TEST 1

READING PASSAGE 1

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

The life of Beatrix Potter

The children's author and illustrator who created Peter Rabbit

Beatrix Potter is one of the best-selling children's authors of all time. Her popular series of books that includes The Tale of Peter Rabbit was first published over one hundred years ago, and has never been out of print. Generations of children have enjoyed her many stories and illustrations, all of which celebrate the English lifestyle and rural landscape through the adventures of animals.

Born to a comfortable middle-class family in London in 1866, Potter spent much of her early life in her own company. She was educated in her parents' house by a governess and rarely saw her brother Bertram, who was sent to boarding school. Having little social contact with children of her own age, Potter began to be drawn into her own world of writing. When Beatrix was 15, she began to keep a diary written in a secret code of her own invention. Even Beatrix herself, when she read back over it in later life, found it difficult to understand. It was not until 15 years after her death that the code was cracked. To the outside world Beatrix appeared a shy and reserved person, but in her diary she was able to express herself openly, and she was critical of the paintings of a number of artists of the day.

Potter was a naturally gifted artist, and with the aid of some art lessons she also learnt the technical side of drawing. During her childhood, she looked after many animals, such as rabbits, frogs, and even bats. She drew these animals throughout her childhood, gradually improving the standard of her work by sketching in museums. She was also interested in natural history. She would spend many hours drawing wildlife such as fungi and flowers, and at one time she had an ambition to develop this scientific interest. An uncle tried to help her become a student at the Royal Botanic Gardens at Kew in London, but she was rejected because of her gender. Nevertheless, she achieved a measure of respect from the scientific establishment for her illustrations and contribution to mycology, the study of fungi.

When Potter was in her early 20s, her parents tried to arrange a partner for her to marry. Many likely suitors were found; however, Potter turned them all down. She was a fiercely independent woman, and she disliked the idea of being tied down to a domestic life that, at

that time, consisted mostly of staying at home and bringing up children. Thus, unusually for British women of those times, she remained single and lived in her parents' home.

For several years, Potter tried to get her first children's book, The Tale of Peter Rabbit, published. Her initial attempts proved unsuccessful, but she persevered and eventually the book was accepted for publication by Frederick Warne & Company. The book finally came out in 1902, when Potter was 36, but the publishers did not expect it would sell many copies. In fact, the project was given to the youngest brother in the family company, Norman Warne, for his first project as a kind of test. Luckily, he proved to be a good choice as he warmed to both the book and Potter. He was determined to make a success of the book and developed a good working relationship with Potter as they pored over the individual details of the book. It was Norman who insisted that each drawing would be in colour. Potter insisted that the book remain small so that it would be easy for children to hold, and by the end of the year, 28,000 copies were in print.

The relationship between Warne and Potter blossomed, and eventually they became engaged. However, Potter's parents were unhappy about this because of his occupation. They eventually relented, but insisted the couple live apart for six months to give Potter time to change her mind. Tragically, before the wedding could take place, Warne developed pernicious anaemia, a blood disease, and passed away. Potter was devastated and she wrote in a letter to his sister, Millie, 'He did not live long, but he fulfilled a useful, happy life. I must try to make a fresh beginning next year.'

After Warne's death, Potter moved to the Lake District in northern England. In 1905 she bought a small farm there, and for the next eight years she busied herself writing more books, some of which were based in or around the area. She lived there for the remainder of her life, but due to failing eyesight she was forced to stop writing children's books. Instead, she devoted her time to the breeding of sheep and helping with the conservation of farms in the district. Using proceeds from her very successful books and later her inheritance, Potter was able to buy many working farms. On her death, she left over 4,000 acres to the National Trust, an organisation which protects historical buildings and areas of countryside in England. It has meant that her beloved countryside is now accessible to many visitors.

Questions 1-6

Complete the notes below.

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

Write your answers in boxes 1-6 on your answer sheet.

Beatrix Potter

Success as an author

- Her books have been in print for more than 100 years.

Childhood

- She received lessons at home from a **1** .....
- She wrote in her **2.....**in code.
- She disliked the work of some **3 .....** of the time.
- She took lessons in drawing.
- She practised drawing things she saw when she visited **4** .....

Life as a young adult

- Her **5.....** to have a career in natural history was not realised.
- Her illustrations were recognised as assisting research into **6** .....

Questions 7-13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 7-13 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*

7 The life of a typical married woman at that time appealed to Potter.

8 Potter's publishers insisted on changing the title of her first book.

9 The publishers doubted whether Potter's first book would be successful.

10 Norman Warne suggested Potter include black and white illustrations in her first book.

11 At first, Potter's parents disapproved of Norman Warne as a potential husband.

12 Potter continued writing children's books until her death.

13 Potter's gift to the National Trust was the largest in recent times.

READING PASSAGE 2

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

Questions 14-19

Reading Passage 3 has six paragraphs, **A-F.**

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

*Write the correct number, **i-x,** in boxes 14-19 on your answer sheet.*

List of Headings

	New terminology reflecting changing attitudes to waste disposal
ii	Fundamental changes in behaviour in the past and future
iii	Ways of rewarding the public for recycling
iv	A surprising approach to waste disposal by several countries
v	Difficult choices for individuals and businesses
vi	Arguments against incineration from a country that uses it
vii	A number of justifications for the use of incineration

14 Paragraph **A**

15 Paragraph **B**

16 Paragraph **C**

17 Paragraph **D**

18 Paragraph **E**

19 Paragraph **F**

Solving the problem of waste disposal

With the amount of rubbish being produced around the world increasing, Mark Rowe asks whether a new generation of incineration plants can help to solve the problem.

A For many years, burning rubbish has been portrayed as the lazy option when it comes to dealing with the problem of waste disposal, since it sends toxic fumes into the air and appears to support a consumerist, throwaway society. Norway, however, appears to be burning its way through a sizeable chunk of Europe's municipal waste, using the heat created by this process to warm and power homes in many of its cities. Norway isn't alone: Germany, Sweden, Belgium and the Netherlands all bum significant quantities of rubbish, and across Europe there are 420 plants burning municipal waste. With Europe dumping 150 million tonnes of rubbish into landfill every year, there would seem to be limitless supply.

B Those who support burning waste say that a new generation of incinerators have made it a more attractive option. Filters and scrubbing mechanisms now capture harmful substances such as mercury, hydrochloric acid and heavy metals. According to Ted Michaels, president of the US-based Energy Recovery Centre, 'There has been constant evolution in combustion engineering and emissions-control technology, and the output from these facilities is now minuscule.' Above all, however, supporters say that incineration is the only way of preventing the long-term impacts oflandfill. In ten years' time, says the World Bank, humans will be generating 2.2 billion tonnes of solid waste per year. Advocates see incineration as a practical way to deal swiftly with an immediate problem.

C Levels of waste generation vary hugely around the world. 'It's a problem for the developed nations,' says Joergen Fenhann, a senior scientist working with the UN Environment Programme in Denmark. 'The more you develop, the more you produce, buy and throw away.' But the growth of incineration hasn't been universally welcomed. Lars Haltbrekken, chairman of Friends of the Earth in Norway, is concerned that incineration plants appear to generate demand for their services. 'The problem in Norway,' he explains, 'is that we have built too many waste-burning factories. So we've ended up importing waste from other countries. If you look at this in a very small perspective, it is, of course, better for the climate to bum rubbish from the UK rather than leave it in landfill there,' he continues. 'But in a broader perspective, it's a lazy way of getting rid of waste; you don't stimulate the goals of reducing, reusing and recycling.'

D Incineration is also at odds with EU policy, which promotes a 'recycling hierarchy': ideally, we simply produce less waste in the first place; failing that, we reuse objects more; the next best option is recycling; only then should we consider incineration, while dumping in landfill is the last resort. Dealing with the problem of waste disposal

involves tracing the whole process that took the material from its inception to landfill. We used to call this the 'cradle to grave' life cycle; now, the talk is of 'cradle to cradle' and an even more comprehensive concept known as 'zero waste'. 'The philosophy of cradle to cradle is about designing products that are actually good for the environment at the end of their life,' says Joan Marc Simon, European spokesman for the environmental movement GAIA. 'You design a bottle that contains no toxins, is fully recyclable and requires the minimum amount of energy to be produced.' As Simon points out, however, without the right mechanisms in place, 'nothing guarantees that this bottle will end up being properly collected and treated in the appropriate recycling facility.'

E Tim Burns, policy manager at Keep Britain Tidy, says, 'In the UK alone, people waste 10 billion of food every year. You can argue about composting that, or not buying it in the first place-if you do that then that's money the retailers don't get, so it's not always clear cut.' The implications of zero waste are that we' re going to have to take a good long look at those well-stocked supermarket shelves, too. 'Supermarkets keep their shelves stocked even when demand isn't there, which means they have to pay to dispose of a lot of food,' says Bums. 'But that cost is less to them than the cost in brand damage of having empty shelves.'

F Recent history and changes in trends in recycling suggest that we should be prepared for unexpected developments. 'If someone back in the 1980s had suggested what waste would be like now, they would be completely wrong,' says Richard Fisher, a PhD researcher at Cranfield University. 'Consumerism has developed at a pace we never expected. Nobody would have said there would be so much electronic waste. But recycling has grown, too-ten years ago nobody would have predicted today's levels of recycling.' But he points out that the need to reduce waste is still a difficult message to sell to consumers. He suggests that what people are really concerned about is their loved ones and the future they face. 'Perhaps we can align the environmental message to these deep-seated values,' he says. 'We need to look at whether it's business that drives consumers or the other way around. You need government to play a leadership role, whereas countries such as the UK seem to be stepping away from the environment in pursuit of short-term economic goals.'

Questions 20-23

Look at the following statements (Questions 20-23) and the list of people below.

Match each statement with the correct person, ***A-G.***

Write the correct letter, ***A-G,*** *in boxes 20-23 on your answer sheet.*

20 Ted Michaels

21 Joergen Fenhann

22 Joan Marc Simon

23 Tim Burns

List of options

A Incineration does not encourage responsible attitudes to waste disposal.

B Recycling can sometimes create serious problems for the future.

C Greater consumerism leads to higher levels of waste.

D Proper systems are needed for the recycling of environmentally friendly products.

E Landfill is better for the environment than incineration.

F Incineration of waste is now relatively harmless to the environment.

G Efforts to reduce waste may affect profits for some types of companies.

Questions 24-26

Complete the summary below.

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

Write your answers in boxes 24-26 on your answer sheet.

What recent history tells us about recycling

Richard Fisher, a researcher from Cranfield University, points out that the pace of consumerism has increased more quickly than was predicted in the 1980s. There has, for example, been unexpected growth in waste from **24.....**products. He suggests that the need to protect the environment should be linked to basic values, and adds that it might be better if consumers had more influence over **25** ..... and more direction was provided by **26** .....

READING PASSAGE 3

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

Movement Underwater

A Self-propelled motion is a fundamental ability in many organisms. From the beating flagella of tiny plankton keeping afloat near the ocean surface to the playful perfection of dolphins surfing the bow wave of a ship, marine creatures have adopted a huge variety of styles, speeds, and methods of movement. Each species has its own particular need for the evolutionary developments that have taken place, but the basic requirements are the same-finding food, avoiding predation, seeking a mate or a safe place to have young, or migrating to an area with more favorable conditions.

B The particular physical properties of water that most affect movement are density, viscosity (stickiness), and buoyancy. Seawater is about 800 times denser than air and nearly 100 times as viscous. Consequently, there is much more resistance to movement than on land, as anyone will know who has ever tried to wade through waist-deep water. However, with density comes much greater buoyancy, so that organisms need spend relatively little energy to stay afloat. As they move through the ocean environment, organisms seek to make wave motion, currents, and natural turbulence work to their advantage, not detriment.

C Most fishes have swim bladders to help them offset the density of their bodies and so maintain neutral buoyancy with minimal effort. These small, gas-filled chambers contain specialized networks of blood vessels that can add or remove gases such as oxygen and carbon dioxide. The ability to remain indefinitely at a constant depth without expending energy is especially important for slow-moving fishes that seek food in the shallows, or for those that hunt and scavenge in kelp forests. Active swimmers, such as mackerel, skipjacks, and sharks, do not have swim bladders because they need to change depth more rapidly than they could regulate the gas content. These fishes must swim forever or they will sink.

D Many animals, especially the tiny zooplankton, have taken to a life of simply drifting near the surface, contentedly feeding on the microscopic phytoplankton and bacteria floating there. Although life among the plankton might seem easy, there is in fact a remarkable range of movement. Some tiny plankton only 1-2 mm in length actually travel long distances each day. Species that live below the level where sunlight reaches, nightly swim hundreds of meters up to the surface to feed in the relative safety of darkness. At dawn, they sink back down in an effort to escape predators-a double journey equivalent to a person swimming 700 km a day.

E It has taken marine creatures millions of years of evolution to overcome the chief deterrent to motion through a dense medium such as water-that of drag resistance. Swimming efficiency has been achieved by minimizing the three types of drag created by friction, turbulence, and body form. To reduce surface friction, the body must be smooth and rounded. In addition, the scales of most fishes are coated with slime to lubricate their passage through water. To reduce the turbulent drag created as water flows around the moving shape, a rounded front end and tapered back end are required. To reduce form drag, the cross-sectional area of the body should be minimal-a pencil shape would be ideal. The combined shape, taking into account all three types of drag, is the streamlined torpedo form of a tuna, the fastest-swimming of all fishes.

F Speed is only one of three important aspects of swimming ability. Tuna, swordfish, and mackerel all specialize in fast, steady cruising, but there are many other fishes for whom sustained speed is less important, such as the barracuda. This formidable predator specializes in swift acceleration, and has a far higher success rate for its attacks than its steady-cruising cousins. The freshwater pike, which lurks in the shadows until its quarry is within striking distance and then lunges with great rapidity, achieves a remarkable 70-80 percent success rate. The third specialization is maneuverability, best demonstrated by the butterfly fishes. These have disk-shaped bodies that permit abrupt changes of track. Many fishes are generalists, being at least partly proficient in all three modes of movement.

G Almost all fishes swim by undulation. Strong W-shaped muscles along the side of the body progressively contract and relax in sequence, from head to tail and from side to side, creating a traveling horizontal wave. The body is thrown into a series of curves that press sideways and back against the water, producing a forward thrust. The narrow, elongated forms of eels and sea snakes allow easy undulation along their full length. In contrast, the more stubby and inflexible bodies of armor-plated trunkfish use only the swish of their short tail fins to move themselves through the water. Most other fishes combine elements of both methods, coordinating powerful strokes of the tail fins with subtle body undulations.

H A fish's fins also play a vital and versatile role. The vertically oriented dorsal and ventral fins on the back and belly control sideways motion, while up-and-down motion is controlled by the pectoral and pelvic fins on the fish's sides. Whereas the shape of the tail fin relates directly to speed-crescent-moon shaped for fast cruising, broad and flat for acceleration-the style and arrangement of the other fins are crucial for maneuverability. Puffer fishes scull with tiny, oscillating pectoral fins, while butterfly fishes undulate their broad dorsal and ventral fins, twisting and turning with great precision through intricate coral reefs.

Questions 27-31

Reading Passage 3 has eight paragraphs, **A-H.**

Which paragraph contains the following information?

*Write the correct letter, **A-H,** in boxes 27-31 on your answer sheet.*

20 A strategy to avoid being attacked

21 How fish are able to keep afloat naturally

22 The physical process by which fish propel themselves ahead

23 A list of reasons why different creatures move from one place to another

24 How the medium of water both restricts and aids movement

Questions 32-35

Complete the flow chart below.

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

Write your answers in boxes 32-35 on your answer sheet.

Specialisation	
Specialised ability	**Example fish species**
Ability to maintain the same **32.....** over long distances	Swordfish
Rapid **33**	Barracuda
Sudden attack on prey following period of lying in wait	**34** .....
Rapid changes of direction	**35** .....

Questions 36-40

Complete the diagram below.

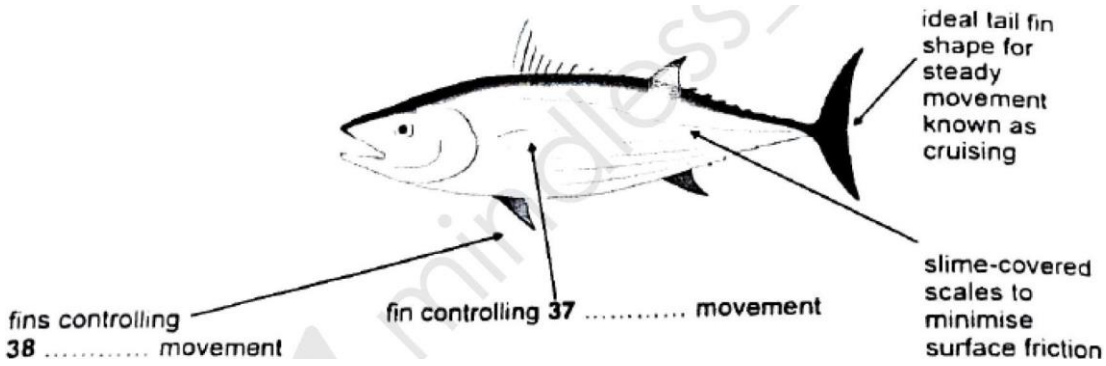
*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*

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

Mobility, stability and combating different

Types of drag resistance

s1reamlined shape narrowing towards rear: to reduce 36 .....drag



fins which are important for **39.....** of fish

Minimal cross-sectional body **area:** to decrease **40 .....** drag

TEST 2

READING PASSAGE 1

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

History of the Globe Theatre

The original Globe Theatre opened in autumn 1599 on the south bank of the River Thames, in London. It was one of several major theatres in the area, the others being the Swan, the Rose and the Hope. The Globe was the main playhouse of the Lord Chamberlain's Men, later called the King's Men, a theatrical company to which the playwright William Shakespeare belonged. Most of Shakespeare's post-1599 plays were staged at the Globe, including Julius Caesar, Macbeth, Othello, King Lear and Hamlet.

The Globe was built in 1576, using timber from an earlier theatre in Shoreditch, east London, by James Burbage, the father of one of the actors. Called simply The Theatre, this structure was taken down after a 20-year lease on its land expired, and the timber from it was then transported over the Thames to construct the Globe.

The Globe Theatre was highly successful. Since there was little artificial light, performances were held in the afternoon, usually beginning in May. Flags waving in the wind advertised plays by the King's Men, and all about the grounds of the theatre, playgoers would be buying merchandise and refreshments from stalls. People from all walks of life could enjoy the tragedies and comedies of Shakespeare. Both men and women would attend the plays, but the well-off would frequently wear masks to conceal their identity.

After years of success, the Globe was destroyed by fire on 29 June 1613, during a performance of Henry VIII. A theatrical cannon, set off during the performance, misfired, igniting the building's roof and wooden beams. According to one of the few surviving contemporary accounts of the event, no one was hurt except a man who put out his burning trousers with a bottle of ale. A new Globe was created by the theatre company on the foundations of its predecessor before Shakespeare's death in 1616.

However, after the Puritans gained control of Parliament, their campaign to enforce a higher standard of morality meant the end of the Globe. Their strict views gave rise to restrictions on many social activities, and like all the other theatres in London, the Globe was closed down in 1642. In 1644, the Puritans destroyed the Globe altogether to make room for housing. Its exact location was forgotten and remained unknown until remnants of its foundations were discovered in 1989 near a row of eighteenth-century buildings. There may

be further remains under these buildings but they are themselves listed as historical buildings, and currently may not be disturbed by archaeologists.

The Globe's shape and size have been the subject of scholarly inquiry over the last two centuries. The evidence suggests that it was a three-storey, 100-foot-wide, open-air amphitheatre. It was probably a polygon in shape, with twenty sides. At the base of the stage there was an area called the 'pit', where spectators (called 'groundlings') would either stand or sit on the ground to watch the performance. They paid one penny to see the play, and the box into which they put their entrance fee gave rise to the term 'box office'.

A rectangular platform, also known as an 'apron stage', thrust out into the middle of the open-air yard. On this, there was a trap door for use by performers to enter from the 'cellarage' area beneath the stage. Large columns on either side of the stage supported a roof over the rear portion of the stage. This would have been constructed using thatch. The inner ceiling was called the 'heavens', and was possibly painted with images of the sky. An opening in the heavens enabled performers to descend, using some form of rope and harness. The back wall of the stage had three doors on the first floor and a balcony on the second. The doors led into the 'tiring house' where the actors dressed and awaited their cue. The balcony was where the musicians performed and could also be used for scenes requiring an upper space, such as the balcony scene in Shakespeare's Romeo and Juliet. In addition, it could be used as the 'Lord's Room', where higher-paying audience members could be seated.

When the foundations of Shakespeare's Globe were discovered in London's Bankside district, public interest in building a modem version was reignited. Workers began construction in 1993, close to the site of the original. Completed in 1996, the current Globe Theatre was officially opened on 12 June 1997 with a production of Henry V. The reconstruction was carefully researched, so that the new building would be as faithful a replica as possible. It had the first thatched roof permitted in the city since the Great Fire of London in 1666. Modernisations include the addition of sprinklers on the roof to protect against fire. Due to modem health and safety regulations, only 1,300 people can attend a show, under half the estimated 3,000 of Shakespeare's time.

Tickets to stand in the open - no sitting allowed in this section - are available for every performance at £5 each. The only covered parts of the amphitheatre are the stage and the more expensive seated areas. Plays are normally performed between May and October, and in winter the theatre is used for educational purposes.

