in the late 1950s to predict output from input. Wiggins and his colleagues have now brought machine learning to the natural sciences and tweaked it so that it can also tell a story-one not only about input and output but also about what happens inside a model of gene regulation, the black box in between.

{C} The impetus for this work began in the late 1990s, when high-throughput techniques generated more mRNA expression profiles and DNA sequences than ever before, "opening up a completely different way of thinking about biological phenomena," Wiggins says. Key among these techniques were DNA microarrays, chips that provide a panoramic view of the activity of genes and their expression levels in any cell type, simultaneously and under myriad conditions. As noisy and incomplete as the data were, biologists could now query which genes turn on or off in different cells and determine the collection of proteins that give rise to a cell's characteristic features, healthy or diseased.

{D} Yet predicting such gene activity requires uncovering the fundamental rules that govern it. "Over time, these rules have been locked in by cells," says theoretical physicist Harmen Bussemaker, now an associate professor of biology at Columbia. "Evolution has kept the good

stuff." To find these rules, scientists needed statistics to infer the interaction between genes and the proteins that regulate them and to then mathematically describe this network's underlying structure-the dynamic pattern of gene and protein activity over time. But physicists who did not work with particles (or planets, for that matter) viewed statistics as nothing short of an anathema. "If your experiment requires statistics," British physicist Ernest Rutherford once said, "you ought to have done a better experiment."

{E} But in working with microarrays, "the experiment has been done without you," Wiggins explains. "And biology doesn't hand you a model to make sense of the data." Even more challenging, the building blocks that make up DNA, RNA and proteins are assembled in myriad ways; moreover, subtly different rules of interaction govern their activity, making it difficult, if not impossible, to reduce their patterns of interaction to fundamental laws. Some genes and proteins are not even known. "You are trying to find something compelling about the natural world in a context where you don't know very much," says William Bialek, a biophysicist at Princeton University. "You're forced to be agnostic." Wiggins believes that many machine-learning algorithms perform well under precisely these conditions. When working with so many unknown variables, "machine learning lets the data decide what's worth looking at," he says.

{F} At the Kavli Institute, Wiggins began building a model of a gene regulatory network in yeast-the set of rules by which genes selectively orchestrate how vigorously DNA is transcribed into mRNA. As he worked with different algorithms, he started to attend discussions on gene regulation led by Christina Leslie, who ran the computational biology group at Columbia at the time. Leslie suggested using a specific machine-learning tool called a classifier. Say the algorithm must discriminate between pictures that have bicycles in them and pictures that do not. A classifier sifts through labeled examples and measures everything it can about them, gradually learning the decision rules that govern the grouping. From these rules, the algorithm generates a model that can determine whether or not new pictures have bikes in them. In gene regulatory networks, the learning task becomes the problem of predicting whether genes increase or decrease their protein-making activity.

{G} The algorithm that Wiggins and Leslie began building in the fall of 2002 was trained on the DNA sequences and mRNA levels of regulators expressed during a range of conditions in yeast-when the yeast was cold, hot, starved, and so on. Specifically, this algorithm-MEDUSA (for motif element discrimination using sequence agglomeration) -scans every possible pairing between a set of DNA promoter sequences, called motifs, and regulators. Then, much like a child might match a list of words with their definitions by drawing a line between the two, MEDUSA finds the pairing that best improves the fit between the model and the data it tries to emulate. (Wiggins refers to these pairings as edges.) Each time MEDUSA finds a pairing, it updates the model by adding a new rule to guide its search for the next pairing. It then determines the strength of each pairing by how well the rule improves the existing model. The hierarchy of numbers enables Wiggins and his colleagues to determine which pairings are more important than others and how they can collectively influence the activity of each of the yeast's 6,200 genes. By adding one pairing at a time, MEDUSA can predict which genes ratchet up their RNA production or clamp that production down, as well as reveal the collective mechanisms that orchestrate an organism's transcriptional logic.

Questions 1-6

The reading passage has seven paragraphs, A-G

Choose the correct heading for paragraphs A-G from the list below.

Write the correct number, i-x, in boxes 1-6 on your answer sheet.

List of Headings

(I) The search for the better-fit matching between the model and the gained figures to foresee the activities of the genes

(II) The definition of MEDUSA

(III) A flashback of an commencement for a far-reaching breakthrough

(IV) A drawing of the gene map

(V) An algorithm used to construct a specific model to discern the appearance of something new by the joint effort of Wiggins and another scientist

(VI) An introduction of a background tracing back to the availability of mature techniques for detailed research on genes

(VII) A way out to face the challenge confronting the scientist on the deciding of researchable data .