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 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*

1 The Lord Chamberlain's Men performed plays only in the Globe Theatre.

2 Recycled wood was used in the construction of the original Globe.

3 Performances at the Globe were so popular that advance booking was necessary.

4 Some people who watched the plays tried to avoid recognition.

5 When the original Globe burned down, it was rebuilt on the same site.

6 The Globe was the first theatre to be closed down by the Puritans.

Questions 7-13

Complete the notes below.

*Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.*

Write your answers in boxes 7-13 on your answer sheet.

The Globe

Parts of the original Globe

- The **7** ..... - for members of the audience (one penny per person)
- The apron stage- a protruding platform
- The trap door- giving access to the stage from below
- Roof made of **8** .....
- The **9** ..... - for performers to change into costumes
- Balcony for the use of the **10** ..... actors or wealthy spectators

The modern Globe

- 1993-1996 - the modern Globe was built

The building

- It was designed to be a mainly accurate replica
- **11** ..... were a new safety feature
- Audience capacity was reduced by more than **12** .....

The performances

- The price of outdoor tickets is fixed
- Tickets for seats in the **13 .....** spaces cost more
- There are no performances during winter

READING PASSAGE 2

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

How the Petri Dish Supports Scientific Advances

A simple piece of scientific equipment is helping research in three institutions in Cambridge, UK

A Petri dishes, invented by German microbiologist Julius Richard Petri in 1887, rarely receive the appreciation or attention that their more complex lab companions like the microscope enjoy. They are simple, utilitarian little things, and it's understandable that some people see them as just shallow dishes with lids. But Petri dishes deserve celebrating: they are still at the forefront of scientific discovery.

B The invention of the Petri dish, and the advances it has helped to create, are part of a bigger whole, of course-the development of glass scientific instruments, from microscope lenses to laboratory beakers. In The Glass Bathyscaphe: How Glass Changed the World, Alan Macfarlane argues that without glass, the Renaissance and the scientific revolution would never have happened.

Around 70 percent of what we know about the world comes in through our eyes, Macfarlane points out, and glass instruments enabled us to see better. Until about 1400, knowledge was based on what people had been told in the past. "Glass allowed the growth of the experimental method. Don't trust what you are being told: see it for yourself. It was transformational," he says.

C At the Wellcome-MRC Cambridge Stem Cell Institute, Professor Ludovic Vallier says that his first encounter with a Petri dish was a classic example of understanding the world in this way: students used the dishes to see which bacteria could grow in the presence of antibiotics. "It's good to see things grow," he says. "It was a fascinating experience. Now, we grow cells in the Petri dish, and we don't use glass any more, but plastic."

Today, his team focuses on stem cells, which have the capacity to become any cell type in the human body: neurons, skin cells, liver cells, and so on. Vallier and his colleagues study them in order to understand how they do this, and how they can produce more cells. And to study them, they need to grow them. "We put the stem cells on the dish

and then we feed them and they grow," he says. "And then ... we divide them and distribute them in new Petri dishes, and we grow them again. We feed them on a liquid medium that is basically food for cells; it tells them to grow and also what to do, as we want to produce new cells. So by feeding them this medium we can allow the cells to become neurons, cardiac cells, liver cells, and so on. We can then model disease in a lab."

D 'Disease in a dish' is also the focus of Dr. Meritxell Huch's team at the Gurdon Institute. They use between 50 and 150 Petri dishes every day to grow mouse liver and human liver cells in order to study how the liver can regenerate itself.
Huch's team is examining the molecular mechanisms by which these cells decide to multiply. She says: "You can divide regeneration into different phases. The cells first have to realize that there is damage and activate the response. Once they activate the response, the cells will proliferate to compensate for the loss of cells owing to the damage. And once they have proliferated, they then have to become functional cells."

E In the MRC Laboratory of Molecular Biology, Dr. Madeline Lancaster and her team grow 'mini-brains' in hundreds of Petri dishes. Here, the dish has been specially treated to stop cells from sticking to it and to encourage them to float freely.

Dr. Lancaster explains that they want the cells to develop in three, rather than two, dimensions as that's the way our brains are. "If you can grow neurons on a dish in two dimensions, you can see individual neurons and see what they do, but you won't be able to understand the architecture of those cells-their positioning relative to one another." She says that this new method gives you a structure that looks a lot more like that of an actual developing brain.

F The aim of this research is to look at exactly how neurons are made and how that differs in humans compared with other species. One day, says Lancaster, this work could translate into understanding far more about Alzheimer's disease, Parkinson's, and schizophrenia. So, in a world of cutting-edge and highly complex technology, Petri dishes, in their relative simplicity, remain a vital weapon in the fight against the world's most difficult diseases. And they also enable a hands-on approach that she finds satisfying.

"It's a bit like gardening," she says. "You're taking care of this thing. You keep an eye on it and you check it every day. You change the media this day or that day to help it grow better. It's rewarding to see something grow before your eyes. There's something about the interplay between new, next-generation, and classic technologies. They give you capabilities that were just not possible before."

Questions 14-18

Reading Passage 2 has six paragraphs, **A-F.**

Which paragraph contains the following information?

*Write the correct letter, **A-F,** in boxes 14-18 on your answer sheet.*

14 A description of an experiment involving both human and non-human cells of a specific type.

15 Possibilities for improved research into various serious medical conditions.

16 Contrasting views of the importance of the Petri dish.

17 A change remarked on by one scientist in the material used for the Petri dish.

18 A claim that the Petri dish enables a scientist to monitor the progress of an experiment on a regular basis.

Questions 19-23

Look at the following statements (Questions 19-23) and the list of people below.

Match each statement with the correct person, ***A, B,*** **C,** *or* ***D.***

Write the correct letter, ***A, B,*** **C,** *or* ***D.,*** *in boxes 19-23 on your answer sheet.*

19 To deal with injury, cells must go through a series of activities in a particular order.

20 One technological development formed the basis of all modern scientific research.

21 A modification to the Petri dish allows experiments to provide more accurate information.

22 Petri dishes allow observation of medical conditions that are normally impossible to observe.

23 Visual evidence is a very important requirement for the provision of reliable information.

List of People	
A	Alan Macfarlane
B	Professor Ludovic Vallier
C	Dr. Meritxell Huch
D	Dr. Madeline Lancaster

Questions 24-26

Complete the summary below.

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

Write your answers in boxes 24-26 on your answer sheet.

Research in the MRC Lab of Molecular Biology

A team led by Dr. Madeline Lancaster is using special Petri dishes which prevent brain cells from **24** ..... to them. The aim is to allow the neurons to grow in three **25** ..... This results in a **26** ..... that resembles a developing brain. The technology could help scientists study how neuron production varies in different species, leading to possibilities for increased medical knowledge.

READING PASSAGE 3

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

The New Zealand writer Maurice Gee

Maurice Gee was born in Whakatane, a popular coastal town in New Zealand. However, he spent his childhood in the country town of Henderson and it is only the latter that plays a major role in his fiction. Of special significance is Henderson Creek - a small stream - where, Gee said, "I seem to have spent half my boyhood." There, he says, he saw dead animals for the first time, which made a deep impression on him. "I'd run home from the creek to the safety and security of the kitchen," he once said. Gee claimed that the two places were of equal significance: "one the place of safety and affection, the other the place of adventure, danger, excitement."

Gee's father was a carpenter who happily allowed Maurice and his brothers free access to tools and materials for making boats in which to explore the creek. His mother's tales of family history were fundamental to Gee's emerging interest in narrative, providing a sense of social history that he would later use in his writing. His memories of primary school in Henderson are intense and detailed. Furthermore, he seems able to transfer their atmosphere to other schools. There can be few factual accounts of a primary school as vivid as Gee's Nelson Central School (1978), which was a major contribution to the history of schooling and one based on extensive oral research.

For two years he was a schoolteacher in the town of Paeroa, but he moved on feeling disillusioned with the profession. After three years' casual work in various parts ofNew Zealand, he spent 1961 teaching and writing in England. Ever since university he had been writing. The publication of two stories in the British collection New Authors - Short Story I (1961) created a wider audience for this new voice.

A year later The Big Season, Gee's first published novel, was greeted enthusiastically. The poet Louis Johnson wrote that it challenged the common idea that most New Zealand novels showed the country's way of life as dull. The New Zealand Herald newspaper found it "not always pleasant, but certainly forceful and sincere." The novel celebrates joy in the game of rugby, New Zealand's national sport and passion. It was unusual in those days for writers to express interest in this topic. The central character, Rob Andrews, tries hard on the rugby field but is distracted by his personal romantic interests. He seems to have betrayed the rugby world, but he has not betrayed himself: for all his confusion he is discovering his own potential. It's possible to say that the author is doing the same thing, because patterns and themes that will shape his subsequent books are seen here for the first time.

Gee's third novel was the mystery story In My Father's Den (1972). Despite a rather exaggerated and emotional ending, Gee seems to be more self-assured as an author and in more control of his writing than previously. It was followed by the collection of short stories A Glorious Morning, Comrade (1975), though many of these stories had been written.

Before the novels and could be viewed as apprentice work. In Games of Choice (1976) it is clear that Gee's writing skills are developing quickly. For example, he was able to create a genuine sense of tension and fear. And he really built on this skill and took it to its highest level in his masterpiece Plumb (1978), which provides an image of life in New Zealand over three generations. Local critical response has been enthusiastic and ongoing.

Clearly at the height of his powers, Gee combined work on Plumb with his first work of children's fiction. Under the Mountain (1979) is an Auckland tale stimulated by the volcanoes that dot the cityscape. Strange creatures are planning to make the world their own and only Rachel and Theo can save the local population. The battle between good and evil, a beautiful natural world and a dreary one, is the common theme of the books he wrote at this time.

Going West (1993), which was met with critical acclaim, is significant because it explores how writers create their work. In the novel, the main character, Rex Petley, writes poetry which has a creek as a repeating image. Gee has said that he will never write his own autobiography, because he cannot betray the people who would appear in it, but he frequently includes his personal experience in his work, such as his knowledge of Henderson Creek. Grounded in reality, but adding images from his imagination, Gee thus shapes and emiches his fictional world.

Each of Gee's novels tells us about New Zealand life, and human life in general. Each is full of characters with a variety of intense and unique personalities together with rich images of the natural world. Yet there is always an awareness of danger: one false move and we lose everything. The reviewer, Trevor James, points out the frequency of such words as "abyss," "hole," and "missing," in Gee's writing, which he believes reflects the common desire in New Zealand society not to stand out from the crowd. Rachel Barrowman's biography Maurice Gee: Life and Work was released in 2015. She delves into subjects surrounding Gee that were previously untouched by other biographers. Gee confesses that some of Barrowman's conclusions astonished him and made him rethink what he thought he knew.

Questions 27-33

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27-33 on your 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*

27 The town of Whakatane is frequently the setting for Gee's stories.

28 For Gee, the kitchen was as important as Henderson Creek.

29 Gee was correct to avoid basing any of his characters on his father.

30 Gee's mother had a major influence on his development as a storyteller.

31 Gee's Nelson Central School was less popular with readers than his imagined stories.

32 Gee enjoyed the time he spent working in education in Paeroa.

33 Louis Johnson thought that Gee had written a different type of New Zealand novel.

Questions 30-36

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

Write the correct letter in boxes 30-36 on your answer sheet.

34 The writer concludes that The Big Season

A enables Gee to experiment with ideas he uses again later.
B develops literary ideas that were popular at the time.
C describes events that Gee himself experienced.
D stresses the importance of team loyalty in sport.

35 The writer suggests that In My Father's Den

A finishes with an inconclusive climax.
B provided useful practice for A Glorious Morning, Comrade.
C demonstrates a new confidence in Gee's writing.
D took less time to write than A Glorious Morning, Comrade.

36 According to the writer, Games of Choice

A dealt with different issues to Plumb.
B was an important influence on the creation of Plumb.
C describes a family of grandparents, parents, and children.
D was shocking in its presentation of aggression.

Questions 37-40

Complete each sentence with the correct ending, ***A-H,*** *below.*

Write the correct letter, ***A-H,*** *in boxes 37-40 on your answer sheet.*

37 Gee's father encouraged him to take an interest in

38 The novel Plumb continues to be praised by

39 Gee once refused to write an autobiography to protect

40 Trevor James refers to certain words to illustrate

A	the culture in which Gee set his work.
B	those who shared his life.
C	facts that are familiar to most readers.
D	the development of practical skills.
E	colorful vocabulary and complex language.
F	topics other writers did not discuss.
G	reviewers in his own country.
H	characters with unusual problems.

TEST 3

READING PASSAGE 1

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

Historical Impact of the California Gold Rush

The California Gold Rush of 1849-1855 radically transformed California and the USA. It prompted one of the largest migrations in US history, with hundreds of thousands of migrants across the USA and the globe traveling to California to find gold in the foothills of the Sierra Nevada mountains. This led to the establishment of boomtowns, rapid economic growth and prosperity, as well as the improvement of transport links. The significant increase in population and infrastructure allowed California to qualify for statehood in 1850, only a few years after the USA bought the territory from Mexico as part of the Treaty of Guadalupe Hidalgo.

For all its significance, the onset of the Gold Rush originated from a seemingly insignificant event. In January 1848, James Marshall, a carpenter, was building a sawmill for John Sutter at Sutter's Fort, a trade and agricultural colony, when he spotted something shiny in the American River. Not sure of what he had found, he collected the apparent gold flecks and ran some rudimentary tests on them-including biting them and hitting them with a hammer. When their appearance did not change, Marshall realized they were genuine gold and quickly notified John Sutter. Sensing that the discovery would negatively impact his business and bring a large number of people to his land, Sutter told his employees to keep the gold a secret. However, news of the discovery quickly got out and spread across the region. Soon, gold seekers arrived at Sutter's Fort, and just as Sutter had feared, his employees all left to look for gold.

Within a few months, news of the gold discovery expanded beyond the region, with the Baltimore Sun becoming the first US newspaper to report on it in late summer. In the autumn, the New York Herald ran a subsequent story on the gold discovery and by December, President Polk announced to Congress that significant amounts of gold were being discovered in California. The year 1849 prompted a massive migration to California from many parts of the USA as well as places as far away as China, Chile, and France. The migrants, dubbed the "forty-niners" for the year of their trip, flocked to cities such as San Francisco and present-day Sacramento, which were experiencing rapid development. The population of San Francisco, for example, exploded from 500 in 1847 to more than 150,000 in 1852.

With the massive influx of migrants, California underwent a radical transformation in a very short amount of time. It changed from a sparsely populated region to a territory with enough people to constitute a state. At the time, the population of California was still predominantly Mexican; however, the arrival of many US migrants quickly reshaped the local demographics. The newcomers often wanted to keep in touch with family around the USA and pushed for the development of new communication and transportation links. So the famed Pony Express was created to send mail and parcels from California to the Midwest within a two-week period using ponies, while a mail delivery service, the California Star Express, connected California with Missouri.

Although the Gold Rush allowed some of the early miners to become rich, it was the ensuing economic development that sprang up around gold mining that would result in the greatest profits; the merchants who aimed to satisfy the needs of gold prospectors would ultimately become very wealthy. Not only did the Gold Rush lead to an explosion in the manufacturing of mining machinery and equipment for hydraulic operations, it also saw more of the leather goods and clothes that miners required being produced.

The rapid development of agriculture-thanks to heightened demand and the availability of more sophisticated tools-was another major outcome of the Gold Rush. In fact, many who did not succeed in mining turned to California's "green gold," taking full advantage of the territory's favorable climate to produce massive amounts of fruits, vegetables, and grains to feed the expanding mining communities.

The fervor surrounding the Gold Rush led to a revolution in transportation. At the time, California was relatively isolated, but improvements were made to the road network and the number of steamships being constructed increased. San Francisco, which experienced the largest economic boom at the time, saw its rapid modernization and economic development rewarded when it was chosen as the site for the western terminus for the first transcontinental railway, linking the east coast of the USA with California.

The Gold Rush was not beneficial to all, however. It led to increased violence against Native Americans, while immigrants, who had come to California in the hope of making their fortunes, often experienced intense discrimination. Some Americans were convinced that immigrants were taking revenue and employment opportunities away from Americans and argued for restrictions on immigration and a tax on all foreign miners working in California. The Gold Rush also had a severe environmental impact. Rivers became clogged with sediment; forests were cut down; biodiversity was compromised, and soil was polluted with chemicals from the mining process. Despite these drawbacks, the Gold Rush had a lasting positive impact. It propelled significant industrial and agricultural development and helped shape California's future by turning it into an economic powerhouse.

Questions 1-7

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-7 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*

1 Few other migrations in the USA have been equal in size to that of the California Gold Rush.

2 The population growth caused by the Gold Rush was a key factor in California becoming a state.

3 It took a long time for the USA and Mexico to agree on a figure for the purchase of California.

4 When gold was discovered, John Sutter was confident his staff would continue working for him.

5 The New York Herald article gave details about the areas of California where gold had been found.

6 The Pony Express was in operation in California before the Gold Rush.

7 A large number of the people who failed to find gold became farmers.

Questions 8-13

Complete the notes below.

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

Write your answers in boxes 8-13 on your answer sheet.

The California Gold Rush

The first discovery of gold

- James Marshall was working on the construction of a **8.....** when he found flecks of gold.
- Marshall bit on the gold flecks and used a **9** ..... to check they were real.
- John Sutter wanted the discovery to be a **10** .....
- The news soon spread.

1849

- Many people went to California in search of gold.
- The population of California grew rapidly.

The Impact of the Gold Rush

- The largest **11** .....were achieved by machine manufacturers and businesses supplying miners with items of clothing and products made from **12** .....
- The people supplying miners with food benefited from the area's **13** .....

READING PASSAGE 2

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

Questions 14-19

Reading Passage 3 has six paragraphs, **A-F.**

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

Write the correct number, ***i-x,*** *in boxes 14-19 on your answer sheet.*

List of Headings	
	Comparing two planets
ii	A surprisingly small moon
iii	A longstanding puzzle
iv	Saturn's fascinating moon
v	The importance of Titan's gravity
vi	Expectations of possible solutions
vii	The problems for life on Titan
viii	An advantage of the low temperatures

14 Paragraph **A**

15 Paragraph **B**

16 Paragraph **C**

17 Paragraph **D**

18 Paragraph **E**

19 Paragraph **F**

Saturn Spectacular

Solving the puzzles of the ringed planet

A In 1610 the Italian astronomer Galileo pointed his crude telescope at the planet Saturn and was dumbfounded by what he saw: "The planet Saturn is not alone, but is composed of three, which almost touch each other, and never move or change with respect to one another." Even more surprising, the two bulging planets on either side of the main planet had disappeared when he looked again a few months later. Eventually, the frustrated Galileo decided never to look at Saturn again. Now, of course, we have much better telescopes, and we know that Galileo was looking at the planet's unique set of wide, thin rings. Seen broadside, they resembled companion planets through Galileo's weak lenses; later, seen edge-on, they shrank to nothingness. But nearly 500 years after Galileo's observations, Saturn still teases astronomers. Saturn's magnificent rings, for example, consist of trillions of pieces of ice, some no bigger than a speck of dust. The ring particles are so small that they could be expected to scatter and fall into the planet, yet they are still there. Scientists are unsure about the origin of the rings, their exact chemical composition, and why they behave in the way that they do.

B However, as spectacular as Saturn's rings are, the fuzzy orange ball of Saturn's giant moon Titan is even more interesting. Although it is larger than the planet Mercury, Titan probably resembles other large moons in the Solar System. It is a rock covered with ice and dirt. However, it has something no other moon has: a substantial atmosphere whose pressure is 50% greater than Earth's. Even more intriguing, Titan's atmosphere consists mainly of nitrogen (the primary component of our own air), mixed with carbon-based compounds. Cloaked in this atmosphere, Titan's surface may resemble the surface chemistry of the early Earth, but astronomers cannot see through the moon's maddeningly opaque orange fog.

C All sorts of Earth-like chemical interactions could happen on Titan. Scientists hesitate to speak of the possibility of life when they speak of Titan, but it is a distant possibility. Living on Titan would be no walk in the park. From the vantage point of the Saturn system, the sun is a rather dim bulb. Titan is therefore a very cold place. Surface temperatures average about -300 degrees Fahrenheit. At those temperatures, water is a rock and would flow only from volcanoes. Although Titan is half water, there is nowhere to get a drink. In addition, there is no oxygen in Titan's atmosphere-it is all locked up in water ice. The only hope for life as we know it, and it is an exceedingly slim one, is that water mixed with ammonia may get warm enough deep below the surface to liquefy. If so, life could possibly eke out an underground living much like the hardy microbes that surround Earth's hydrothermal vents (deep cracks on the seabed through which boiling water and hot gases escape).

D Titan could contain information on the prebiotic chemistry that led to life on Earth and perhaps elsewhere in the Universe. The bitterly cold temperatures that make Titan so forbidding for life in some ways make it more intriguing. Titan's chilly climate keeps things in a state of preservation, so that it can hang on to most of the substances that it has acquired during its 4.5 billion years in the Solar System. The organic reactions that may have established the starting conditions for life on the early Earth are long gone, erased by our planet's high-speed chemical and geologic evolution. On Titan, similar reactions may still be sitting in deep storage.

E Measured against its showy rings and haze-obscured moon, Saturn itself seems dowmight ordinary. Yet the 75,000-mile-wide planet-the second largest in the Solar System-holds some serious interest of its own. Like the planet Jupiter, Saturn is a gas giant: a relatively small ball of rock surrounded by a vast envelope of helium, hydrogen, and various hydrogen compounds. Saturn is only half as dense as Jupiter, even less dense than water. It releases less heat than Jupiter, but, given its smaller size, scientists are not sure why it radiates any heat at all. Saturn's storms are, surprisingly, more powerful than Jupiter's, and its jet streams are much faster. The planet looks blander, however, because a thick haze of ammonia crystals obscures the colorful banding seen so easily on Jupiter.

F Scientists hope that studying these differences will reveal how giant planets form, how weather systems work under different conditions, and what planets around other stars might be like. A recent spacecraft that investigated Saturn and Titan (the Cassini-Huygens probe) has produced results that Galileo would have dearly appreciated back in 1610: photographs that finally show Saturn with crystalline clarity. After all the data from Cassini-Huygens has been interpreted, even though that might take 40 years, all questions on these topics may have been answered once and for all.

Questions 23-26

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

Write the correct letter in boxes 23-26 on your answer sheet.

20 Galileo's observations of Saturn were influenced by

A the frequency of his attempts.
B the quality of his equipment.
C what he expected to see.
D observations made by others.

21 The writer suggests that scientists are interested in Titan because

A it is larger than Earth, although less dense.
B its atmosphere may contain oxygen.
C its surface is invisible because of a thick, colored fog.
D its atmosphere has similar elements to Earth's atmosphere.

22 The writer uses the phrase "no walk in the park" because life forms on Titan would

A probably exist in water.
B be less developed than life forms on Earth.
C face considerable difficulties.
D be unable to move around.

23 How does the writer compare Saturn and Jupiter?

A Saturn gives off more heat than Jupiter.
B Jupiter is less dense than Saturn.
C Saturn is less colorful than Jupiter.
D Jupiter has more violent storms than Saturn.

Questions 24-26

Complete the summary below.

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

Write your answers in boxes 20-23 on your answer sheet.

The Cassini-Huygens Probe

The Cassini-Huygens probe has produced clearer **24 .....** of Saturn. However, it may take up to **25 .....** before all the data from the probe has been analysed. It is expected that this data will assist in the investigation of the way **26** ..... function, and the nature of other planets and stars.

READING PASSAGE 3

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

Book Review:

False Prophets: The Gurus Who Created Modern Management and Why Their Ideas Are Bad for Business Today

by James Hoopes

James Hoopes is a historian who has written numerous books on business management. One of his best-known books is False Prophets, which covers the phenomenon of 'business management gurus' in the USA that started towards the end of the 19th century and has continued to the present. First and foremost, this book is a series of biographical sketches of the key business management thinkers, from Frederick Taylor (the 19th-century industrialist who created scientific management theory) to Peter Drucker (the academic accredited with founding modern management in the 1950s). However, the book also reads as a series of reviews or critiques of the various business management theories advanced by those gurus. This is where Hoopes' credibility wanes; he's prone to unsupported generalizations and seems to have his own agenda, ultimately promoting a theory of the proper role of management that is both ill-defined and also outside the scope of his biographical treatments.

Hoopes traces the division of management theory into two broad schools: top-down, which emphasizes the power of the manager and concentrates on convincing (or forcing) workers to do what they don't want to do, and bottom-up, in which managers believe that the workers are the ones with the control and the best a manager can do is persuade them. Frederick Taylor, who pioneered a top-down style in the 1870s, is heavily criticized for embodying all the worst qualities of the bullying boss in his quest to improve efficiency.

Many of the management thinkers in the early part of the 20th century were also looking at how to improve efficiency. The husband and wife team Frank and Lillian Gilbreth and Henry Gantt (who advocated bonus pay, rather than threats, as a motivational tool) either tried to soften Taylor's tactics or disdained them altogether, while trying to combine efficient processes with consideration for the workers. Then there's Mary Parker Follett, the influential political theorist and philosopher. Along with Lillian Gilbreth, Follett represented a pioneering female voice in American business. Maybe more than any other business management guru, she added new, substantive theories, which are still reflected in management practice today.

Looking across all the biographical sketches, we see that many of the gurus have a similar background, which allowed them to promote their management theories. So Taylor and Frank Gilbreth each had inventions that helped give them the success and notoriety that in turn allowed them to advocate what were separate management theories (often, not

surprisingly, theories that they in tum used to promote adoption of their inventions, with all the associated personal gain that entailed). Taylor and Follett undoubtedly leveraged their upper-class upbringings to ingratiate themselves with business owners.

There is limited coverage of the more modem management theories. The history of W. Edwards Deming's public service for the U.S. government in the 1940s before he became A business guru is welcome, because many books about Deming omit or minimize that phase of his life. Hoopes sometimes gushes over Peter Drucker, who, along with Follett, is clearly one of his favorites of the gurus. What seems lacking in the biographical sketches, though, are detailed treatments of the most recent theories put forward by significant gurus such as Tom Peters and Jim Collins.

Hoopes, refreshingly, does not try to hide his opinions about these people and pretend to be neutral: his biases are evident from the start. Hoopes labels Taylor "the demon," but he does not automatically give support to more humane management thinkers, either. Thus Elton Mayo, whose psychological approach to management inspired much of the bottom-up theories in the mid-20th century, is even more heavily criticized than Taylor. The Mayo chapter is one of the best, in part because Mayo's disciples gathered so much data that Hoopes can pick it apart and demonstrate with specificity how Mayo proffered theories that contradicted his own research findings.

Hoopes' biographical approach-each guru gets his or her own chapter-has its pros and cons. On the one hand, the biographical details sometimes get in the way of the analysis: it remains an open question whether Hoopes dislikes Taylor and favors Mary Parker Follett for their different approaches to management theory, or because Taylor was a bully and Follett a nice person. But Hoopes' prose is clear and remarkably free of academic pretensions; he presents complicated ideas simply, but without condescension.

So, let us tum to the more problematic part of Hoopes' book: the critiques of the management gurus' theories. It might help to break down the key theses that Hoopes advances, to better pinpoint where he goes wrong. Bottom-up management, he argues, is even worse than top-down; rather than limiting the potential abuses of managerial power, it cloaks such abuses in a false morality. He also argues that Americans believe in socio-political democracy but that most workplaces lack such democracy. He claims that top-down workplace hierarchies produce better results than democratic organization structures and concludes that people need to accept that top-down management power is necessary to some degree, though its importance is overstated by the management gurus.

Basically, this book sets out these theories, but it never gets around to proving (or disproving) most of them. It would be possible to make evidence-based analyses of each of these points but Hoopes does not even attempt to do so. Instead, he merely draws his own personal conclusions based on the anecdotes and observations contained in his biographical sketches.

Questions 27-30

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

Write the correct letter in boxes 27-30 on your answer sheet.

27 What is the reviewer doing in the first paragraph?

A defining terms used in the book
B outlining the approach taken by Hoopes
C comparing different management theories
D summarising Hoopes' key ideas

28 The reviewer uses the phrase 'credibility wanes' in the first paragraph to suggest that Hoopes

A over-simplifies management theories.
B is relying on evidence which is out of date.
C is not qualified to discuss management theory.
D does not provide adequate evidence to validate his arguments.

29 How did the Gilbreths and Henry Gantt differ from Frederick Taylor?

A They placed less emphasis on motivation.
B They were less convinced by the need for worker productivity.
C They had a more sympathetic approach to the workers.
D They defined efficiency in a different way.

30 The reviewer claims that Mary Parker Follett

A was the best-known female management theorist of her generation.
B put forward a greater number of theories than her male counterparts.
C made a significant contribution to the development of management theory.
D was responsible for promoting the rights of women in the workplace.

Questions 31-35

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 21-35 on your 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*

31 Hoopes should have made an effort to present less biased opinions of the gurus described.

32 Hoopes devotes less attention to the gurus he dislikes, such as Taylor.

33 Hoopes exposes the limitations of Mayo's arguments.

34 Hoopes' view of Mayo is in line with that of other management commentators.

35 It's unclear why Hoopes prefers Follett to Taylor.

Questions 35-40

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

Write the correct letter, ***A-I,*** *in boxes 35-40 on your answer sheet.*

Top-down and bottom-up management theory

Hoopes is critical of both top-down and bottom-up management theories. He believes that while the bottom-up approach claims to be more humane and principled, it is actually just as **36** ..... as top-down management. In his view, very few working environments are genuinely **37 .....** , and while top-down systems are ultimately more **38** ..... in terms of results, top-down management power is not as **39** ..... as the gurus maintain. Unfortunately, the information which Hoopes presents to support these views is entirely **40 .....** and he fails to offer any evidence-based analysis.

A	misleading	**B**	abusive	**C**	significant
D	successful	**E**	democratic	**F**	impractical
G	detailed	**H**	positive		subjective

TEST 4

READING PASSAGE 1

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

Sleeping on the Job

Can curling up under your desk, or in a purpose-built sleep pod, for a 10-minute sleep improve your performance at work?

There are times, typically in the afternoon, when many office workers experience a feeling of tiredness and may even drift off to sleep in front of their computers. Many workplaces consider artificial stimulation, provided by coffee or a chocolate bar, more acceptable than a short sleep when attempting to combat this daytime sleepiness. However, there is considerable evidence that trying to work during a spell of daytime drowsiness can be costly. "Workplace accidents and errors peak at the same time that our circadian rhythms (sleep-wake cycle) cause a drop in alertness," says Dr. Gerard Kennedy, a sleep specialist based in Melbourne, Australia. "That's between about two and five pm," he says. These biologically based downturns in alertness are natural and occur even if you've had a good night's sleep. Most workers simply continue during the after-lunch decline or reach for the nearest energiser: a strong coffee, a can of high caffeine soft drink, a cigarette or some secretly stored chocolate in the top drawer.

However, a growing number of workers are taking very short sleeps, or "power naps" instead. "Research shows that a nap can improve your mood and productivity, alleviate tiredness, increase alertness and reduce errors at work," says Kennedy. "A nap as brief as 10 minutes will produce these results." It seems that the length of the nap is significant. Professor Leon Lack, from the School of Psychology at Adelaide's Flinders University, has compared 5-, 10-, 20- and 30-minute naps; he measured sleepiness, reaction time and cognitive performance before and immediately after a nap and again during the next three hours. "The 5-minute nap delivered very few benefits," says Lack. "The 20- and 30-minute naps produced improvements but the subjects took at least half an hour to wake up completely." Lack explains that the longer the sleep, the deeper it is, which can lead to a feeling called sleep inertia. "The 10-minute nap delivered immediate benefits that lasted for two to three hours, including a small but significant increase in alertness."

But how can just 10 minutes of sleep be ensured, when not in lab conditions? Most people take 5 to 10 minutes to fall asleep so they need to lie down for a total of 20 minutes to allow for 10 to 15 minutes of sleep. First, we need to change our attitudes to rest.

Australians work an average of 1811 hours each year, according to 2005 figures from the Organisation for Economic Co-operation and Development (OECD). This is the fifth highest figure from 20 nations surveyed. In addition, Dr. Kennedy stated that 9% of 20- to 30-year-olds and 16% of 30- to 50-year-olds are reporting sleeping problems. But in Australia, a culture where doing anything at all is considered better than doing nothing, lying down for a while-in the face of deadlines and urgent requests-is regarded as unacceptable by most companies. Some companies, however, are listening to experts who advise on ways to help employees take quick naps.

Both low- and high-tech napping methods are available for those who want to try. Low-tech napping can include the use of a basic relaxation room, or, in the case of the strategic public relations firm Wordplay, a 'CushoBed'. This combination of a very large cushion and a couch provides Wordplay's staff with a comfortable place to curl up for a short sleep. Then there's the high-tech 'TechnoSnooze,' an up-market sleeping pod that arrived in Australia from New York earlier this year, and which has been leased out to several companies on trial, including advertising agencies State Right Australia and Instant Publicity. Looking like a space-age reclining armchair, the TechnoSnooze has a rounded hood that lowers over the head and headphones that play relaxation music. The pod inclines forward to allow for easy entry, then reclines so that the user's feet are slightly elevated. This promotes blood circulation and reduces pressure on the lower back. After 20 minutes, the pod vibrates gently to wake you.

Harry Baker, the managing director of another large company, doesn't need such a high-tech approach. He makes good use of his media company's meditation room, which includes quiet music, candles, and incense. He encourages his staff to use it too. 'Napping is a good idea,' says Baker. 'It's like a traffic signal that slows down your brain.'

However, employees need strong workplace support from their bosses and co-workers to feel they have permission for a mini-sleep as a regular part of their working day. 'Workplace napping made a huge amount of sense to me very quickly, and I assumed the idea would sell itself, but that wasn't always the case,' says Kevin Hopkins from State Right Australia, which trialled pod-style napping for a month. 'For napping to be beneficial, you need to ensure good briefing of the managers so they are clear about the positive outcomes and are equipped to endorse, role-model, and support staff, since staff will usually take their lead from managers.' He says staff response was positive: 43% of those who booked themselves in for a pod nap said they felt 'good' and 21% 'excellent' afterwards.

Questions 1-4

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-4 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*

1 The majority of mistakes in the workplace happen in the afternoon.

2 A short nap of five minutes is enough to reduce errors at work.

3 People who work long hours are more likely to have sleeping problems.

4 Doing nothing is acceptable in Australian culture.

Questions 5-1 O

Complete the table below.

*Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.*

Write your answers in boxes 5-10 on your answer sheet.

Where nap takes place	Used by	Description
CushoBed	Wordplay	Blends features of a giant **5.....**and a sofa.
TechnoSnooze	State Right Australia Instant Publicity	An ultra-modern lounger with a **6.....**at the top. Lessens stress on the **7** ..... Allows you to sleep for a maximum of **8** .....
9	Harry Baker	A sweet-smelling room with subtle lighting and background **10** .....

Questions 11-13

Answer the questions below.

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

Write your answers in boxes 11-13 on your answer sheet.

11 To what does Harry Baker compare napping?

12 Apart from their superiors, who do workers need consent from if they are to feel comfortable taking a nap at work?

13 What do managers need to understand before they can support their staff in 'sleeping on the job'?

READING PASSAGE 2

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

Reducing the effects of jet lag

A We like to think we have control over our bodies, but the opposite is often true. Such is the case with 'circadian desynchrony', a condition more commonly known as jet lag. Exhaustion, headaches, difficulty concentrating, light-headedness, trouble falling asleep or staying asleep; these are common effects of jet lag. They have the power to ruin a vacation or business trip unless you learn how to trick your own body.

B Experimental psychologist John Caldwell has spent most of his career researching the effects of sleep deprivation and sleep restriction, while also studying countermeasures that sleep-deprived people can use to function better. Much of his research was conducted within the military community. Caldwell explains that while our bodies are able to adjust to about one time zone change per day, jet lag sets in when we cross three or more of them because it creates chaos in circadian rhythms (otherwise known as our body clock). That's a fairly new phenomenon, historically speaking. 'People now can fly from New York to Paris in nine, ten hours, whereas in 1923 you did it on a ship and it took you six days to get over to Europe,' Caldwell says. 'We just haven't evolved to the point where we can rapidly change those rhythms, because it's a relatively recent thing.'

C Because of the problems your body has naturally adapting to time-zone changes, you need to manually adjust your body clock, and that means changing your bedtime to be better matched with the destination to which you're traveling. Ranit Mishori, a professor of family medicine at Georgetown University School of Medicine, travels frequently to Europe, Africa, and the Middle East. To be ready to work when she arrives, she starts adjusting her bedtime two to five days in advance to match the local time at her destination. 'That means going to bed earlier when going east and waking up much earlier,' she says. When she returns to the US, she does the same but in reverse.

John Caldwell creates a timetable that includes meetings, bedtimes, and social activities so that he can easily see what time it is at home and at his destination and plan accordingly. 'A lot of times, when you look at that table, right away you're going to see where you're going to have your biggest problems,' he says. If he's just traveling for a quick business trip and will only be gone a couple of days, he avoids gradual adjustment. Instead, he tries to schedule any meetings at a time when he would be awake and focused back home.

D Circadian rhythms are influenced by natural light. While travel may disrupt those rhythms, you can help get them on track by regulating the amount of light that your

body encounters, says Pradeep Bollu, associate director of the University of Missouri Health Care Sleep Disorders Center. When traveling east, your biological clock will be behind: '... avoiding bright light in the evening can help with advancing our biological clock,' he says. 'Similarly, bright light ... after waking up also will help advance our biological clock to suit the new time zone.' When traveling westward, he adds, the biological clock is ahead of the latest time zone. He suggests gravitating toward bright light in the evening, if possible, and exercising to stay awake later and sleep longer.

E One suggestion that is sometimes made is taking the hormone melatonin, which is a substance that is produced every night by the human body and helps you sleep. 'Taking a very small dose helps to recalibrate its release so that it is in sync with the time zone of your destination,' says Kem Singh, a spine surgeon in Chicago with Midwest Orthopaedics at Rush. Singh says he takes five milligrams of melatonin - which you can buy in pill form in supermarkets and many mainstreet stores in the US - on the plane and then again when he lands.

F Having a glass of wine on the plane may sound tempting, but it could negatively impact your sleep, which could worsen jet lag, says Quay Snyder, president and CEO of Aviation Medicine Advisory Service of Centennial, who advises pilots on staying in top condition while in the air. 'It definitely has a sedating effect as far as getting someone to sleep, but it destroys their rapid eye movement (REM) sleep so their actual mental recovery is reduced,' he says. Instead, he says, be sure and have plenty of water so that you stay hydrated while traveling.

G Bruce Stephen Rashbaum, owner and medical director of Capital Center for Travel and Tropical Medicine in the District of Columbia, regularly advises patients on jet lag. He considers prednisone, which is a powerful prescription medication, to be the most effective tool for jet lag recovery. He instructs patients to take the medication when they land, which is typically early in the morning, and again in the late afternoon and the next day. 'It is this simple ritual that works nearly every time,' he says. So if in doubt, you can always ask your doctor for some assistance.

Everyone responds to jet lag differently. For those who suffer, the first week will be the most challenging, but after that, your body should start to recover.

Questions 14-20

Reading Passage 2 has six paragraphs, **A-G.**

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

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

List of Headings

	Requesting help from professionals
ii	Types of meals and beverages that help
iii	What not to do on a flight
iv	Symptoms of jet lag
v	Altering your sleep schedules
vi	Types of exercise to do
vii	A problem of the modern age
viii	A remedy available from ordinary shops
ix	Timing exposure to sunshine

14 Paragraph **A**

15 Paragraph **B**

16 Paragraph **C**

17 Paragraph **D**

18 Paragraph **E**

19 Paragraph **F**

20 Paragraph **G**

Questions 21-23

Look at the following statements (Questions 21-25) and the list of experts below.

Match each statement with the correct expert, ***A-F.***

Write the correct letter, ***A-F,*** *in boxes* ***21-23*** *on your answer sheet.*

21 Using strong medicine is the most efficient way to get over jet lag.

22 Using natural supplements to reset biological processes can help travelers.

23 Having certain types of drinks lessens the quality of sleep.

List of Experts

A John Caldwell
B Ranit Mishori
C Pradeep Bollu
D Kern Singh
E Quay Snyder
F Bruce Stephen Rashbaum

Questions 24-26

Complete the summary below.

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

Write your answers in boxes 24-26 on your answer sheet.

Why we experience jet lag

John Caldwell has studied sleep issues among **24** ..... personnel. He explains that jet lag is an issue because the human body can only naturally adapt to one change in time zones per day; traveling over more than that causes **25** ..... for our bodies. Unlike when traveling by **26 .....** , flying has resulted in us being able to change many time zones quickly. As this is a fairly new form of travel, the human body hasn't yet evolved to be able to cope with this.

READING PASSAGE 3

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

Research into taming a fox

How to Tame a Fox (and Build a Dog) is written by Lee Alan Dugatkin, an American evolutionary biologist, and Lyudmila Trut, a Russian professor of evolutionary genetics. The book describes the scientific effort to domesticate Siberian silver foxes - a project that Trut has been involved in as lead researcher for more than 50 years. When the project began, its purpose was to shed light on how dogs had gradually evolved from wolves, and silver foxes were chosen because they are the wolf's close genetic cousins.

There is much material to cover in the book, but the authors condense this without sacrificing any significant details of the project. The introduction reveals the end product of the experiment by describing the behavior of some very tame foxes that willingly interact with humans. This revelation, however, does nothing to lessen the reader's fascination. Indeed, the authors do an excellent job of expressing the joy of discovery of those early years of genetic research.

Interwoven with descriptions of the project and the astonishing changes in the foxes are the personal stories of the people involved, an approach rarely taken in scientific books, but one which works extremely well here. A major figure to appear in the book is geneticist Dmitri Belyaev, who first set up the domestication experiment in 1952, and who invited Trut to join the project in 1959. Trut continues his work today at their research facility in Siberia, where winter temperatures reach -40°C. Her team endures the harsh conditions because they obviously care deeply for the science and the animals they are in charge of.

The evolution of the wolf into a dog has long puzzled scientists. How did wolves first come in contact with humans? Why were some wolves less averse to humans than others? To answer these questions, Belyaev devised an experiment to 'breed the wild out of the animal' on an accelerated timeline.

As lead scientist at the Central Research Laboratory on Fur Breeding Animals in Moscow, Belyaev was less interested in the official line of research and more interested in the impact of domestication on animal genomes. After moving to Siberia, he obtained some foxes from a fox farm for a breeding experiment. He chose less aggressive foxes that did not immediately try to bite their caretakers. At the earliest stage of the experiment, he felt it was necessary to hide his activities from his superiors at the Central Research Laboratory.

Initially, 12 foxes were chosen, and within three breeding seasons the pilot study produced preliminary results. Some pups were not consistently aggressive; sometimes they even appeared indifferent toward people. These results were enough for Belyaev to hire Trut, then

studying animal behavior at Moscow State University. Her job was to select the foxes for breeding and record details of changes. Among the eighth-generation foxes, a couple were calm enough for Trut to pick up. These, along with others that were slightly calmer than the rest, were selected for breeding as part of a larger project.