(VIII) A failure to find out some specific genes controlling the production of certain proteins

(IX) The use of a means from another domain for reference

(X) A tough hurdle on the way to find the law governing the activities of the genes

Example: Paragraph A **III**

(1) Paragraph B

(2) Paragraph C

(3) Paragraph D

(4) Paragraph E

(5) Paragraph F

(6) Paragraph G

Questions 7-9

Do the following statements agree with the information given in Reading Passage 1? In boxes 7-9 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

(11) Wiggins is the first man to use DNA microarrays for the research on genes.

(10) There is almost no possibility for the effort to decrease the patterns of interaction between DNA, RNA and proteins.

(9) Wiggins holds a very positive attitude on the future of genetic research.

Questions 10-13

Summary

Complete the following summary of the paragraphs of Reading Passage, using No More than three words from the Reading Passage for each answer. Write your answers in boxes 10-13 on your answer sheet.

Wiggins states that the astoundingly rapid development of techniques concerning the components of genes aroused the researchers to look at .....**10**.....from a totally new way.

.....**11**..... is the heart and soul of these techniques and no matter what the .....**12**..... were, at the same time they can offer a whole picture of the genes' activities as well as .....**13**..... in all types of cells. With these techniques scientists could locate the exact gene which was on or off to manipulate the production of the proteins.

Reading Passage 2

You should spend about 20 minutes on Questions 1-13, which are based on the IELTSFever Academic IELTS Reading Test 96 Reading Passage Is Graffiti Art or Crime? below.

Is Graffiti Art or Crime?

{A} The term graffiti derives from the Italian graffio meaning 'scratching and can be defined as uninvited markings or writing scratched or applied to objects, built structures and natural features. It is not a new phenomenon: examples can be found on ancient structures around the world, in some cases predating the Greeks and Romans In such circumstances it has acquired invaluable historical and archaeological significance, providing a social history of life and events at that time. Graffiti is now a problem that has become pervasive, as a result of the availability of cheap and quick means of mark-making

{B} It is usually considered a priority to remove graffiti as quickly as possible after it appears. This is for several reasons. The first is to prevent 'copy-cat' emulation which can occur rapidly once a clean surface is defaced. It may also be of a racist or otherwise offensive nature and many companies and councils have a policy of removing this type of graffiti within an hour or two of it being reported. Also, as paints, glues and inks dry out over time they can become increasingly difficult to remove and are usually best dealt with as soon as possible after the incident. Graffiti can also lead to more serious forms of vandalism and, ultimately, the deterioration of an area, contributing to social decline.

{C} Although graffiti may be regarded as an eyesore, any proposal to remove it from sensitive historic surfaces should be carefully considered: techniques designed for more robust or utilitarian surfaces may result in considerable damage. In the event of graffiti incidents, it is important that the owners of buildings or other structures and their consultants are aware of the approach they should take in dealing with the problem. The police should be informed as there may be other related attacks occurring locally. An incidence pattern can identify possible

culprits, as can stylised signatures or nicknames, known as 'tags, , which may already be familiar to local police. Photographs are useful to record graffiti incidents and may assist the police in bringing a prosecution. Such images are also required for insurance claims, and can be helpful to cleaning operatives, allowing them to see the problem area before arriving on site.

{D} There are a variety of methods that are used to remove graffiti. Broadly these divide between chemical and mechanical systems. Chemical preparations are based on dissolving the media; these solvents can range from water to potentially hazardous chemical cocktails'. Mechanical systems such as wire-brushing and grit-blasting attempt to abrade or chip the media from the surface. Care should be taken to comply with health and safety legislation with regard to the protection of both passers-by and any person carrying out the cleaning. Operatives should follow product guidelines in terms of application and removal, and wear the appropriate protective equipment. Measures must be taken to ensure that run-off, aerial mists, drips and splashes do not threaten unprotected members of the public. When examining a graffiti incident it is important to assess the ability of the substrate to withstand the prescribed treatment. If there is any doubt regarding this, then small trial areas should be undertaken to assess the impact of more extensive treatment.