Repeating the selection for the tamest foxes in each succeeding generation, Trut and Belyaev noticed new behaviors. The first milestone occurred with a fox named Ember. Tail Wagging had never been recorded in foxes in the wild or captivity; it is the behaviour of dogs signalling happiness. One day Ember wagged his tail when Trut approached. He was the only pup of his generation to do so, but this generation was also markedly calmer than any previous one.

By the sixth generation of the larger project, pups displayed new behaviours. They pressed against the front of their crates seeking human contact, licked hands, and whined when people left. Fox pups whine for food from their mothers but had never done so for humans. Nor had they been documented licking hands. The pups exhibiting these behaviours were put in an elite group for breeding. Pups that did not exhibit these behaviours, or only occasionally exhibited a few, were maintained as a control group.

Belyaev and Trut made further observations. Instead of standing straight up, the elite pups' ears flopped over. Their snouts shortened, and some developed curly tails. These traits made them more visually appealing to humans. In short, over the generations, the foxes began to resemble dogs. It was then discovered that domestication creates complex interactions between genes that influence physical traits and genes that influence behaviour. But how did this domestication happen with ancient wolves? Belyaev theorised that naturally calmer wolves approached people in search of pieces of animal meat and bone they had discarded. As these calmer wolves interbred, the animals were no longer aggressive towards humans. This theory makes more sense than older ideas, which proposed that neolithic people stole wolf cubs so they could be trained to assist with practical tasks such as shepherding, guarding and hunting. For Belyaev and Trut, their new theory answered the question of how we got from wolf to dog, but not how we then got to a faithful four-legged family member.

Trut proposed to further chart the domestication of foxes by raising a fox called Pushinka at home. In time, Pushinka began differentiating between Trut and her colleagues, and other people who only seldom called at the house. Pushinka and her pups announced strangers' arrival with a bark no other fox had exhibited. So far 57 generations of foxes have been bred, and researchers have begun recording and decoding the vocalisations they have developed.

Questions 27-31

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27-31 on your 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*

27 Trut could never have imagined that the project would continue for over 50 years.

28 The authors have successfully conveyed all the key facts and important data associated with the research.

29 It is a shame that the outcome of the experiment is revealed in the book's introduction.

30 The authors made a mistake by including personal stories in the book.

31 It is clear that the staff in the Siberian research facility have genuine concern for their foxes.

Questions 32-34

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

Write the correct letter in boxes 32-34 on your answer sheet.

32 What is the writer doing in the fourth paragraph?

A examining Belyaev's approach to proving a theory
B comparing the behavioural traits of wolves to foxes
C giving the background to Belyaev's research project
D challenging traditional views on how species evolved

33 After being assigned a project by the Central Research Laboratory, Belyaev responded by

A resigning and applying for work in another institution.
B keeping secret the work he was actually carrying out.
C choosing subjects that were hostile to people.
D seeking alternative means of funding for his scheme.

34 What are we told about Lyudmila Trut in the sixth paragraph?

A Two of Belyaev's foxes seemed willing to let her handle them.
B She disagreed with Belyaev about the future direction of the project.
C She had worked with foxes before being employed by Belyaev.
D Belyaev had been an influence on her during her degree course.

Questions 35-40

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

Write the correct letter, ***A-I,*** *in boxes 35-40 on your answer sheet.*

Belyaev and Trut's observations and theories

Belyaev and Trut observed that the elite group of foxes started to have a range of **35** ..... in common with dogs. Believing that domestication was responsible for this, Belyaev then proposed a theory about domestication in ancient wolves. Whereas other researchers had suggested early man had taken wolf cubs to turn them into **36** ....., Belyaev thought the wolves had associated human groups with **37** ..... This would explain the initial contact that wolves had with humans, but not how dogs eventually developed as **38** .....

To see how this might have occurred, Trut raised a fox called Pushinka and her pups in her own home. In time, when **39.....** came to Trut's house, Pushinka and the pups could tell the difference between them and those they were more familiar with. Currently, Trut and her team are analysing the **40** ..... produced by the latest generation of foxes.

A	useful workers	**B**	loyal pets	**C**	colour patterns
D	specific breeds	**E**	physical features	**F**	new sounds
G	irregular visitors	**H**	warning signs		food sources

TEST 5

READING PASSAGE 1

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

Native species that become pests

The disastrous consequences of foxes, cane toads and other introduced animals coming to Australia are well known. But problems also occur when Australia's own native species spread from one region to another, moving beyond the areas where they have always lived.

Mud snails were first detected in the Swan River in Perth, Western Australia in 1954, and this was only in the river's lower areas. Since then their numbers have exploded and they now crowd the river bed in densities of up to 400 per square metre. This species is native to Australia but its natural range is more than 3000km away in eastern Australia. Due to the snail's success, the river beds in the Swan River, which were once covered in natural vegetation, are now under threat by increased levels of seaweed. Before the snail arrived, the river had few hard surfaces on which small seaweeds could grow. Now, healthy vegetation is being pulled up by snails and the riverbed is covered by seaweed that is carried in snail shells and is released at the rate of 433 million fragments a day. Furthermore, snail waste is thought to be aggravating the situation by having the effect of a fertiliser on the seaweed.

Species are often moved unintentionally. Mud snails are thought to have travelled on live oysters taken from eastern Australia to the west of the country and stored in the Swan River before use. Northern Queensland frogs regularly travel south inside bunches of bananas. Researchers estimate that more than 6000 of these reach the state of Victoria each year, although the only lasting impact observed so far is a colony of dwarf tree frogs that live in a flooded quarry near Melbourne, Victoria. Similarly, spiders relocate in construction supplies, while lizards move with firewood. It is not just animals that are relocated inadvertently; seeds from the centre of the country often reach the coast aboard cattle trains.

Other animals have extended their ranges by themselves because changes to landscapes have suited them. Waterbirds arrive wherever dams are put in, bats find abandoned mines, and orchard swallowtail butterflies locate citrus trees that are planted near farm homes. Many of the birds now found in Australia's capital cities did not live in large cities in the past. Writing of the crested pigeon in 1865, naturalist John Gould regretted that 'being exclusively an inhabitant of the plains of the interior, it can never become an object of general observation'.

Today, crested pigeons can be found in abundance in the middle of the coastal city of Sydney.

Some species have been moved deliberately. The kookaburra is a famous Australian bird, which is found in many parts of the continent. Long ago these birds were taken well beyond the areas where they had always lived, for the purpose of exterminating snakes. Following concern that the platypus, an unusual Australian water mammal, was declining in number on the mainland, this species was introduced to a national park on an island off the south coast in the 1920s. Vast numbers of plants have also been cultivated in areas where they did not originally grow.

There is no database of this movement and tracing species' existence and migration patterns can be difficult. For example, it is widely known that the venomous redback spider, common throughout Australia, lives close to humans in sheds and under outdoor furniture but is seldom seen in forests. Spider authority, Robert Raven, has wondered why this species went undiscovered until 1870, by which time 200 other Australian spiders had been named. Redbacks were hardly mentioned by early travellers and naturalists, and rarely feature in Aboriginal legends and languages. This led Raven to suspect that redbacks had been introduced to Australia from abroad. However, a mention of black-and-red spiders in South Australia was recently found in an 1850 book, and the thinking today is that redbacks are actually native to Australia's south-west, and were later introduced eastwards.

Species on the move within Australia present an environmental challenge. Although many animals and plants are thought of as native to Australia, Australia is a continent and one of the world's largest countries. If it were divided, like Europe, into smaller countries, those snails and kookaburras in Perth would count as foreign. 'Foreign' may not be the correct word, but the mud snails in Perth qualify as an introduced species and feral pest. The colourful rainbow lorikeets around Perth, descended from cage birds that managed to win their freedom, have been declared a state pest for the damage they do to stone fruits and other crops.

Birds and bats that travel under their own wings are not usually thought of as introduced, although those that cross the sea are sometimes called 'self-introduced'. Some of these movements take place without any cause for concern. No-one speaks badly about crested pigeons and butterflies thriving in new locations. Everyone likes the white terns, birds which colonised Lord Howe Island after finding that its pine trees offer good nesting sites for their chicks. But many arrivals do acquire a bad name. Eradication campaigns are organised in Western Australia whenever Queensland fruit flies turn up, as they did in 1989 and 2016, probably via smuggled fruit; they are also a problem in other states. Redbacks in eastern Australia aren't welcome, nor are the mud snails in the Swan River.

Questions 1-7

Complete the notes below.

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

Write your answers in boxes 1-7 on your answer sheet.

Native species on the move

Mud snails in Western Australia

- Mud snails: an Australian native species originally from the **1** ..... part of the country
- Snails contribute to the problem of seaweed replacing healthy vegetation
- Seaweed comes out of the **2.....**of snails
- Snail waste acts as a **3.....**and this makes the seaweed problem worse

Examples of unintentional movement of species

- Queensland frogs are transported south along with bananas
- Spiders are often carried in materials for **4** .....
- Construction are carried when transporting livestock to the coast

Examples of species moving when the landscape changes

- When **5.....** are built, waterbirds move to the area
- Planting citrus trees attracted **6.....**to country areas

Examples of deliberate movement of species

- In order to kill snakes, kookaburras were moved to different areas
- Platypuses were taken from the **7** ..... when their numbers dropped there

Questions 8-13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 8-13 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*

8 Redback spiders avoid places where there are people.

9 According to current theories, redback spiders originally came to Australia from another country.

10 In Perth, the ancestors of the rainbow lorikeets were originally domesticated animals.

11 Bats are a threat to some native Australian bird species.

12 White terns moved to Lord Howe Island to raise their young.

13 There were more fruit flies in Western Australia than in Queensland in 1989.

READING PASSAGE 2

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

The growing industry of background music

The background music industry has become more sophisticated and more influential than many people realise

A Music can be surprisingly powerful, even when it is played in the background and is barely noticeable. Over recent decades, creating background music has become a booming industry. Researchers have found that music played in commercial settings can have an impact on how much time we think has passed while waiting in a queue, how engaged customers are with sales staff, and even how sweet or bitter food tastes.

B Rob Wood is the founder of Music Concierge in the UK, a company that chooses background music for businesses. Some clients hire Wood because they want to influence behaviour, others seek to create a certain atmosphere, culture or ambience. The core of a music consultant's work is creating distinct, cohesive musical identities for brands. In 2018, Wood worked on music for a new hotel. His brief was to produce distinct playlists for separate areas: the lobby, the restaurant and the gym. The hotel manager explained every detail: the build materials, the history, and a prediction of the average restaurant bill. Much of Wood's job involves taking abstract suggestions and turning them into music. A large amount of intuition is also required. It is a complex process and part of his job is comprehending what businesses really want, which can be very demanding. It is sometimes hard to know whether he should deliver something that will precisely match expectations or pleasantly surprise them.

C In the 1920s, George Owen Squier, a former US army officer, developed a new way to transmit audio through wires. His idea led to the creation of Wired Music (renamed Muzak), which enabled businesses to play music throughout offices and commercial premises. In its early days, Muzak sold itself on the basis that its music would enhance job performance. Its programme for offices and factories played classical recordings in 15-minute sequences, alternated with silence. Each time the music sequence resumed, it rose in intensity. Muzak set the template for background music that would persist for decades. In terms of distribution, Muzak used wires to convey its music; the company sent a bulky cartridge to its customers through the post and it was then played through a specially designed device. In the 1970s, the introduction of affordable multi-deck tape players suddenly made it easy for businesses to choose and play

music continuously. The CD was the first digital format for music and, by the late 1990s, it had enabled background music companies to develop digital libraries where tracks could be organised according to preference. But that was just a taste of the new world of infinite choice that was to come.

D Despite technological advances, it's the influence that background music has on customer behaviour which is driving its growth. Psychologists believe that music influences consumers in two main ways. The first is physical; numerous studies have confirmed that we often subconsciously match what we are doing to what we hear. For instance, one study found that diners chewed faster when higher-tempo music was played. The second approach focuses on the associations that music can trigger. Another study revealed that diners in a cafeteria were willing to part with more money when classical music was played. Played in the background than when there was none at all. One explanation, researchers suggested, was that diners associated classical music with quality.

E However, it is the inoffensive nature of this kind of background music that creates some of the industry's fiercest critics. A UK group, Pipedown, founded by Nigel Rodgers, campaigns 'for freedom from unwanted music in public places'. The group claims that such music is impossible to escape and adds to the overall levels of noise pollution in public. 'You're not going for a special sort of atmosphere, you're just going to do your shopping,' Rodgers said. One of Pipedown's boldest claims is that there is 'no genuine evidence' that background music increases sales. Opinions vary on this question, although most professionals do not share Pipedown's position. Adrian North, a psychology professor at Curtin University in Perth, Australia, argues that small purchases are where it is most possible to influence consumers. He conducted a study that found that customers were more likely to choose either French or German wine, depending on which of the respective countries' music they heard, something he contrasted with a decision like buying a car where music would not have such an impact. Others argue that it makes more sense to think about the influence of background music in terms of subtle, long-term benefits, rather than immediate impact on sales. Rhonda Hadi, marketing professor at Oxford University, UK, believes companies that provide an experience, such as flights or accommodation, can reap the greatest rewards. She believes that people 'rely on any cues they can to gauge the quality of the service that they've received'.

F Companies have capitalised on the sweeping changes to the world of retail in recent years. Many businesses are no longer just functional places to buy things, they are presented as an experience. Since 2008, streaming music via the internet has become the way most people listen to music. For background music companies, streaming is both a threat and an opportunity. On the one hand, companies can select and tailor the music they deliver to businesses with greater speed, flexibility and precision than ever before. On the other hand, access to vast music libraries has made everyone a music specialist. However, Richard Hampson at Imagesound believes a real-life curator is indispensable.

He emphasises the intuitive side to his job. 'It's always been about feel and human touch,' he argues. 'Human taste is really important.'

Questions 14-18

Reading Passage 2 has six paragraphs, **A-F.**

Which paragraph contains the following information?

Write the correct letter, ***A-F,*** *in boxes 14-18 on your answer sheet.*

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

14 details of how modern developments have created positive and negative consequences for the industry

15 an account of opposition to the use of background music

16 a comparison of customer spending patterns with and without background music

17 a mention of how background music can make shoppers more responsive to shop assistants

18 details of a project which required different music in various parts of a building

Questions 19-23

Look at the following statements (Questions 19-23) and the list of experls below.

Match each statement with the correct experl, ***A-E.***

Write the correct letter, ***A-E,*** *in boxes* ***19-23*** *on your answer sheet.*

19 It is difficult to understand a client's specific wish.

20 Background music is especially beneficial to the tourism industry.

21 Background music has more effect on people who are spending less.

22 A creative music expert is crucial for businesses choosing background music.

23 Buying goods does not require a particular environment.

List of Experts

A Rob Wood
B Nigel Rodgers
C Adrian North
D Rhonda Hadi
E Richard Hampson

Questions 24-26

Complete the summary below.

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

Write your answers in boxes 24-26 on your answer sheet.

The history of background music

In 1920, George Squier developed a way of transmitting music using a system of wires. His company claimed that **24** ....., at work could be improved with the use of its audio programmes. However, in this audio format there was silence between each short musical section. Gradually, the **25.....**, of the music increased. Muzak became the template for music in businesses for years to come. Different ways existed however; some companies delivered pre-recorded music in the form of a cartridge. Later, in the 1970s, tapes were used, but the real change came with the move to CDs. With these, background music specialists were able to arrange music selections into **26.....**, on a computer.

READING PASSAGE 3

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

Conscious and Unconscious Thought

Great scientists and artists have long known about the unconscious mind. The founder of psychoanalysis, Sigmund Freud, argued that most of our real motivation lies below conscious awareness and that we require the services of a psychoanalyst to explain ourselves to ourselves. Even those celebrated scientists who believe that Freud exaggerated the importance of the unconscious argue that it is a part of our minds which we should learn to control and take advantage of.

The great mathematician Alfred North Whitehead seemed to be a supporter of unconscious mental processing when he said: 'It is a profoundly erroneous truism, repeated by all copybooks and by eminent people making speeches, that we should cultivate the habit of thinking about what we are doing. The precise opposite is the case.' What Whitehead meant by this is that some of the greatest breakthroughs in creativity occur when a problem is consciously shelved for a while - 'don't think about it, just sleep on it' - after which the unconscious mind offers a solution. This is a process which psychoanalysts call *incubation.*

Now the latest psychological research confirms that we can all incubate a problem to our own advantage. Ap Dijksterhuis, a psychologist at the University of Amsterdam, has recently published a series of experiments in which students were presented with complex everyday problems to solve. In one experiment they were given the opportunity to think carefully about a decision; in another experiment they were distracted by an irrelevant task whilst making a decision. The surprising result, published in the *Journal of Personality and Social Psychology*, was that 'unconscious' thinkers made the better decisions.

Timothy Wilson and colleagues from the University of Virginia's psychology department conducted another experiment. Participants were presented with five posters and asked to choose one to take home. A little later, they were telephoned and asked how satisfied they were with their choice - a measure of whether they had made the right decision from a subjective point of view. Some participants had picked their poster straight away, whereas others were asked to analyse carefully the pros and cons of each poster. It turned out that people who had analysed were less satisfied with their choice than people who had not applied logic. Paradoxically, it seems that those who had consciously weighed up the various attributes had made relatively poor decisions.

The conclusion that has to be drawn from current research suggests the somewhat counter-intuitive idea that the more complex a problem is, the less likely it becomes that conscious thought can contribute much. If a dilemma is particularly difficult, a lot of information has to be taken into account and it appears that conscious thought is not good at this. The message

is that when it comes to intricate problems with many variables, you should let the unconscious deal with it.

Using dreaming is one way of doing this. Dreams are the part of sleep most strongly correlated with rapid eye movement (REM) and have been associated with enhanced creativity and novel solutions. The latest research suggests that, if you want to enhance unconscious problem-solving, you should try to think about your problems immediately after dreaming. In a recent experiment, psychiatrist Matthew Walker and colleagues from the Laboratory of Neurophysiology at Harvard Medical School woke up half of their experimental subjects immediately after REM sleep, and the other half just after sleep with no dreams, and then asked them to solve crossword puzzles. REM awakenings provided a 32 per cent advantage in the number of puzzles solved, compared with non-REM awakenings.

But you don't have to be asleep to use the unconscious mind when you are not thinking of anything in particular, which is why daydreams are so useful in the quest for creativity. Daniel Goleman, the famous psychologist who proposed the theory of 'emotional intelligence', urges us to be more aware of, and discount, a key obstacle that the conscious mind imposes on the unconscious: that of self-censorship. This is the voice that whispers to you, 'they'll think I'm foolish' or 'that will never work', keeping you imprisoned within the boundaries of what is deemed acceptable. Howard Gardner, a professor of cognition and education at Harvard University, suggests that we free ourselves from the straitjacket of always doing things the same way. In seeking to go beyond the routine and conventional, you will gain confidence in trusting your unconscious, he says.

Questions 27-31

Look at the following statements (Questions 27-31) and the list of people below.

Match each statement with the correct people, ***A-F.***

Write the correct letter, ***A-F,*** *in boxes* ***27-31*** *on your answer sheet.*

27 People find it easier to solve problems at a particular point in the sleep cycle.

28 People should change their general behaviour patterns in order to benefit more from the unconscious.

29 When solving problems, people should try to ignore negative thoughts.

30 People can come up with ideas which are more innovative if they temporarily put a problem aside.

31 People who make quick decisions are less likely to regret them.

List of People

A Alfred North Whitehead
B Ap Dijksterhuis
C Timothy Wilson
D Matthew Walker
E Daniel Goleman
F Howard Gardner

Questions 32-34

Complete the summary below.

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

Write your answers in boxes 32-34 on your answer sheet.

The history of background music

Many scientists argue that people should make better use of their unconscious mind. Alfred North Whitehead, for example, gave support for the idea of **32** .....: a term for people deliberately ignoring a problem over a period of time.

Experiments in Amsterdam that required students to consider a tricky situation found them making good decisions while carrying out an unconnected **33** ..... Similarly, an experiment in Virginia which required subjects to make a selection from a number of different **34.....**, found people feeling happier with their decisions if they had made them quickly.

Questions 35-40

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

In boxes 35-40 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*

35 Our unconscious mind helps us more than our conscious mind with complex problems.

36 Resting before going to sleep can result in improved solutions to problems.

37 Problems are more likely to be solved after dreamless sleep.

38 Matthew Walker's team assessed their subjects using a memory test.

39 Daydreams are more helpful to the unconscious than dreams which occur during sleep.

40 People often create their own barriers to problem-solving.

TEST 6

READING PASSAGE 1

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

Herding

Many animals naturally live and travel together in groups called herds as a form of protection against predators. They move from one fertile grassland to another without an organized direction. Herding is the practice of caring for these roaming groups of livestock over a large area. Herding developed about 10,000 years ago, as prehistoric hunters domesticated wild animals such as cows and goats. Hunters learned that by controlling animals they once pursued, they could have reliable sources not only of meat, but also of milk and milk products, as well as animal hides for tents and clothing.

There are several different types of herding. One of the most ancient forms is nomadic herding, which involves tribal or extended-family groups moving with their animals from one grazing area to another. Nomads live in arid and semi-arid parts of Africa, Asia and Europe, and in the tundra regions of Asia and Europe, where land is not fertile enough for intensive agricultural farming. In Africa, nomadic tribes herd various animals such as cattle, goats, sheep and camels. The Fulani people of Nigeria are a typical example: their animals are used for producing milk and are rarely slaughtered for meat. In the polar tundra, in the northernmost part of Europe, nomads usually herd domesticated reindeer, horses, musk-oxen and yaks.

Nomadic herding is sometimes considered a form of subsistence agriculture. However, unlike subsistence farmers, herders are traditionally wage-earners: they sell their herds' materials for goods and services, or herd other people's animals for a fee. Often, this trade is part of the informal economy, not accounted for by the government of a region. In Africa, the United Nations estimates that herders are responsible for more than $100 million in economic activity every year.

Nomadic herding as a way of life is declining because of natural disasters, loss ofland area due to development, and climate change, as well as pressure from governments to lead a settled existence. Permanent residence allows members of a nomadic community to have access to education and healthcare facilities. However, the complex social structure of herding communities is lost as they are absorbed into mainstream culture. The unique language and customs of nomads become redundant in settled urban or suburban life.

Another form of herding is semi-nomadic herding. These herders live a more settled life than nomads, but many still follow their herds for long periods of time. Prior to the 20th century, the Bedouin people of the Arabian Peninsula and the Middle East were mostly nomads, herding sheep and goats. However, recurring drought throughout Western Asia in the 1960s limited fertile areas; plus oil production in Egypt and Saudi Arabia further limited land available for grazing. Bedouins are now almost entirely semi-nomadic or settled.

Today, about a quarter of Mongolia's population continues to live a semi-nomadic herding lifestyle, herding sheep, goats, horses and camels. However, young people have recently been rejecting this way of life and are instead moving to the city in search of an easier life.

The Sarni are semi-nomadic herders indigenous to the Arctic. They live throughout northern Norway, Sweden, Finland and on the Kola Peninsula of Russia. For centuries, the Sarni have herded reindeer as a principal means of livelihood, supplemented by fishing and trapping. Land development has made it difficult for these semi-nomadic herders to sustain their traditional way of life. State and national borders, for example, have divided traditional Sarni land. Trees are also being cut down for the timber industry, and mines dug to extract minerals, which is all having a serious impact on grazing land. There are laws to protect the Sarni and their grazing rights, but conflicts still exist.

Another type of herding in mountainous regions is called transhumance. Transhumance herders follow a seasonal migration pattern, usually to highlands in the summer and lowlands in the winter. Unlike nomads, these herders move their animals between the same areas, and live in fixed settlements.

Transhumance has had an enormous impact on the landscape. In the European Alps, for instance, thousands of years of transhumance have transformed forests into grassland. Swiss and German herders traditionally led sheep, cattle and pigs to pastures at elevations above 2,000 meters.

Transhumance in the Alps has traditionally involved three herding grounds. The lowest elevation is where livestock are kept sheltered during the cold and snowy winter months. Shepherds lead herds to the middle pastures during the spring. During the summer and fall, shepherds lead sheep and cattle to the highest pastures, while pigs are kept in the middle area. Transhumance is still widely practiced throughout agricultural areas in Switzerland, Germany, Austria, Italy and Slovenia.

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 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*

1 Animals form herds as a way of defending themselves from being attacked.

2 Land used by nomadic herders is also suitable for producing a large amount of crops.

3 Sheep are the most common animals herded by nomadic herders.

4 The Fulani people frequently eat the animals which they herd.

5 In the tundra, reindeer are generally more valuable than other animals.

6 Animals provide a source of income for nomadic herders.

Questions 7-13

Complete the notes below.

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

Write your answers in boxes 7-13 on your answer sheet.

Semi-nomadic and transhumance herding

Semi-nomadic herders

- almost all Bedouin are now semi-nomadic because of **7 .....** and oil production
- many young members of Mongolian semi-nomadic tribes now prefer to live in the **8** .....
- Sarni have survived by herding, **9 .....** and catching wild animals
- traditional Sarni land is being exploited for its wood and **10** .....

Transhumance herders

- takes place in areas which are **11** .....
- herders stay in permanent **12** .....
- cattle and sheep spend the **13 .....** in the middle pastures

READING PASSAGE 2

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

Questions 14-19

Reading Passage 2 has six paragraphs, **A-F.**

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

*Write the correct number, **i-viii,** in boxes 14-19 on your answer sheet.*

List of Headings

	The role of students and the instructor in generating discussion at an appropriate level
ii	Conflicting evidence about the benefits of discussion
iii	The time-consuming nature of class discussion
iv	How an instructor's personality and actions influence discussion
v	The importance of rewarding students who participate in discussion
vi	Evaluation practices that support and promote discussion
vii	Reasons for a lack of student involvement in discussions
viii	The influence of the physical environment on quality of discussion

14 Paragraph **A**

15 Paragraph **B**

16 Paragraph **C**

17 Paragraph **D**

18 Paragraph **E**

19 Paragraph **F**

Creating meaningful discussions in the classroom

A Research on teaching emphasizes the value of class discussion as a means of actively engaging students in the process of learning. The discussion method has been found to be an effective tool for increasing students' mastery of subject matter, problem-solving skills, and communication skills (Nilson, 1998). However, although discussion-based classes at university level can be a catalyst for developing students' thinking skills, they are often a source of frustration for staff and students. A common complaint from professors in universities is that class discussions simply don't work, because students are unable to participate in them effectively (McKeachie, 1999).

B Many students have an educational history of 'received knowledge' (Belenky et al., 1986), passively absorbing information from the professor but being unable or unwilling to contribute. This is a learned behavior for which students are often rewarded; many students report earning outstanding grades in classes that offer no opportunity or incentive for speaking (Belenky et al., 1986). From a student's perspective, active learning is risky. Fear of embarrassment is a compelling force behind this passivity (McKeachie, 1999). Inadequate preparation is another common reason for lack of student participation. Students have not read the material, or have not processed it sufficiently to make meaningful comments (Commor-Green, 2000). Such students lack the vocabulary and grasp of concepts needed to contribute to class discussion in a substantive way; any comments they make are likely to remain superficial.

C The attitude of the instructor has been described in instrumental in shaping a successful discussion (VanDeWeghe, 2003). In a lecture course, the instructor controls the topic and scope of ideas and is likely to receive few questions or challenges. On the other hand, in a discussion class, the unpredictability and energy can enliven both teaching and learning, building a richer understanding of the topic. Instructors who display open-mindedness, enthusiasm, passion, humor, and hold high expectations while allowing students the opportunity to make and learn from mistakes, appear to foster high-quality discussion. In contrast, sarcasm and negative reactions inhibit discussion. Instructors can reinforce and support student participation by writing comments up on the board, correcting misinformation or incomplete ideas with dignity, and being able to refer to students by their names. Effective use of discussion requires the instructor to leave sufficient waiting time after asking a question before soliciting a response. If a question is challenging, it will take students time to formulate meaningful responses; a pause of as long as 30 seconds can stimulate thoughtful discussion (McKeachie, 1999).

D One of the main challenges of a discussion class is ensuring a common base of knowledge. If students read and prepare prior to class, they will have mastered factual knowledge, allowing class time to be used for higher-order cognitive skills, with students actively engaging with the material. An effective discussion-based class is neither instructor-centered nor student-centered; it is subject-centered. In a subject-

centered classroom, serious intellectual discussion of the subject matter is the key to meaningful learning (Levy, 2001). The instructor should have strong knowledge of the subject matter, as well as confidence in students' ability to engage with the material. One of the essential components of a discussion class is thought-provoking, challenging questions. If a question is too easy, students may feel awkward. Furthermore, people are most likely to become deeply engaged in an activity when it is sufficiently challenging to fully engage their skills. Questions most likely to foster discussion are those that stimulate higher-order thinking. An information-seeking (factual) question may reveal a student's knowledge of the material, but is unlikely to serve as a catalyst for further discussion.

E If an instructor encourages discussion, but subsequent tests only include material from lectures or readings, students learn to ignore discussion as a waste of time and wait for what they regard as the 'real' content of the class: the material on which they will be tested (Gottfried and Kyle, 1992). Course assignments foster discussion by increasing the likelihood that students have the foundation to make meaningful contributions. Students tend to delay their reading until just before their test (Commor-Green, 2000). Daily quizzes and journals provide more immediate incentives than having several tests over the course of the semester. Daily quizzes provide an incentive to prepare for class, focus students' thinking, serve as stimuli for discussion, and foster increased analytical skills (Commor-Green, 2000). Response papers provide an opportunity for a written conversation with the instructor and a structured way for student interaction with the material in an integrative fashion.

F The classroom setting and atmosphere can either inhibit or enhance the sense of a learning community. The instructor may have little control over the design of the classroom, but small changes in layout such as arranging chairs in a circle can enhance the learning community and facilitate interaction (Leonard, 1991). It is difficult to make a transition from silence in the classroom to engagement in animated discussion. Methods that help students get to know one another, such as using name cards, may help the class feel connected and comfortable conversing. Discussion classes are most successful when they involve students interacting with one another as well as with the professor, rather than being a collection of student-professor exchanges. By examining components critical to effective discussions, instructors may be better equipped to establish the conditions for discussion.

Questions 20-22

Look at the following statements (Questions 20-22) and the list of people below.

Match each statement with the correct person, ***A-G.***

Write the correct letter, ***A-G,*** *in boxes 20-22 on your answer sheet.*

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

20 Students' learning improves when they are tested frequently.

21 Even when they don't participate in class discussions, students often receive high marks.

22 Instructors frequently report that discussions in their classes are unsuccessful.

List of	
A	McKeachie
B	Belenky et al
C	Commor-Green
D	VanDeWeghe
E	Levy
F	Gottfried and Kyle
G	Leonard

Questions 23-26

Complete the summary below.

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

Write your answers in boxes 23-26 on your answer sheet.

The importance of an instructor's attitude

Discussion classes, unlike lectures, can be unpredictable and lively, and instructors can take advantage of those features.

For example, treating any **23** ..... as learning opportunities, and reacting positively to them, can actually improve the level of discussion. Recording students' **24** ..... for all to see encourages them to share their ideas, and demonstrating familiarity with their **25** ..... is also motivating. Finally, permitting a lengthy **26** ..... after asking a question is a useful strategy.

READING PASSAGE 3

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

An Architectural Revolution

An expert on architectural history expresses his views on trends in urban planning

In the medieval period (5th-15th centuries), the towns and cities of Europe spread in a natural, organic and sometimes haphazard way, according to the social, economic and political needs of the people who lived there. Fortifying towns with high city walls for protection was essential, as was situating them on high ground, giving the residents advance knowledge of any attack. Houses were built from local materials with decorated doorways and windows, usually in a style that reflected a long-standing consensus about architecture. Shops, workshops, schools and communal buildings were inserted between the houses, and streets would converge on a square in the middle of the town where a church and marketplace together symbolised the forces that held the community together.

This traditional urban design continued for many centuries, but was disrupted in the early twentieth century in the United States, where the new 'zoning concept' was introduced. This involved the introduction of the 'downtown plus suburbs' template, in which the downtown area was a place dedicated entirely to commerce, and the residential suburbs were where people escaped to after work. Soon afterwards, when cars arrived on the scene, they smashed their way through the narrow streets of the towns and laid for themselves a carpet of tarmac into the surrounding countryside. The result has been an environmental, aesthetic and social disaster, which can continue unchecked in the US only because of the abundance of land there. Europeans, on the other hand, when faced with the suburbanisation of their ancient towns, tend to dedicate themselves to preventing it.

But the fight to retain the original character of European towns was complicated by two major events: the First World War of 1914-18 and the rise of the International Style in architecture in the 1920s. The two events were connected. Following the war, Europe experienced the first of many housing crises, as displaced populations and returning soldiers wanted to settle in cities that were already crowded. Meanwhile, the rural population took advantage of improved transport links and greater social mobility and began to migrate to the towns. It was also at this time that the architects of the innovative International Style, such as le Corbusier, celebrated clean, simple lines created out of concrete, steel and glass. The supporters of this new architectural style rapidly took over the architecture schools and the professional journals, and presented themselves as the only ones who could deal with a housing challenge on a scale that politicians had not encountered before.

The International Style started out as revolutionary, with its emphasis on simplicity and industrialised mass-production techniques. It arose from an admirable if rather idealistic desire to soften and blur the barriers between different countries after years of conflict. The style was considered universal because it had no association with any particular culture or nation, and by the 1950s it had become accepted as the only viable one for modem cities. However, by this time it had become less imaginative and varied. Endless demands for new buildings in Europe in the 1960s and 1970s meant that there was increasing reliance on a few standard templates, none of them particularly popular with local residents, and many requiring the demolition of much-loved neighbourhoods with a long history.

The reconstruction and redevelopment of many British towns in the decades after the Second World War (1939-1945) involved not only the necessary widening of roads but also the destruction of the old fabric of rows of small houses and local shops, sloping roofs, alleyways and interesting little corners and quiet spots. All the colourful, distinctive features of individual urban areas were swept away and replaced with identical high-rise blocks and anonymous shopping malls, glass boxes and concrete squares, none of which had any cultural association with the places where they were built.

There is overwhelming evidence that bleak impersonal environments such as these can lead to depression, anxiety and feelings of isolation. The ideal is to have an environment that actively encourages people to come across one another in their local area. This means creating and sustaining a neighbourhood in which it is possible for residents to pass in the street, greet one another, and feel secure because they share a pleasant environment which is cared for reasonably well. Our sense of beauty is rooted in these feelings, and it is the principal reason why people fight to preserve the character of their local area.

So what new approach do urban planners need to take? Firstly, new architecture must be of a style which suits the aesthetics of the location and fits in well with the appearance of existing buildings, taking account of the ways in which buildings in that area have been constructed for hundreds of years. What matters as much as an aesthetically pleasing home is having neighbouring houses that conform to similar ideas about what is beautiful; ideally the design of all the buildings in an area should be based on similar architectural values. Fortunately, in many parts of the world there is now increasing pressure being exerted on urban planners and architects to shift their approach towards this ideal. Nowadays, coordinated campaigns against standard ways of building are so common that it has become difficult in some places to build anything new at all, let alone to build in the quantities required. But at least the appearance of a building, rather than just its function, has moved to the top of the agenda.

Questions 27-31

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27-31 on your 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*

27 The growth of European towns in the medieval era had to follow strictly organised plans.

28 Ensuring the safety of inhabitants was a vital consideration in the design and location of medieval towns.

29 In medieval times, the challenges of transporting heavy goods over long distances made it necessary to build houses out of local materials.

30 The function of the central square of medieval towns represented two key aspects of urban society.

Questions 31-34

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

Write the correct letter in boxes 32-35 on your answer sheet.

31 In the third paragraph, what do we learn about the International Style?

A It relied on building materials that were regarded as unattractive.
B It became very fashionable only after an initially sceptical reaction.
C It proposed a solution to the post-war shortage of accommodation.
D It incorporated a few of the best features of traditional urban design.

32 In the fourth paragraph, the writer praises International Style architects for

A attempting to minimise cultural differences.
B avoiding designs that were over-complicated.
C challenging conservative attitudes to architecture.
D making full use of modern technological advances.

33 The writer is critical of architects in the 1960s and 1970s because they

A consistently ignored the objections of local people.
B based their designs on ideas that were impractical.
C used only a limited number of very predictable forms.
D wasted money by removing long-established districts.

34 What impact of trends in building style in post-war Britain does the writer mention?

A an increase in the range of construction techniques used
B a significant expansion in the number of residential streets
C the creation of areas where people could escape the traffic
D the loss of architectural details that had made towns unique

Questions 36-40

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

Write the correct letter, ***A-H,*** *in boxes 36-40 on your answer sheet.*

Taking a new approach to urban planning

New buildings should be in **35** ..... with their location and they should be constructed using **36** ..... As well as being attractive, homes should have a similar **37** ..... to that of the surrounding properties. In addition, there should be certain **38** ..... that a new building shares with older buildings in the area.

Fortunately, there is now often a considerable amount of **39.....** to the proposals of urban planners. Increasingly, people are realising that focusing purely on a building's **40** ..... is undesirable, and that more importance should be attached to its appearance and cultural value.

A	visual appeal	**B**	basic function
C	organised opposition	**D**	essential meaning
E	sharp contrast	**F**	relative harmony
G	traditional methods	**H**	underlying principles

TEST 7

READING PASSAGE 1

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

Amber

Amber is a yellowish semi-precious substance, formed in prehistoric times from the hardened and fossilised resin of coniferous pine trees. It has been used for thousands of years to make jewellery and other decorative objects, being relatively soft and easy to work. Amber can also be polished to produce an attractive gleam. One disadvantage is that it is susceptible to degradation, becoming cloudy as the colours gradually fade following exposure to air. For this reason, many amber artefacts do not look as impressive as they did when they were first made.

For the ancient world, the main source of amber was the Baltic region in northern Europe, on the eastern coast of the Baltic Sea, where pieces washed onto beaches and could be easily collected. Amber was sought after not only for its decorative appeal, but also because many thought that it gave protection against evil. For this reason, people in ancient Egypt and Greece wore or carried small ornaments known as 'amulets', and those made with amber were said to be among the most powerful. There was a belief it could cure mouth and throat complaints, and it was also ground and mixed with rose oil and honey to treat eye and ear infections. As amber naturally contains succinic acid, which was used in treatments prior to the use of antibiotics, this belief in its medicinal qualities was quite reasonable. The ancients also noticed that when rubbed, amber produced an electrical charge that drew other objects towards it. This ability to attract objects such as dried grasses led to the Persians calling amber *kahruba* or 'straw-robber'.

The ancient world also had popular myths about amber's origins, such as the story that it was the crystallised tears of a Greek goddess whose son was killed by a bolt of lightning. Colourful though such stories were, even people of the time may not have taken them too seriously, as writers such as the Greek philosopher Aristotle (384-322 BCE) had already correctly identified amber as a hardened resin. In addition, a number of myths about amber involved trees, indicating an awareness of its true origins.

In the 1st century CE, the Roman writer and philosopher Pliny the Elder classified precious stones and materials, including amber. He was dismissive of many earlier myths about it and acknowledged the fact that amber was collected from Baltic shores. He also agreed with assertions that amber originated from pine trees, writing that if amber was burnt, it smelled of pine. He also knew it originally existed in a liquid state because of the trapped insects

sometimes seen inside larger pieces. He did not, however, grasp the concept of fossilisation, instead explaining the hardening of resin as a process performed by the sea.

The earliest evidence of people working with amber in the Baltic dates to the Neolithic period (approx. 6000-2200 BCE). But it was contact between the peoples of the Bronze Age (approx. 2200-800 BCE) that ensured amber spread across Europe, with various tribes trading pieces of amber and receiving metals in return. Amber was taken south from the Baltic via rivers to the Adriatic Sea, from where it was shipped to western Asia. Perhaps because of its rarity so far from its source, amber was particularly prized in this region, where it signified power and social standing for kings and queens. Priests were another group that wore amber as a mark of distinction. Some amber beaded jewellery has been discovered in tombs in ancient Egypt, although finds here are uncommon.

During the Iron Age, the east coast of modem-day Italy became something of a specialist in amber. By the 9th century BCE, the coastal region of Verucchio had become an important manufacturing centre. Here, significant quantities of artefacts have been found, including amber discs for earrings and necklaces, and amber that would have been an embellishment for clothes that have disintegrated over time. The Etruscans, who flourished in central Italy between the 8th and 3rd centuries BCE, continued working with amber, creating fine jewellery and small figurines of animals and humans.

Although amber seems to have gone out of fashion during the Greek Classical period (500-300 BCE), it saw a resurgence in popularity during the Roman Empire (31 BCE - 476 CE). Aquileia, in central Italy, became a noted centre of production between the 1st and 3rd centuries CE. Amber workshops in this region produced many objects such as drinking goblets, which were sold for high prices to rich Romans for use in their homes. Its reputation as a protective talisman continued, and it was widely used by Romans, in particular gladiators (men trained to fight in arenas for sport), who attached pieces of amber to their fighting equipment to ward off danger. The Romans' use of amber declined from the 3rd century CE, but it remained popular in the Baltic regions. In the medieval period, the Armenians became the new champions of amber, and ensured its trade and manufacture into fine decorative pieces continued into modem times.

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 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*

1 The appearance of amber changes over time.

2 In ancient times, the amber found on Baltic beaches came from trees growing nearby.

3 All protective amulets in ancient Egypt and Greece contained amber.

4 It is clear why people assumed that amber had healing properties.

5 One name for amber comes from its effect on other objects.

6 Aristotle's definition of amber supported its link to a goddess.

Questions 7-13

Complete the notes below.

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

Write your answers in boxes 7-13 on your answer sheet.

Amber in the Ancient World

Bronze Age

Amber was

- traded in exchange for various **7** .....
- transported through Europe along **8** .....
- used as a symbol of status by royalty and **9** ..... in western Asia

Iron Age

9th century BCE discoveries include

- **10 .....**made of amber used in jewellery
- decorative pieces of amber, used on **11.....**which have not survived
- amber ornaments made by the Etruscans in the shape of people and **12** .....

Roman Empire

- amber goods, e.g., **13** ..... were made for wealthy households

READING PASSAGE 2

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

The women scientists of Bologna

A The 18th century was a time of logic and experimentation, and many of the sciences had their beginnings at that time. But throughout most of Europe, these studies were reserved exclusively for men. Few options were available to European women with an inclination to study. A university education was off-limits to women almost everywhere in Europe, with one notable exception: Italy. In Italian universities, women competed equally with men, and among those liberal Italian universities, one in particular stands apart.

B The University of Bologna was founded in I088 as a law school and is the oldest university in Europe. During the 18th century, intellectually gifted women from the upper classes, and sometimes even from the less economically advantaged classes, had access to a level of education not available in most Western nations until the 20th century. Most of these women, as the following short biographies demonstrate, flourished in various areas of science.

C Among the women professors of the University of Bologna, Laura Bassi (1711 - 1778) was the pioneer. She was the first woman to earn a PhD, and the university's first female professor. At the age of 21, Bassi became Professor of Physics. However, the university was not so liberal as to allow her to give lectures there; this remained a right reserved solely for men. Bassi was therefore obliged to conduct her lectures and her experiments in her home. She conducted physics tutorials and experiments for her students throughout her academic career, and for over thirty years offered an annual public lecture on experimental physics.