{E} A variety of preventive strategies can be adopted to combat a recurring problem of graffiti at a given site. As no two sites are the same, no one set of protection measures will be suitable for all situations. Each site must be looked at individually. Surveillance systems such as closed circuit television may also help. In cities and towns around the country, prominently placed cameras have been shown to reduce anti-social behaviour of all types including graffiti. Security patrols will also act as a deterrent to prevent recurring attacks. However, the cost of this may be too high for most situations. Physical barriers such as a wall, railings, doors or gates can be introduced to discourage unauthorised access to a vulnerable site. However, consideration has to be given to the impact measures have on the structure being protected. In the worst cases, they can be almost as damaging to the quality of the environment as the graffiti they prevent. In others, they might simply provide a new surface for graffiti.

{F} One of the most significant problems associated with graffiti removal is the need to remove it from surfaces that are repeatedly attacked. Under these circumstances the repeated removal of graffiti using even the most gentle methods will ultimately cause damage to the surface material. There may be situations where the preventive strategies mentioned above do not work or are not a viable proposition at a given site. Anti-graffiti coatings are usually applied by brush or spray leaving a thin veneer that essentially serves to isolate the graffiti from the surface.

{G} Removal of graffiti from a surface that has been treated in this way is much easier, usually using low-pressure water which reduces the possibility of damage. Depending on the type of barrier selected it may be necessary to reapply the coating after each graffiti removal exercise.

Questions 14-19

Reading Passage 2 has six paragraphs, A-F.

Which paragraph contains the following information?

Write the correct letter, A-F, in boxes 14-19 on your answer sheet.

NB You may use any letter more than once.

(14) why chemically cleaning graffiti may cause damage

(15) the benefit of a precautionary strategy on the gentle removal

(16) the damaging and accumulative impact of graffiti to the community

(17) the need for different preventive measures being taken to cope with graffiti

(18) a legal proposal made to the owner of building against graffiti

(19) the reasons of removing graffiti as soon as possible

Questions 20-21

Choose TWO letters, A-E.

Write your answers in boxes 20-21 on your answer sheet.

Which two statements are true concerning the removal of graffiti

(A) cocktail removal can be safer than water treatment

(B) small patch trial before applying large scale of removing

(C) Chemical treatments are the most expensive way of removing

(D) there are risks for both Chemical and medication method

(E) mechanical removals are much more applicable than Chemical treatments

Questions 22-23

Choose TWO letters, A-E.

Write your answers in boxes 22-23 on your answer sheet.

Which TWO of the following preventive measures against graffiti are mentioned effective in the passage?

(A) organise more anti graffiti movement in the city communities

(B) increase the police patrols on the street

(C) Build a new building with material repelling to water

(D) installing more visible security cameras

(E) Provide a whole new surface with chemical coat

Questions 24-27

Complete the Summary of the paragraphs of Reading Passage 2.

*Use **NO MORE THAN TWO WORDS** from the passage for each answer.*

Write your answers in boxes 24-27 on your answer sheet.

(24) Ancient graffiti is of significance and records the 24..... details life for that period.

(25) The police can recognize newly committed incidents of graffiti by the signature which is called 25..... that they are familiar with

(26) Operatives ought to comply with relevant rules during the operation, and put on the suitable 26 ……..

(27) Removal of graffiti from a new type of coating surface can be much more convenient than using 27.....

Reading Passage 3

You should spend about 20 minutes on Questions 28-33, which are based on the IELTSFever Academic IELTS Reading Test 96 Reading Passage Bright Children below.

Bright Children

{A} BY the time Laszlo Polgar's first baby was born in 1969 he already had firm views on child-rearing. An eccentric citizen of communist Hungary, he had written a book called “Bring up Genius!” and one of his favourite sayings was "Geniuses are made, not born”. An expert on the theory of chess, he proceeded to teach little Zsuzsa at home, spending up to ten hours a day on the game. Two more daughters were similarly housed. All three obliged their father by becoming world-class players. The youngest, Judit, is currently ranked 13th in the world, and is by far the best female chess player of all time. Would the experiment have succeeded with a different trio of children? If any child can be turned into a star, then a lot of time and money are being wasted worldwide on trying to pick winners.

{B} America has long held “talent searches”, using test results and teacher recommendations to select children for advanced school courses, summer schools and other extra tuition. This provision is set to grow. In his state-of-the-union address in 2006, President George Bush

announced the "American Competitiveness Initiative", which, among much else, would train 70,000 high-school teachers to lead advanced courses for selected pupils in mathematics and science. Just as the superpowers' space race made Congress put money into science education, the thought of China and India turning out hundreds of thousands of engineers and scientists is scaring America into prodding its brightest to do their best.