She also continued her own studies in literature as well as science, but considered only science as truly valuable, focusing on mechanics, hydraulics, and anatomy. But perhaps her most enduring achievement is the legacy she left to the women who followed her. Bassi's scholarship and life-long achievement in both research and teaching made it easier for other women to obtain university appointments. Most importantly, her successors were accorded full professorial privileges without restrictions based on gender.

D In the 18th century, anatomy stood at the vanguard of medical research, and in 1742 Ercole Lelli, a painter and sculptor, became the first person to make a detailed reconstruction of the human skeleton and muscles in wax. These models were used to familiarize students with the human body. Lelli was assisted in his work by Giovanni Manzolini, who later became a professor at the University of Bologna. In tum,

Manzolini was assisted by his wife, Anna Morandi (1716 - 1774), who came to be considered the finest practitioner of artistic anatomy.

E Morandi did not set out to become an anatomist. Her early education focused on drawing and sculpting, but she later combined her keen observations and her artistic talent to produce very faithful reproductions of anatomical systems. When her husband fell ill and could no longer teach, Morandi was officially charged with delivering his lectures. After he died in 1760, Morandi was elected to a professorship at the university and, nine years later, was also named the anatomy department's chief model maker.

F Maria Gaetana Agnesi (1718 - 1799) The daughter of Pietro Agnesi, a professor of mathematics at the University of Bologna, was both a brilliant linguist and a talented mathematician. She mastered French by the time she was five years old, and a number of ancient languages by the age of nine. Later, Agnesi focused her attention on mathematics. She devoted herself to algebra and geometry in her studies, and compiled the book that made her famous - *Instituzioni Analitiche* (Analytical Institutions), which for the first time provided a synthesis of many different branches of mathematics. The work became well known because its terminology constituted a basis for subsequent scientific works, dictionaries, and encyclopedias. The French Academy of Sciences offered the highest praise it could, noting in a letter that *'if the regulations permitted it, Mademoiselle Agnesi would be admitted to the Academy'*. Agnesi may have been denied admission to the French Academy, but she was admitted into the Academy of Sciences in Bologna. Upon her father's death in 1752, Agnesi abandoned mathematics and the academy to care for the elderly, the poor, and the sick until her death in 1799.

G Maria Dalle Donne (1778 - 1842) Was born into an average family in the small village of Roncastaldo on the outskirts of Bologna. A peasant girl from such a modest background would not normally have been encouraged to study, but Dalle Donne was born with a physical deformity; this may have led her family to think she would never marry. Under these circumstances, the family might have felt more inclined to educate the girl. In any event, Dalle Donne's cousin recognized her talents and took charge of her education. He enlisted the help of Luigi Rodati, a physician, who taught her himself and later recruited other professors of physics, surgery, and pathology to instruct her. In 1799, Dalle Donne passed her examinations with the highest honors, and became the first female doctor of medicine.

H Several years later, Dalle Donne became the Director of one of the Departments of Medicine at the University of Bologna, where she gained a reputation as a stimulating lecturer. She was emphatic about the need to educate young women in areas of medicine, and accepted girls into her program without regard for their ability to pay. Perhaps because of her own modest origins, she assisted talented but financially deprived girls, bringing some measure of democracy to the education of women.

Questions 14-18

Reading Passage 2 has six paragraphs, **A-H.**

Which paragraph contains the following information?

*Write the correct letter, **A-H,** in boxes 14-18 on your answer sheet.*

14 a description of a teaching aid used in the 18th century

15 reference to a promotion arising from the misfortune of a close family member

16 how a handicap may have resulted in a girl being given the opportunity to study

17 mention of a restriction placed on where a woman could teach

18 reference to an important academic text

Questions 19-22

Complete the summary below.

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

Write your answers in boxes 19-22 on your answer sheet.

Women's education in 18th-century Europe

During the 18th century, Italy was the only country in Europe to give women the chance to study at university. The most notable of the institutions which opened their doors to women was the University of Bologna. Although it was originally intended to teach the subject of **19** ....., many of its most famous women students worked in the field of **20** .....

Laura Bassi was the first woman teacher at the University of Bologna, and as well as teaching her students she also at times addressed people outside the university on the subject of **21** .....Of all her studies, Bassi gave least importance to the subject of **22** .....

Questions 23 - 26

*Look at the following statements **(Questions 23-26)** and the list of women scholars below.*

*Match each statement with the correct woman scholar, **A, B, C, or D.***

*Write the correct letter, **A, B, C, or D,** in boxes **26-29** on your answer sheet.*

23 She offered tuition to those who could not afford the normal fee.

24 Her example helped others to obtain a right she did not have herself.

25 She devoted a long period of her life to charitable work.

26 She was put in charge of creating teaching materials.

List of Women Scholars

A A Laura Bassi

B Anna Morandi

C Maria Gaetana Agnesi

D Maria Dalle Donne

READING PASSAGE 3

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

The nature deficit - how children are losing touch with nature

Children's unfamiliarity with the natural world was first highlighted in 2002 by researchers from Cambridge University who surveyed a cohort of four- to eleven-year-old children in Britain. They showed the children pictures of common species of British wildlife and also fantasy creatures from the very popular Pokemon game. Pokemon was originally invented by Satoshi Tajiri in Japan as a way of giving urban children the opportunity to collect pictures of insect-like animals. Participants in the study were shown a sample of pictures and asked to identify the names of the Pokemon creatures and natural species. The results were striking. Children aged eight and over were substantially better at identifying Pokemon creatures than natural species.

The researchers published their paper in the journal *Science*. Their conclusions were unusually direct and forthright - reflecting the depth of their concern. *'Young children clearly have tremendous capacity for learning about creatures (whether natural or man-made),* ' they wrote, but they are presently *'more inspired by synthetic subjects than by living creatures'*. They pointed to solid evidence linking loss of knowledge about the natural world to growing isolation from it. We need, the paper concluded, *'to re-establish children* 's *links with nature ifwe are to win over the hearts and minds of the next generation',* for *'we love what we know ... What is the extinction of a magnificent bird of prey such as the condor to a child who has never seen a tiny wren in their back garden or local park?'*

Subsequent research has confirmed the Pokemon paper's broad findings. In their recent Bird Knowledge study, the Royal Society for the Protection of Birds (RSPB) smartly shifted the focus, assessing basic knowledge of nature in parents rather than children. Of 2,000 participants, half couldn't identify a house sparrow, a quarter didn't know a blue tit or a starling, and a fifth thought a red kite wasn't a bird - but nine out of ten said they wanted children to learn about common British wildlife. Similarly, a survey by The Wildlife Trust found a third of adults unable to identify a barn owl, three-quarters unable to identify an ash tree - and two-thirds feeling that they had *'lost touch with nature'*.

Most of us are likely to react to the results of these surveys with a mixture of consternation and insecurity. But it should hardly come as a surprise that awareness of the natural world is vanishing from children's consciousness, for nature itself is vanishing. The RSPB's most recent State of Nature report found Britain to be *'among the most nature-depleted countries in the world',* with a 53% drop in numbers of what were once common British species - among them barn owls, newts, sparrows, and starlings. Despite the growing interest in this problem, even the names of some of the most common bird and plant species are quickly

being forgotten. Where have these lost names gone and does their vanishing matter? If so, how might we invigorate what anthropologist Beth Povinelli calls *'a literacy of nature* ' in ourselves and our children?

Improving people's literacy of nature will undoubtedly help in the struggle to protect our vanishing species. As the environmentalist George Monbiot wrote recently, *'words possess a remarkable power to shape our perceptions.'* Without names to give it detail, the natural world can quickly blur into a generalised wash of green - a disposable backdrop like wallpaper. But the right names, well used, can act as a key into the world of birds, animals, trees and insects. Leaming their names can trigger a thirst for further knowledge, greater respect and a sense of wonder.

Clearly the lack of nature literacy - especially of local nature - is associated with the major developments that have occurred in countries such as Britain, where children are now more likely to live in urban environments. Online culture has boomed and screen time has soared. In Britain, the roaming range (the area within which children are permitted to play unsupervised) has shrunk by more than 90% in 40 years. Parental anxieties about traffic growth and the decrease of available green space are among the factors that have limited wild play and the knowledge it brings. *'The children out in the woods, out in the fields, enjoying nature on their own - they're extinct,* ' says Chris Packham, the presenter of the TV programme *Nature Watch.* The attention-grabbing headline of a recent report was that British children spend less time outdoors than prisoners.

Such headlines disguise a complex picture, though. Access to nature is hugely uneven across the population, with class, income and ethnicity playing strong determining roles. It's too easy to blame *'nature deficit',* the gap in children's knowledge of the natural world, on the rise of technology, although that has certainly played its part. Technology is not an inherently bad thing, as it can provide a wealth of information for urban children who are disconnected from nature and help to generate further interest.

The RSPB's Connecting with Nature report, based on a three-year research project, sensibly recognised *'nature deficit'* as a complex problem. Dismayingly, it found only one in five British children to be positively connected to nature. It emphasised *'nature connection* ' as not only a *'conservation* ' issue, but also one closely involved with education, physical health, emotional well-being and future attainment: *what's good for nature is also good for the child.*

Nature deficit needs structural and political fixes. Hearteningly, hundreds of organisations are striving to close the gap between childhood and nature, including working with schools to get more children regularly learning outdoors. Most of these organisations specifically aim to help children at risk of social exclusion, or who are otherwise unlikely to reach green places. There are promising signs presently visible in Britain and beyond.

Questions 27-30

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

Write the correct letter in boxes 27-30 on your answer sheet.

27 The researchers involved in the Pokemon experiment

- **A** were encouraged by how quickly children were able to learn creatures' names.
- **B** had anticipated that children would be able to identify many of the fantasy animals.
- **C** felt there was a clear reason why the children recognised so few natural species.
- **D** were pessimistic about trying to reconnect children with nature.

28 Why does the writer quote the example of a condor and a wren in the second paragraph?

- **A** to illustrate children's lack of interest in birds
- **B** to give examples of species that are in decline
- **C** to suggest birds that might stimulate an enthusiasm for nature
- **D** to highlight the importance of knowing about local species

29 The writer refers to George Monbiot in order to

- **A** highlight the difficulty of remembering plant and animal names.
- **B** provide support for the idea that names are important.
- **C** explain why some names have disappeared forever.
- **D** argue that people have a genuine desire to name things.

30 What is the writer's attitude to technology and the nature deficit?

- **A** There is no clear connection between technology and a lack of nature knowledge.
- **B** Technology can have a positive impact on children's relationship with nature.
- **C** Technology is more important to children in cities than in the countryside.
- **D** There is no point in trying to keep children away from technology.

Questions 31-35

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

Write the correct letter, ***A-G,*** *in boxes 31-35 on your answer sheet.*

31 The Pokemon study concluded that

32 The Bird Knowledge study aimed to discover whether

33 The Wildlife Trust's report highlighted the fact that

34 The State of Nature report revealed that

35 The Connecting with Nature report pointed out that

A children are reluctant to spend time outdoors.

B Britain's wildlife was declining dramatically.

C there are many issues contributing to children's lack of knowledge about wildlife.

D adults were aware of their lack of contact with nature.

E most adults were able to identify common species.

F people knew less about bird species than trees.

G children's familiarity with wildlife was limited.

Questions 36-40

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 36-40 on your 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*

36 Most people are unconcerned about research findings that show our lack of contact with nature.

37 The deterioration in children's knowledge of nature is only to be expected.

38 Developing a *'literacy of nature'* will make very little difference to people's attitude to species loss.

39 There is a strong relationship between the decline in people's *'literacy of nature'* and recent social changes in Britain.

40 It is understandable that parents are unwilling to allow their children to spend time outdoors alone.

TEST 8

READING PASSAGE 1

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

Archaeologists discover evidence of prehistoric island settlers

In early April 2019, Dr Ceri Shipton and his colleagues from Australian National University became the first archaeologists to explore Obi, one of many tropical islands in Indonesia's Maluku Utara province. The research team's discoveries suggest that the prehistoric people who lived on Obi were adept on both land and sea, hunting in the dense rainforest, foraging on the seashore, and possibly even voyaging between islands.

The excavations were part of a project to learn more about how people first dispersed from mainland Asia, through the Indonesian archipelago and into the prehistoric continent that once connected Australia and New Guinea. The team's earlier research suggested that the northernmost islands in the group, known as the Wallacean islands, including Obi, would have offered the easiest migration route. It also seemed likely that these islands were crucial *'stepping stones'* on humans' island-hopping voyages through this region millennia ago. But to support this idea, they needed archaeological evidence for humans living in this remote area in the ancient past. So, they travelled to Obi to look for sites that might reveal evidence of early occupation.

Just inland from the village of Kelo on Obi's northern coast, Shipton and his colleagues found two caves containing prehistoric rock shelters that were suitable for excavation. With the permission and help of the local people of Kelo, they dug a small test excavation in each shelter. There they found numerous artefacts, including fragments of axes, some dating to about 14,000 years ago. The earliest axes at Kelo were made using clam shells. Axes made from clam shells from roughly the same time had also previously been found elsewhere in this region, including on the nearby island of Gebe to the northeast. As on Gebe, it is highly likely that Obi's axes were used in the construction of canoes, thus allowing these early peoples to maintain connections between communities on neighbouring islands.

The oldest cultural layers from the Kelo site provided the team with the earliest record for human occupation on Obi, dating back around 18,000 years. At this time the climate was drier and colder than today, and the island's dense rainforests would likely have been much less impenetrable than they are now. Sea levels were about 120 metres lower, meaning Obi was a much larger island, encompassing what is today the separate island ofBisa, as well as several other small islands nearby.

Roughly 11,700 years ago, as the most recent ice age ended, the climate became significantly warmer and wetter, no doubt making Obi's jungle much thicker. According to the researchers, it is no coincidence that around this time the first axes crafted from stone rather than sea shells appear, likely in response to their increased, heavy-duty use for clearing and modification of the increasingly dense rainforest. While stone takes about twice as long to grind into an axe compared to shell, the harder material keeps its sharp edge for longer.

Judging by the bones which the researchers unearthed in the Kelo caves, people living there mainly hunted the Rothschild's cuscus, a possum-like creature that still lives on Obi today. As the forest grew more dense, people probably used axes to clear patches of forest and make hunting easier.

Shipton's team's excavation of the shelters at the Kelo site unearthed a volcanic glass substance called obsidian, which must have been brought over from another island, as there is no known source on Obi. It also revealed particular types of beads, similar to those previously found on islands in southern Wallacea. These finds again support the idea that Obi islanders routinely travelled to other islands.

The excavations suggest people successfully lived in the two Kelo shelters for about 10,000 years. But then, about 8,000 years ago, both were abandoned. Did the residents leave Obi completely, or move elsewhere on the island? Perhaps the jungle had grown so thick that axes were no longer a match for the dense undergrowth. Perhaps people simply moved to the coast and turned to fishing rather than hunting as a means of survival.

Whatever the reason for the departure, there is no evidence for use of the Kelo shelters after this time, until about 1,000 years ago, when they were re-occupied by people who owned items made out of gold, silver and pottery. It seems likely, in view of Obi's location, that this final phase of occupation also saw the Kelo shelters used by people involved in the historic trade in spices between the Maluku islands and the rest of the world.

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 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*

1 Archaeological research had taken place on the island of Obi before the arrival of Ceri Shipton and his colleagues.

2 The research team went to the Wallacean islands to try to prove a theory about the migration of prehistoric people.

3 At the Keio sites, the researchers found the first clam shell axes ever to be discovered in the region.

4 The size of Obi today is less than it was 18,000 years ago.

5 A change in the climate around 11,700 years ago had a greater impact on Obi than on the surrounding islands.

6 The researchers believe there is a connection between warmer, wetter weather and a change in the material used to make axes.

Questions 7-13

Complete the notes below.

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

Write your answers in boxes 7-13 on your answer sheet.

Archaeological findings on Obi

Excavations of rock shelters inside 7 ..... **near the village of Keio revealed:**

- Axes from around 14,000 years ago, probably used to make **8** .....
- Axes made out of **9** ..... dating from around 11,700 years ago
- **10** ..... of an animal: evidence of what ancient islanders ate
- Evidence of travel between islands:
    - **11** .....: a material that is not found naturally on Obi
    - **12** ..... which resembled ones found on other islands

Evidence from around 8,000 to 1,000 years ago suggests that Obi islanders

- May have switched from hunting to fishing
- Used objects made of various materials, including metal and pottery
- Probably took part in the production and sale of **13** .....

READING PASSAGE 2

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

The global importance of wetlands

A Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil, for all or part of the year. These are complex ecosystems, rich in unique plant and animal life. But according to the World Wide Fund for Nature (WWFN), half of the world's wetlands have disappeared since 1990 - converted or destroyed for commercial development, drainage schemes, and the extraction of minerals and peat. Many of those that remain have been damaged by agricultural pesticides and fertilisers, industrial pollutants, and construction works.

B Throughout history, humans have gathered around wetlands, and their fertile ecosystems have played an important part in human development. Consequently, they are of considerable religious, historical, and archaeological value to many communities around the world. *'Wetlands directly support the livelihoods and well-being of millions of people,* ' says Dr Matthew McCartney, principal researcher and hydrologist at the International Water Management Institute (IWMI). *'In many developing countries, large numbers of people are dependent on wetland agriculture for their livelihoods.* '

C They also serve a crucial environmental purpose. *'Wetlands are one of the key tools in mitigating climate change across the planet,* ' says Pieter van Eijk, head of Climate Adaptation at Wetlands International (WI), pointing to their use as buffers that protect coastal areas from sea-level rise and extreme weather events such as hurricanes and flooding. Wetland coastal forests provide food and water, as well as shelter from storms, and WI and other agencies are working to restore those forests which have been lost. *'It can be as simple as planting a few trees per hectare to create shade and substantially change a microclimate,* 'he says. *'Implementing climate change projects isn't so much about money.* '

D The world's wetlands are, unfortunately, rich sources for in-demand commodities, such as palm oil and pulpwood. Peatlands - wetlands with a waterlogged organic soil layer - are particularly targeted. When peatlands are drained for cultivation, they become net carbon emitters instead of active carbon stores, and, according to Marcel Silvius, head of Climate-smart Land-use at WI, this practice causes six percent of all global carbon emissions. The clearance of peatlands for planting also increases the risk of forest fires, which release huge amounts of CO2. *'We're seeing huge peatland forests with extremely high biodiversity value being lost for a few decades of oil palm revenues,* ' says Silvius.

E The damage starts when logging companies arrive to clear the trees. They dig ditches to enter the peat swamps by boat and then float the logs out the same way. These are then used to drain water out of the peatlands to allow for the planting of corn, oil palms, or pulpwood trees. Once the water has drained away, bacteria and fungi break down the carbon in the peat and tum it into CO2 and methane.

Meanwhile, the remainder of the solid matter in the peat starts to move downwards, in a process known as subsidence**. Peat comprises 90 per cent water, so this is one of the most alarming consequences of peatland clearances. 'In the tropics, peat subsides at about four centimetres a year, so within half a century, very large landscapes on Sumatra and Borneo will become flooded as the peat drops below water level,' says Silvius. 'It's a huge catastrophe that's in preparation. Some provinces will lose 40 per cent of their landmass.'

F And while these industries affect wetlands in ways that can easily be documented, Dr Dave Tickner of the WWFN believes that more subtle impacts can be even more devastating. 'Sediment run-off and fertilisers can be pretty invisible,' says Tickner. 'Over-extraction of water is equally invisible. You do get shock stories about rivers running red, or even catching fire, but there's seldom one big impact that really hurts a wetland.' Tickner does not blame anyone for deliberate damage, however. 'I've worked on wetland issues for 20 years and have never met anybody who wanted to damage a wetland,' he says. 'It isn't something that people generally set out to do. Quite often, the effects simply come from people trying to make a living.'

G Silvius also acknowledges the importance of income generation. 'It's not that we just want to restore the biodiversity of wetlands - which we do - but we recognise there's a need to provide an income for local people.' This approach is supported by IWMI. 'The idea is that people in a developing country will only protect wetlands if they value and profit from them,' says McCartney. 'For sustainability, it's essential that local people are involved in wetland planning and decision making and have clear rights to use wetlands.'

H The fortunes of wetlands would be improved, Silvius suggests, if more governments recognised their long-term value. 'Different governments have different attitudes,' he says, and goes on to explain that some countries place a high priority on restoring wetlands, while others still deny the issue. McCartney is cautiously optimistic, however. 'Awareness of the importance of wetlands is growing,' he says. 'It's true that wetland degradation still continues at a rapid pace, but my impression is that things are slowly changing.'

Questions 14-18

Reading Passage 2 has six paragraphs, **A-H.**

Which paragraph contains the following information?

*Write the correct letter, **A-H,** in boxes 14-18 on your answer sheet.*

14 the role of wetlands in preventing natural disasters

15 reference to the need to ensure that inhabitants of wetland regions continue to benefit from them

16 the proportion of wetlands which have already been lost

17 reference to the idea that people are beginning to appreciate the value of wetlands

18 mention of the cultural significance of wetlands

Questions 19-22

Complete the sentences below.

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

Write your answers in boxes 19-22 on your answer sheet.

19 Peatlands which have been drained begin to release ..... instead of storing it.

20 Once peatland areas have been cleared, ... are more likely to occur.

21 Clearing peatland forests to make way for oil palm plantations destroys the ..... of the local environment.

22 Water is drained out of peatlands through the.....which are created by logging companies.

Questions 23-26

Look at the following statements (Questions 23-26) and the list of experts below.

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

Write the correct letter, ***A-D,*** *in boxes* ***23-26*** *on your answer sheet.*

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

23 Communities living in wetland regions must be included in discussions about the future of these areas.

24 Official policies towards wetlands vary from one nation to the next.

25 In a few decades' time, substantial areas of land will have disappeared into the sea.

26 Many of the practices which damage wetlands are almost impossible to see.

List of People
A Matthew McCartney
B Pieter van Eijk
C Marcel Silvius
D Dave Tickner

READING PASSAGE 3

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

The ingenuity gap

In this book introduction, the author explains what he means by 'ingenuity' and discusses the factors that influence the requirement for and provision of new ideas in today's society.

Ingenuity, as I define it here, consists not only of ideas for new technologies like computers or drought-resistant crops but, more fundamentally, of ideas for better institutions and social arrangements, like efficient markets and competent governments.

How much and what kinds of ingenuity a society **requires** depends on a range of factors, including the society's goals and the circumstances within which it must achieve those goals - whether it has a young population or an aging one, an abundance of natural resources or a scarcity of them, an easy climate or a punishing one, whatever the case may be.

How much and what kinds of ingenuity a society **supplies** also depend on many factors, such as the nature of human inventiveness and understanding, the rewards an economy gives to the producers of useful knowledge, and the strength of political opposition to social and institutional reforms.

A good supply of the right kinds of ingenuity is essential, but it isn't, of course, enough by itself. We know that the creation of wealth, for example, depends not only on an adequate supply of useful ideas but also on the availability of other, more conventional factors of production, like capital and labor. Similarly, stability and justice usually depend on the resolution, or at least the containment, of major political struggles over wealth and power.

The past century's countless incremental changes in our societies around the planet, in our technologies and our interactions with our natural environment, have created a qualitatively new world.

Because these changes have accumulated slowly, it's often hard for us to recognize how profound and sweeping they have been. They include far larger and denser human populations; much higher per capita consumption of natural resources; and far better and more widely available technologies for the movement of people, materials, and especially information.

In combination, these changes have sharply increased the density, intensity, and pace of our interactions with each other; they have greatly increased the burden we place on our natural environment; and they have helped shift power from national and international institutions to

individuals and subgroups, such as political special interests and ethnic factions. The management of our relationship with the new world requires immense and ever-increasing amounts of social and technical ingenuity.

When we enhance the performance of any system, from our cars to the planet's network of financial institutions, we tend to make it more complex. Many of the natural systems critical to our well-being, like the global climate and the oceans, are extraordinarily complex to begin with. We often can't predict or manage the behavior of complex systems with much precision because they are often very *sensitive* to the smallest of changes and perturbations, and their behavior can flip from one mode to another suddenly and dramatically. Over the last 100 years as the human-made and natural systems we depend upon have become more complex, and as our demands on them have increased, the institutions and technologies we use to manage them must become more complex too, which further boosts our requirement for ingenuity.

However, we should not jump to the conclusion that the supply of ingenuity always increases in lockstep with our ingenuity requirement: while it's true that necessity is often the mother of invention, we can't always rely on the right kind of ingenuity appearing when and where we need it. In many cases, the complexity and speed of operation of today's vital economic, social, and ecological systems exceed the human brain's grasp. Not many of us have more than a rudimentary grasp of how these systems work. They remain fraught with countless 'unknowns,' which makes it hard to supply the ingenuity we need to solve problems associated with these systems.

In this book, I explore a wide range of other factors that will limit our ability to supply the ingenuity required in the coming century. For example, the crush of information in our everyday lives is shortening our attention span, limiting the time we have to reflect on critical matters of public policy, and making policy arguments more superficial.

Modem markets and science are an important part of the story of how we supply ingenuity. Markets are critically important, because they give entrepreneurs an incentive to produce knowledge. As for science, although it seems to face no theoretical limits, at least in the foreseeable future, practical constraints often slow its progress. The cost of scientific research tends to increase as it delves deeper into nature. And science's rate of advance depends on the characteristics of the natural phenomena it investigates, simply because some phenomena are intrinsically harder to understand than others, so the production of useful new knowledge in these areas can be very slow.

Consequently, there is often a critical time lag between the recognition of a problem and the delivery of sufficient ingenuity, in the form of technologies, to solve that problem. Progress in the social sciences is especially slow, for reasons we don't yet fully understand; but we desperately need better social scientific knowledge to build the sophisticated institutions today's world demands.

Questions 27-30

Complete each sentence with the correct ending, ***A-F,*** *below.*

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

27 The author's definition of ingenuity

28 The type of ingenuity required by a society

29 The creation of wealth

30 The stability of a society

A does not depend on ingenuity alone.

B depends in part on the successful management of certain disputes.

C has often been misunderstood.

D is not limited to the creation of new inventions.

E frequently increases in accordance with the material successes achieved.

F is linked to factors such as the weather.

Questions 31-33

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

Write the correct letter in boxes 21-33 on your answer sheet.

31 What point does the author make about the incremental changes of the last century?

A Their effect on the environment has been positive.
B They have not affected all parts of the world.
C Their significance may not be noticed.
D They have had less impact than those of previous centuries.

32 According to the author, one effect of the combined changes is that life has become

A easier.
B faster.
C more interesting.
D more enjoyable.

33 What observation does the author make about complex natural systems?

A They can be greatly affected by minor alterations.
B They cannot be compared to human-made systems.
C Their performance cannot be improved by human intervention.
D Their behaviour is better understood than ever before.

Questions 34-40

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 34-40 on your 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*

34 Changes in the last 100 years have increased the need for human ingenuity.

35 The amount of ingenuity available is strictly related to the demand which exists for it.

36 Although ingenuity may be available, it may be inappropriate for the tasks that need solutions at the time.

37 Few people today truly understand the way the modern world works.

38 Access to more and more information is improving our grasp of current affairs.

39 Future generations will be critical of the way today's governments have conducted themselves.

40 It is inevitable that some areas of scientific study advance more quickly than others.

TEST 9

READING PASSAGE 1

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

The introduction of gas and electricity to the US

Until the late 1700s, illumination in US households was limited to candles and whale oil lamps, but both were inefficient - it would take a hundred candles to create as much light as a single modem lightbulb - and so expensive as to be beyond the means of most households. For the middle classes, illumination improved dramatically with the invention, in 1783, of the Argand lamp (named after its Swiss creator), which had greater intensity and less flicker. The next step forward was the invention of the oil-based fuel kerosene in 1858, and of petroleum a year later.

But the big transformation came with gas. Initially, gas was used to light streets - Baltimore had gas lamps as early as 1816, before Paris or Berlin - but the dirt, odours and volatility of gas meant it could not be relied on for domestic purposes until the late 1860s. Once some attempt to deal with these problems had been made, gas swept the nation. Each gas outlet provided as much light as a dozen candles. By 1895, the average middle-class home was twenty times better lit than it had been at mid-century. But, even cleaned up and made more stable, gas remained dirty and dangerous. It emitted unpleasant, potentially lethal fumes that required special vents to clear the air. Even then, the carbonic acid and smoke that the lamps produced were harmful to books, curtains, wallpaper and soft furniture, as well as the eyes, lungs and clothes of the inhabitants.

In 1882, domestic electricity at last became a possibility when Thomas Edison's company started providing electricity on a commercial basis. By mid-decade, 200 ofNew York City's grandest households were enjoying the illumination from lightbulbs manufactured by the company. Only the very wealthiest could afford such an indulgence. It was unsurprising, therefore, that household electricity was not an immediate hit with everyone.

Outdoors, however, it was another matter. Almost overnight, the US became the most illuminated country in the world. By the 1890s, Broadway in New York was already being described as *'the Great White Way'* because of its dazzling theatre lights and advertising signs. People came from all over just to see the lights, which included the world's first flashing sign, for Manhattan Beach and its hotels. In 1910, Broadway got a sign that was a wonder of electrical engineering. Rising the equivalent of seven storeys above the rooftop of the Hotel Normandie and incorporating 20,000 coloured lightbulbs, it offered in intricate detail the illusion of a 30-second chariot race, complete with cracking whips and flying dust.

People were so amazed by it that police had to be assigned to the area to keep pedestrians and traffic moving.

By 1896, electricity had become such an accepted part of life that people began referring to it as *'juice'*. By 1930, 70 per cent of US households, some 20 million homes, were electrified- up from ten per cent in 1910, and more than the rest of the world combined at that point in time. The proportion would have been higher still except that rural electrification took so long to complete; even by 1946, as little as half of US farms had electricity.

As electricity became more widely available, electrical products began to come onto the market, starting with the electric sewing machine in 1889. The electric iron appeared in 1893, the electric vacuum cleaner in 1901, the electric washing machine in 1909, and the electric dishwasher in 1918. By 1917, the US householder could choose between 50 types of electrical appliances - and eagerly did so. In that year, people spent $175 million on them. Within a little over a decade, that figure would rise to no less than $2.4 billion a year.

The new and fast-changing market for electrical appliances often gave small companies a chance to thrive. After a major manufacturing rival turned down the idea of a washing machine which ran automatically, a small outfit named Bendix, which had no experience of manufacturing household appliances, took up the idea in 1937 and within a decade had become one of the US's biggest manufacturers of appliances. Much the same happened with a small company called Frigidaire, founded in 1918, which saw an opening for a refrigerator designed for the home and so successfully seized the opportunity that the name almost became generic, although it took until 1927 for General Electric to produce the first million-selling model. However, no product was more successful in this period than the radio. In just three years, beginning in 1922, over four million were sold, at a typical cost of $55. By 1926, there was a radio in five per cent of homes, and by the end of that decade, with almost every household owning at least one, market saturation was practically complete.

Questions 1-6

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

In boxes 1-6 on your 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*

1 In the late 1700s, the majority of families used candles and whale oil lamps regularly.

2 The light created by the Argand lamp was superior to that of a candle.

3 Gas was unsuitable for use in homes when it was first developed as a source of light.

4 By 1895, a number of different companies competed to provide domestic gas.

5 Gas lighting was found to damage the contents of the home.

6 The electric lightbulbs manufactured by Edison's company in the 1880s broke very easily.

Questions 7-13

Complete the table below.

*Choose **ONE WORD AND/OR A NUMBER** from the passage for each answer.*

*Write your answers in boxes **7-13** on your answer sheet.*

Year	Some key events in US electrification
7	electricity was supplied to homeowners for the first time.
1889-1918	The sewing machine was the first electrical appliance to appear in this period, while the **8 .....** was the last.
9	10% of US households had an electricity supply.
10	Consumer spending on electrical appliances totalled $175m.
1927	General Electric produced a million-selling model of a domestic **11** .....
1930-1946	Although 70% of all households had electricity by 1930, only 50% of **12** ..... were electrified by the end of this period.
1930	There was a **13** ..... in nearly every home.

READING PASSAGE 2

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

Farmers Centenary Celebration

A History of Farmers trading company: In 1909 Robert Laidlaw establishes mail-order company Laidlaw Leeds in Fort Street, Auckland. Then, Branch expansion: purchase of Green and Colebrook chain store; further provincial stores in Auckland and Waikato to follow. Opening of first furniture and boot factory. In 1920, Company now has 29 branches; Whangarei store purchased. Doors open at Hobson Street for direct selling to the public. The firm establishes London and New York buying offices. With permission from the Harbour Board, the large FARMERS electric sign on the Wyndham Street frontage is erected.

B In 1935, if the merchandise has changed, the language of the catalogues hasn't. Robert Laidlaw, the Scottish immigrant who established the century-old business, might have been scripting a modem-day television commercial when he told his earliest customers: Satisfaction, or your money back. "It was the first money back guarantee ever offered in New Zealand by any firm," says Ian Hunter, business historian. "And his mission statement was, potentially, only the second one ever found in the world." Laidlaw's stated aims were simple: to build the greatest business in New Zealand, to simplify every transaction, to eliminate all delays, to only sell goods it would pay the customer to buy.

C This year, the company that began as a mail-order business and now employs 3500 staff across 58 stores turns 100. Its centenary will be celebrated with the release of a book and major community fundraising projects, to be announced next week. Hunter, who is writing the centenary history, says, "Coming to a Farmers store once a week was a part of the New Zealand way of life." By 1960, one in every 10 people had an account with the company. It was the place where teenage girls shopped for their first bra, where newlyweds purchased their first dinner sets, where first paycheques were used to pay off hire purchase furniture, where Santa paraded every Christmas.

D Gary Blumenthal's mother shopped there, and so does he. The fondest memory for the Rotorua resident? "We were on holiday in Auckland... I decided that up on the lookout tower on top of the Farmers building would be a unique place to fit the ring on my new fiancee's finger." The lovebirds, who had to wait for "an annoying youth" to leave the tower before they could enjoy their engagement kiss, celebrate their 50th wedding anniversary in June.

E Farmers, says Hunter, has always had a heart. This, from a 1953 North & South interview with a former board chairman, Rawdon Busfield: "One day I was in the Hobson Street shop and I saw a woman with two small children. They were clean and tidily dressed, but poor, you could tell. That week we had a special on a big bar of chocolate for one shilling. I heard the woman say to her boy, 'No, your penny won't buy that.' He wasn't wearing shoes. So I went up to the boy and said, 'Son, have you got your penny?' He handed it to me. It was hot; he'd had it in his hand for hours. I took the penny and gave him the chocolate."

F Farmers was once the home of genteel tearooms, children's playgrounds, and an annual sale to celebrate the birthday of Hector the Parrot (the store mascot died, aged 131, in the 1970s; his stuffed remains still occupy pride of place at the company's head office). You could buy houses from Farmers. Its saddle factory supplied the armed forces, and its upright grand overstrung Pianos offered "the acme of value" according to those early catalogues hand-drawn by Robert Laidlaw himself. Walk through a Farmers store today and get hit by bright lights and big brands. Its Albany branch houses 16 international cosmetics companies. It buys from approximately 500 suppliers, and about 30% of these are locally owned.

G "Eight, 10 years ago," says current chief executive Rod McDermott, "lots of brands wouldn't partner with us. The stores were quite distressed. We were first price point focused, we weren't fashion focused." Remove the rose-tinted nostalgia, and Farmers is, quite simply, a business doing business in hard times. Dancing with the Stars presenter Candy Lane launches a clothing line? "We put a trial on, and we thought it was really lovely, but the uptake wasn't what we thought it would be. It's got to be what the customer wants," says McDermott.

H He acknowledges retailers suffer in a recession: "We're celebrating 100 years because we can and because we should." Farmers almost didn't pull through one economic crisis. By the mid-1980s, it had stores across the country: It had acquired the South Island's Calder Mackay chain of stores and bought out Haywrights. Then, with sales topping $375 million, it was taken over by Chase Corporation. Lincoln Laidlaw, now aged 88, and the son of the company's founder, remembers the dark days following the stock market crash and the collapse of Chase. "I think, once, Farmers was like a big family and all of the people who worked for it felt they were building something which would ultimately be to their benefit and to the benefit of New Zealand... then the business was being divided up and so that kind of family situation was dispelled and it hasn't been recovered." For a turbulent few years, the stores were controlled, first by a consortium of Australian banks and later Deka, the Maori Development Corporation and Foodland Associated Ltd. In 2003, it went back to "family" ownership, with the purchase by the James Pascoe Group, owned by David and Annie Norman, the latter being the great-granddaughter of James Pascoe, whose first business interest was jewellery.

"Sheer power of the brand," says McDermott, "pulled Farmers through and now we're becoming the brand it used to be again." Farmers was the company that, during World War II, topped up the wages of any staff member disadvantaged by overseas service. Robert Laidlaw, a committed Christian who came to his faith at a 1902 evangelistic service in Dunedin, concluded his original mission statement with the words, "All at it, always at it, wins success." Next week, 58 Farmers stores across the country will announce the local charities they will raise funds for in their centenary celebration. Everything from guide dog services to hospices to volunteer fire brigades will benefit. Every dollar raised by the community will be matched by the company. "It's like the rebirth of an icon," says McDermott.

Questions 14-18

Reading Passage 2 has six paragraphs, **A-H.**

Which paragraph contains the following information?

*Write the correct letter, **A-H,** in boxes 14-18 on your answer sheet.*

14 Generosity offered on an occasion

15 Innovative offer made by the head of the company

16 Fashion was not its strong point

17 A romantic event on the roof of Farmers.

18 Farmers were sold to a privately owned company.

Questions 19-23

Complete the sentences below.

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

Write your answers in boxes 19-23 on your answer sheet.

19 Farmers was first founded as a ..... in Auckland by Mr. Laidlaw.

20 Farmers developed fast and bought one ..... then another.

21 During overseas expansion, Farmers set up ..... in cities such as London.

22 Farmers held a ..... once a year for the well-known parrot.

23 In the opinion of Lincoln Laidlaw, Farmers was like a ..... for employees, and beneficial not just for the employees themselves but for the whole country.

Questions 24-26

Look at the following statements (Questions 24-26) and the list of experts below.

Match each statement with the correct experts, ***A-C.***

Write the correct letter, ***A-C,*** *in boxes* ***24-26*** *on your answer sheet.*

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

24 Product became worse as the wrong aspect was focused.

25 An unprecedented statement made by Farmers in New Zealand.

26 Character of the company was changed.

List of People
A Lincoln Laidlaw
B Rod McDermott
C Ian Hunter

READING PASSAGE 3

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

New Zealand Short Stories

Paula Morris, the editor of a new book of short stories, introduces her collection

When I was appointed editor of this new collection, my instructions were to choose stories written by New Zealanders in the last decade. In order to make that selection, I wanted to read as widely as possible. I would not select authors simply because they were important names in New Zealand literature. Novelists who occasionally write short stories were not excluded; however, those who write full-length novels may not always possess the specific abilities necessary to write short stories, and vice versa. A variety of people - publishers, editors, academics - alerted me to new names, or reminded me about familiar names that I associated with other forms of writing. The author may be living overseas, or publishing elsewhere, or setting his or her work in another country, but none of these were issues I considered relevant. Neither did it matter whether they were famous or obscure. The only active New Zealand short-story writer I ruled out of my considerations was myself, as it would have been incompatible with my role as editor.

I certainly had no wish to separate contemporary stories into those most influenced by iconic writers of the past, such as Katherine Mansfield, and those following more recent traditions; such categorizations are simplistic. There was no particular version of New Zealand I wanted to construct or dismantle. For although we may get glimpses of a society through its short stories, these cannot set out to give us a panoramic social summary, because such a goal is beyond their scope.

The stories chosen would reflect the diversity of contemporary New Zealand, I hoped. However, it quickly became apparent that the quality of the story - that small matter of the fluency of the writing - was more important to me than the ethnicity, gender, social background, or regional affiliation of its author. My purpose was not to ensure every group in this diverse nation was represented in some fair and proportional way, and there are some absences. Of writers from the Pacific Islands, Samoa is the dominant presence among the stories selected. This is perhaps unsurprising given the number of Samoans who have settled in New Zealand over recent decades. However, Samoa's dominance may not endure. The number of stories I read by authors from all the many different Pacific Islands, both published and unpublished, indicates that a new wave of talent is about to become prominent in our national literature.

All the writers here speak of New Zealand, I think, in direct and indirect ways, even the ones who set their work elsewhere. When writing fiction, says the master short-story writer William Trevor, *'you cannot escape the person you are ... All fiction has its autobiographical roots.'* Trevor was born in Ireland and, therefore, he says: *'I observe the world through Irish sensibilities, take for* granted an Irish way of doing things ... and am reminded of familiarities of early environment when I'm separated from them.' The stories featured in this collection are evidence of this truth.

An outsider, after reading these stories, would draw certain conclusions about New Zealand. They might conclude that Maori, the country's original inhabitants, may live in simple conditions or in one of the most expensive suburbs; that rather than the clean, green paradise sometimes presented to tourists from overseas, New Zealand has its fair share of social issues; that our businesses happily employ arrogant managers and rude consultants; that dwelling among us are the happily married and the smugly suburban; and that we like sport. Each of these narratives and many others are presented here.

Of course, a collection like this is partly a product of the taste and enthusiasms of its editor. At some point, early in my reading, I became conscious of this. A story had to grab me - move, provoke, excite, entertain or challenge me, stay with me in some way - if it was to be included. The stories I kept returning to were those that would not go away, would not be forgotten by me, and in this sense it is a subjective selection.

So, was the past decade a golden age for short fiction in New Zealand? Certainly, it could be seen as a period of investment and opportunity. For nine years the Prime Minister herself took on the arts, culture and heritage ministerial portfolio, quickly implementing a cultural recovery package of tens of millions of dollars. Furthermore, valuable prizes for writers were created. These included a residency in Berlin, Germany, and also residencies in locations around New Zealand, such as Randall Cottage in Wellington, allowing writers to leave home and work in fresh environments. The decade also saw the establishment of various postgraduate degree courses in creative writing. Victoria University led the way when Bill Manhire added an MA course to his already popular undergraduate course in creative writing and this was followed by other institutions.

A number of journals promoting new writing survived, including *Landfall,* established at the University ofOtago in 1947. These titles were joined in this period by ventures *likeJAAM* and the e-zine *Turbine,* where many emerging writers get their start. And Radio New Zealand National, our single largest purchaser of short fiction, continued to buy around eighty stories a year because they remained very popular with the listening audience. Two of the writers included in this collection got their start writing for radio. All in all then, there were many positive developments for writers over the decade.

Questions 27-32

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27-32 on your 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*

27 Writing novels and short stories requires the same range of skills.

28 Publishers, editors and academics provided valuable help in identifying sources of material.

29 Authors living overseas tend to lose interest in writing about New Zealand.

30 It was important that one particular author's work was excluded from the collection.

31 Katherine Mansfield's influence on today's authors has been overstated.

32 It is possible to give an overview of an entire society in a short story.

Questions 33-36

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

Write the correct letter in boxes 33-36 on your answer sheet.