{C} The philosophy behind this talent search is that ability is innate; that it can be diagnosed with considerable accuracy; and that it is worth cultivating. In America, bright children are ranked as “moderately", "highly", "exceptionally" and "profoundly" gifted. The only chance to influence innate ability is thought to be in the womb or the first couple of years of life. Hence the fad for “teaching aids” such as videos and flashcards for newborns, and "whale sounds” on tape which a pregnant mother can strap to her belly.

{D} In Britain, there is a broadly similar belief in the existence of innate talent, but also an egalitarian sentiment which makes people queasy about the idea of investing resources in grooming intelligence. Teachers are often opposed to separate provision for the best performing children, saying any extra help should go to stragglers. In 2002, in a bid to help the able while leaving intact the ban on most selection by ability in state schools, the government set up the National Academy for Gifted and Talented Youth. This outfit runs summer schools and master classes for children nominated by their schools. To date, though, only seven in ten secondary schools have nominated even a single child. Last year all schools were told they must supply the names of their top 10%.

{E} Picking winners is also the order of the day in ex-communist states, a hangover from the times when talented individuals were plucked from their homes and ruthlessly trained for the glory of the nation. But in many other countries, opposition to the idea of singling out talent and grooming it runs deep. In Scandinavia, a belief in virtues like modesty and social solidarity makes people flinch from the idea of treating brainy children differently.

{F} And in Japan there is a widespread belief that all children are born with the same innate abilities and should therefore be treated alike. All are taught together, covering the same syllabus at the same rate until they finish compulsory schooling. Those who learn quickest are expected then to teach their classmates. In China, extra teaching is provided, but to a self-selected bunch. “Children's palaces" in big cities offer a huge range of after-school classes. Anyone can sign up; all that is asked is excellent attendance.

{G} Statistics give little clue as to which system is best. The performance of the most able is heavily affected by factors other than state provision. Most state education in Britain is nominally non-selective, but middle-class parents try to live near the best schools. Ambitious Japanese parents have made private, out-of-school tuition a thriving business. And Scandinavia's egalitarianism might work less well in places with more diverse populations and less competent teachers. For what it's worth, the data suggest that some countries—like Japan and Finland, see table—can eschew selection and still thrive. But that does not mean that any country can ditch selection and do as well.

{H} Mr Polgar thought any child could be a prodigy given the right teaching, an early start and enough practice. At one point he planned to prove it by adopting three baby boys from a poor country and trying his methods on them. (His wife vetoed the scheme.) Some say the key to success is simply hard graft. Judit, the youngest of the Polgar sisters, was the most driven, and the most successful; Zsofia, the middle one, was regarded as the most talented, but she was the only one who did not achieve the status of grand master. “Everything came easiest to her," said her older sister. “But she was lazy."

Questions 28-33

Do the following statements agree with the information given in Reading Passage 3? In boxes 28-33 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

(28) America has a long history of selecting talented students into different categories.

(29) Teachers and schools in Britain held a welcome attitude towards the government': selection of gifted students.

(30) Some parents agree to move near reputable schools in Britain.

(31) Middle-class parents participate in their children's education.

(32) Japan and Finland comply with selected student's policies.

(33) Avoiding-selection-policy only works in a specific environment.

Questions 34-35

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

Write your answers in boxes 34-35 on your answer sheet.

Question 34 What's Laszlo Polgar's point of view towards geniuses of children?

(A) Chess is the best way to train geniuses

(B) Genius tend to happen on first child

(C) Geniuses can be educated later on

(D) Geniuses are born naturally

Question 35 What is the purpose of citing Zsofia's example in the last paragraph?

(A) Practice makes genius

(B) Girls are not good at chessing

(C) She was an adopted child

(D) Middle child is always the most talented

Questions 36-40

Use the information in the passage to match the countries (listed A-F) with correct connection below. Write the appropriate letters A-F in boxes 36-40 on your answer sheet.

(A) Scandinavia

(B) Japan

(C) Britain

(D) China

(E) America

(36) Less gifted children get help from other classmates

(37) Attending extra teaching is open to anyone

(38) People are reluctant to favor gifted children due to social characteristics

(39) Both view of innate and egalitarian co-existed

(40) Craze of audio and video teaching for pregnant women.