33 Paula Morris refers to *'that small matter of the fluency of the writing'* to

A demonstrate how language changes over time.
B emphasise her priorities when selecting stories.
C suggest that story-writing is losing popularity.
D illustrate the variety of cultures in New Zealand.

34 What are we told about writers from the Pacific Islands?

A They will be increasingly important in the future.
B Few of their stories were included in this collection.
C Their stories are distinct from those of other writers.
D They have been overlooked too often in the past.

35 Paula Morris refers to William Trevor to illustrate

A why some authors prefer to write in second languages.
B who has had most influence on her own writing style.
C how an author's life experiences affect their writing.
D what is problematic about certain written stories.

36 What is Paula Morris doing in the fifth paragraph?

A explaining which were her favourite stories.
B rejecting a common criticism of modern stories.
C contrasting the content of various different stories.
D comparing her collection with other books of stories.

Questions 37 - 40

Complete the summary using the list of phrases, ***A-G,*** *below.*

Write the correct letter, ***A-G,*** *in boxes 37-40 on your answer sheet.*

Was this a golden decade for writers?

The arts in general benefited from **37** ..... that resulted in millions of dollars worth of investment. Another innovation was new **38** ..... such as the Randall Cottage initiative. What's more, there was a development in **39** ..... available for writers, with Bill Manhire playing an important role.

Writers were also served by **40** ..... dating variously from 1947 to more recent times.

A	travel opportunities
B	technological advances
C	broadcast media
D	government support
E	commercial sponsorship
F	tertiary programmes
G	literary publications

TEST 10

READING PASSAGE 1

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

The link between low light and mood

As far back as the 6th century, historians were describing seasonal peaks of joy and sorrow among the Scandinavian countries of Sweden, Norway and Finland. Because these countries are so far north, there is continuous daylight in summer, and an almost complete absence of it in winter. Today researchers recognise that a lack of light can cause some people to experience a range of negative consequences, from low energy to more serious depression.

At Lindeberg School, in southern Sweden, teacher Anna Odder Milstam arrives at work before dawn for several months of the year. 'During the winter, we just feel so tired,' she says. Anna teaches a class of 14-year-olds, who are now part of an experiment investigating whether artificial lighting might possibly aid their concentration. A few years ago, Anna's classroom was fitted with ceiling lights that change in colour and intensity. The lights were developed by researchers at a company called BrainLit. The ultimate goal of the experiment is to create a system designed to suit individual workers by adjusting the lighting already installed within their offices to optimise physical wellbeing.

BrainLit's artificial lighting system simulates the experience of being outside on a typical day during spring, rather than any other season so, when Anna's pupils arrive at 8.10am, the lights are a bluish-white to wake them up. The lights grow gradually more intense through to lunch time. But then the lights gradually dim and become more yellow as the afternoon progresses. Bright light in the morning quickly stops further production of melatonin. This is the hormone naturally released by the human body that plays a vital role in the sleep-wake cycle. Shutting this off early in the day helps people to feel sleepy at the correct time when night comes around again.

Already, there's some evidence that the artificial lighting system is affecting the pupils' sleep. In a study, in order to monitor sleep cycles, 14 pupils from Anna's class and 14 from a neighbouring class without sleep lighting system were each given a sleep tracking app and their own diary for making notes. During the second week of the study, significant differences started to emerge between the two groups; in terms of quality, Anna's pupils woke up fewer times during the night and slept for longer. As yet, no one has identified whether the lighting system is affecting the students' scores for exams, but Anna reports that her students are certainly more focused.

While some people report only feelings of tiredness during winter months, other people experience a more serious condition known as seasonal affective disorder (SAD). This kind of depression has been treated with the use of bright lamps in Scandinavian countries since the 1980s. But in Sweden, support for this type of light therapy often went one step further: dressing patients in all-white clothes and sending them into brightly lit rooms. In recent years, however, light therapy has experienced something of a backlash in Sweden, and so now only a handful of clinics remain. In part, this was a response to a study by the Swedish Council on Technology Assessment in Health Care, which reviewed the evidence and concluded that 'although controlled studies in light therapy rooms is well established in Sweden, no satisfactory, controlled studies for SAD have been published on the subject, meaning that the value of light therapy for SAD 'can be neither confirmed nor dismissed'.

A town called RJukan in Norway has taken a different approach to dealing with winter darkness. In the 1913, the concept of erecting large rotatable mirrors on the northern side of the valley overlooking RJukan was proposed to collect sunlight and reflect it down over the town below. However, it wasn't until 2002 that resident Martin Andersen started to develop some concrete plans. These involved a mirror mounted in such a way that it would tum to keep track of the sun while continually reflecting its light down towards the town square. Now three enormous mirrors stand on the mountainside above RJukan. In January, the sun is only high enough for the mirrors to bring light to the square for a couple of hours per day, from midday until 2pm, but the beam produced by the mirrors is strong. Interestingly, Martin Andersen admits that he was used to the lack of sunlight even before this innovation, and he believes that other residents were too.

This is certainly the case in another Norwegian settlement: Troms0. It is 400 km north of the Arctic Circle and the sun doesn't rise above the horizon between 21 November and 21 January. Yet strangely studies have found no difference between rates of anxiety and depression in the population in winter and summer months. One suggestion is that the apparent resistance to winter depression is genetic. However, an alternative explanation is culture, meaning some people are just more willing to adapt. Recently, a psychologist called Kari Leibowitz spent ten months in Troms0 trying to discover how people cope during winter. She devised a 'winter mindset questionnaire' to assess people's attitudes towards winter, focusing on life satisfaction and a sense of personal growth.

Questions 1-6

Complete the notes below.

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

Write your answers in boxes 1-6 on your answer sheet.

Experiment with artificial light at Lindeborg school

Aims of the experiment

- to find out if students' **1.....**can be improved
- in the long term, to adapt lighting in **2** ..... so that employees feel better

Details about the artificial lighting system

- the artificial lights are designed to reproduce the natural daytime light of **3.....**in Sweden
- the lights turn a shade of **4** ..... towards the end of a school day
- the brightness of the lights in the morning helps regulate the amount of **5 .....**the body makes

Students who are involved in the experiment

- students in two different classes used technology as well as a diary to record the amount of sleep they got
- the quality of sleep amongst students in Anna's class improved and they woke up later
- the influence of the lighting system on performance during **6.....** is unknown

Questions 7-13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 7-13 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*

7 Sweden was the first Scandinavian country to use light therapy.

8 Light therapy continues to enjoy great popularity in Sweden.

9 The Swedish Council on Technology Assessment in Health Care has found proof that light therapy is effective.

1O Martin Andersen based his mirror design on an earlier idea.

11 Martin Andersen's mirrors can provide a full day of light during January.

12 In Troms0, people experience some similar moods during both summer and winter.

13 Culture is more likely than genetics to help people cope with winter in Troms0.

READING PASSAGE 2

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

Bird Migration

A Birds have many unique design features that enable them to perform such amazing feats of endurance. They are equipped with lightweight, hollow bones, intricately designed feathers providing both lift and thrust for rapid flight, navigation systems superior to any that man has developed, and an ingenious heat conserving design that, among other things, concentrates all blood circulation beneath layers of warm, waterproof plumage, leaving them fit to face life in the harshest of climates. Their respiratory systems have to perform efficiently during sustained flights at altitude, so they have a system of extracting oxygen from their lungs that far exceeds that of any other animal. During the later stages of the summer breeding season, when food is plentiful, their bodies can accumulate considerable layers of fat, to provide sufficient energy for their long migratory flights.

B The fundamental reason that birds migrate is to find adequate food during the winter months when it is in short supply. This particularly applies to birds that breed in the temperate and Arctic regions of the Northern Hemisphere, where food is abundant during the short growing season. Many species can tolerate cold temperatures if food is plentiful, but when food is not available, they must migrate. However, intriguing questions remain.

C One puzzling fact is that many birds journey much further than would be necessary just to find food and good weather. Nobody knows, for instance, why British swallows, which could presumably survive equally well if they spent the winter in equatorial Africa, instead of flying several thousands of miles further to their preferred winter home in South Africa's Cape Province. Another mystery involves the huge migrations performed by arctic terns and mudflat-feeding shorebirds that breed close to the Polar Regions. In general, the further north a migrant species breeds, the further south it spends the winter. For arctic terns, this necessitates an annual round trip of 25,000 miles. Yet, en route to their final destination in far-flung southern latitudes, all these individuals overfly other areas of seemingly suitable habitat spanning two hemispheres. While we may not fully understand birds' reasons for going to particular places, we can marvel at their feats.

D One of the greatest mysteries is how young birds know how to find the traditional wintering areas without parental guidance. Very few adults migrate with juveniles in tow, and youngsters may even have little or no inkling of their parents' appearance. A familiar example is that of the cuckoo, which lays its eggs in another species' nest and never reencounters its young. It is mind-boggling to consider that, once raised by its

host species, the young cuckoo makes its way to ancestral wintering grounds in the tropics before returning single-handedly to northern Europe the next season to seek out a mate among its kind. The obvious implication is that it inherits from its parents an inbuilt route map and direction-finding capability, as well as a mental image of what another cuckoo looks like. Yet nobody has the slightest idea as to how this is possible.

E Mounting evidence has confirmed that birds use the positions of the sun and stars to obtain compass directions. They also seem to be able to detect the earth's magnetic field, probably due to having minute crystals of magnetite in the region of their brains. However, accurate navigation also requires an awareness of position and time, especially when lost. Experiments have shown that after being taken thousands of miles over an unfamiliar land mass, birds are still capable of returning rapidly to nest sites. Such phenomenal powers are the product of computing several sophisticated cues, including an inborn map of the night sky and the pull of the earth's magnetic field. How the birds use their 'instruments' remains unknown, but one thing is clear: they see the world with a superior sensory perception to ours. Most small birds migrate at night and take their direction from the position of the setting sun. However, as well as seeing the sun go down, they also seem to see the plane of polarized light caused by it, which calibrates their compass. Traveling at night provides other benefits. Daytime predators are avoided and the danger of dehydration due to flying for long periods in warm, sunlit skies is reduced. Furthermore, at night the air is generally cool and less turbulent and so conducive to sustained, stable flight.

F Nevertheless, all journeys involve considerable risk, and part of the skill in arriving safely is setting off at the right time. This means accurate weather forecasting and utilizing favorable winds. Birds are adept at both, and, in laboratory tests, some have been shown to detect the minute difference in barometric pressure between the floor and ceiling of a room. Often birds react to weather changes before there is any visible sign of them. Lapwings, which feed on grassland, flee west from the Netherlands to the British Isles, France, and Spain at the onset of a cold snap. When the ground surface freezes, the birds could starve. Yet they return to Holland ahead of a thaw, their arrival linked to a pressure change presaging an improvement in the weather.

G In one instance a Welsh Manx shearwater carried to America and released was back in its burrow on Skokholm Island, off the Pembrokeshire coast, one day before a letter announcing its release! Conversely, each autumn a small number of North American birds are blown across the Atlantic by fast-moving westerly tailwinds. Not only do they arrive safely in Europe, but, based on ringing evidence, some make it back to North America the following spring, after probably spending the winter with European migrants in sunny African climes.

Questions 14-20

Reading Passage 2 has six paragraphs, **A-G.**

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

*Write the correct number, **i-x,** in boxes 14-30 on your answer sheet.*

List of Headings

	The best moment to migrate
ii	The unexplained rejection of closer feeding ground
iii	The influence of weather on the migration route
iv	Physical characteristics that allow birds to migrate
v	The main reason why birds migrate
vi	The best wintering grounds for birds
vii	Research findings on how birds migrate
viii	Successful migration despite the problem of wind
ix	The contrast between long-distance migration and short-distance migration
x	Mysterious migration despite lack of teaching

14 Paragraph **A**

15 Paragraph **B**

16 Paragraph **C**

17 Paragraph **D**

18 Paragraph **E**

19 Paragraph **F**

20 Paragraph **G**

Questions 21 and 22

*Choose **TWO** letters, **A-E.***

Write the correct letter in boxes 21 and 22 on your answer sheet.

Which **TWO** of the following statements are true about bird migration?

A Birds often fly further than they need to
B Birds traveling in family groups are safe.
C Birds flying at night need less water.
D Birds have much sharper eyesight than humans.
E Only shorebirds are resistant to strong winds.

Questions 23-26

Complete the sentences below.

*Choose **NO MORE THAN ONE WORD OR A NUMBER** from the passage for each answer.*

Write your answers in boxes 23-26 on your answer sheet.

23 It is a great mystery that young birds like cuckoos can find their wintering grounds without ..... assistance.

24 Evidence shows birds can tell ..... like a compass by observing the sun and the stars.

25 One advantage for birds flying at night is that they can avoid contact with

26 Laboratory tests show that birds can detect weather without ..... signs.

READING PASSAGE 3

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

Vitamins

If there's one thing about nutrition we think we know for sure, it's that vitamins are good for us. In reality, however, most of us know nearly nothing about vitamins. And our faith in vitamin supplements or pills, combined with our current beliefs about nutrition and health, is doing us harm.

Discovered barely a century ago, vitamins were a revolutionary breakthrough in nutritional science, providing cures and ways of preventing some of the world's most terrifying diseases. But it wasn't long before vitamins moved from the labs of scientists to become supplements that could be added to food or taken independently. By the end of World War Two, vitamins were available in forms not found in nature - vitamin-fortified peanut butter, vitamin gum, even vitamin doughnuts. Vitamins had entered the scientific mainstream, yet far from expressing perfectly reasonable scepticism over these products, the public asked for more. This is a process that has continued ever since.

In the 21st century, we're such believers in vitamins' inherent goodness that we don't really realise to which scientists still don't truly comprehend how vitamins work in our bodies, or how much of each vitamin we require. We're not aware that vitamins (and our enthusiasm for them) are what opened the door for the array of supposed wonder nutrients that intrigue and confuse us today, whether they be probiotics or antioxidants or omega-3s.

We don't notice the ways the food marketers and dietary supplement makers use synthetic vitamins to add an appearance of health to otherwise unhealthy products; nor do we acknowledge the extent to which we use vitamins and these other vitamin-inspired nutrients to give ourselves permission to overeat foods of all kinds. And we certainly don't recognise that by believing in the idea that isolated dietary chemicals hold the keys to good health, our obsession with vitamins is making us less healthy.

One assumption about vitamins is definitely true: we do indeed need them. The 13 dietary chemicals that we call vitamins affect each one of us every minute of every day, helping us to think and speak and move our muscles, extract calories from what we eat, even see the words on this page. Deficiencies in these vitamins cause serious illnesses and even death - something that still occurs around the world today - and when administered soon enough, vitamins can be astoundingly powerful; give vitamin A to a girl suffering from the vitamin A deficiency condition of night blindness, and she can recover full vision within days. Our need for them is no more avoidable than our need for air.

But the very power of vitamins makes them a double-edged sword. Their ability to save lives has promoted the idea that they can do the impossible in all of us, regardless of whether we're actually deficient in them. This has led to beliefs in vitamins that are based more on faith than fact. When we seek out vitamins today, it's not because we're worried about night blindness, or pellagra (a disease caused by a lack of vitamin B3), or beriberi (a disease caused by a vitamin B1 deficiency), or any of the other conditions that vitamins can actually prevent and cure. Instead, we use vitamins as insurance policies against whatever else we might (or might not) be eating, as if by making up for our bad eating habits, vitamins can save us from ourselves. We think that vitamins will help us live longer and stay healthier, even prevent or reverse disease. It is now generally accepted that vitamins will help give us an advantage over other competitors at sporting events. Many people choose to take more vitamins as they don't want to rely on conventional treatment by doctors. Perhaps that's why when we hear the word 'vitamin', we immediately think of pills, turning substances found naturally in foods into something we just eat, but take. Yet, while we all have access to information and research about the side effects of pills, and it seems unlikely that any one drug could possibly fix all our issues, we assume that vitamins are both cures and entirely risk-free.

In a way, our attraction to vitamins, like our general obsession with nutrition, is perfectly logical: our well-being is affected by what we eat, and no one wants to be sick. But that doesn't explain how the term 'vitamin', a word coined by Polish biochemist Casimir Funk before any vitamin had even been chemically identified, has come to be synonymous with health. Isn't it odd, for example, that cyanocobalamin and alpha-tocopherol sound intimidating, while vitamins B12 and E - which are names for the same substances - seem good? Isn't it strange that we worry about hydrogenated oils, high fructose com syrup, artificial sweeteners, and genetically-modified food, but allow synthetic vitamins to be added to nearly anything without question - and then use the presence of those vitamins to define the food as healthy?

Questions 27-30

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

Write the correct letter in boxes 27-30 on your answer sheet.

27 The author mentions that vitamins were discovered 'barely a century ago' in order to

A show how important timing is in scientific discoveries.
B suggest that scientists started researching them then.
C illustrate how quickly awareness of them has become widespread.
D suggest that we are healthier now than in the past.

28 What does the writer imply about the food marketing and dietary supplement industries in the fourth paragraph?

A They mislead the public into buying unhealthy food.
B They were the driving forces behind scientific progress.
C They believe that vitamins improve food quality.
D They are currently working to discover new vitamins.

29 Why does the writer refer to vitamin A in the fifth paragraph?

A to correct a common misunderstanding about vitamins
B to question why some people are reluctant to take vitamins
C to exemplify that vitamins are a necessity for human health
D to illustrate that some vitamins are less important than others

30 What is the writer doing in the last paragraph?

A questioning the history of vitamin development
B outlining the chemical make-up of some vitamin supplements
C explaining why vitamin supplements can be difficult to manufacture
D illustrating how we view vitamins differently to other substances

Questions 31-35

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 31-35 on your 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*

31 At the end of World War Two, the public should have questioned the practices of food manufacturers.

32 Scientists in the 21st century have a thorough understanding of the function of vitamins.

33 Omega-3s are more important to a healthy diet than some vitamins.

34 The presence of vitamins in food encourages people to consume too much of it.

35 Vitamins are more effective at treating pellagra than beriberi.

Questions 37-40

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

Write the correct letter, ***A-G,*** *in boxes 37-40 on your answer sheet.*

Vitamins: Why they are necessary and some common beliefs about them

People need vitamins because they are essential for a range of **36** ..... Not having enough vitamins can cause suffering and disease.

However, people overestimate the power of vitamins. They believe these substances can result in **37.....** for everyone - even people who are not lacking in vitamins. Many people believe that vitamins can stop them from getting sick or even prolong their lives. Many people also believe that vitamins can lead to **38** ..... in physical activities. It is now common for people to think of vitamins as **39** ..... People often fail to take into account **40** ..... surrounding health and nutrition, and put all their trust in the power of vitamins to solve their problems.

A	alternative medicine	**B**	chemical compounds
C	improved performance	**D**	common sense
E	amazing transformations	**F**	clear evidence
G	bodily functions		

TEST 1

READING

Reading Passage 1, Questions 1-13

1 governess
2 diary
3 artists
4 museums
5 ambition
6 mycology
7 FALSE
8 NOT GIVEN
9 TRUE
10 FALSE
11 TRUE
12 FALSE
13 NOT GIVEN

Reading Passage 2, Questions 14-26

14 IV
15 VII
16 VI
17 I
18 V
19 II
20 **F**
21 C
22 **D**
23 G
24 electronic
25 business
26 government

Reading Passage 3, Questions 27-40

27 **D**
28 C
29 G
30 A
31 B
32 speed
33 acceleration
34 freshwater pike
35 butterfly fishes
36 turbulent
37 up-and-down
38 sideways
39 manoeuvrability
40 form

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 2

READING

Reading Passage 1, Questions 1-13

1 F
2 T
3 NG
4T
ST
6 NG
7 pit
8 thatch
9 tiring house
10 musicians
11 sprinklers
12 half
13 covered

Reading Passage 2, Questions 14-26

14 D
15 F
16 A
17 C
18 F
19 C
20 A
21 D
22 D
23 A
24 sticking
25 dimensions
26 structure

Reading Passage 3, Questions 27-40

27 NO
28 YES
29 NG
30 YES
31 NG
32 NO
33 YES
34 A
35 C
36 B
37 D
38 G
39 B
40 A

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 3

READING

Reading Passage 1, Questions 1-13

1 TRUE
2 TRUE
3 NG
4 FALSE
5 NG
6 FALSE
7 TRUE
8 sawmill
9 hammer
10 secret
11 profits
12 leather
13 climate

Reading Passage 2, Questions 14-26

14 lll
15 IV
16 VII
17 VIII
18 I
19 VI
20 C
21 **D**
22 C
23 C
24 photographs
25 40 years
26 weather systems/ giant planets

Reading Passage 3, Questions 27-40

27 B
28 **D**
29 C
30 C
31 NG
32 NO
33 YES
34 NG
35 YES
36 B
37 **E**
38 **D**
39 C
40 I

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 4

READING

Reading Passage 1, Questions 1-13

1 TRUE
2 FALSE
3 NOT GIVEN
4 FALSE
5 cushion
6 rounded hood
7 lower back
8 20 minutes
9 meditation room
10 music
11 traffic signal
12 co-workers
13 positive outcomes

Reading Passage 2, Questions 14-26

14 IV
15 VII
16 V
17 **IX**
18 VIII
19 III
20 I
21 **F**
22 **D**
23 **E**
24 military
25 chaos
26 ship

Reading Passage 3, Questions 27-40

27 NG
28 YES
29 NNO
30 NO
31 YES
32 C
33 B
34 A
35 **E**
36 A
37 I
38 B
39 G
40 **F**

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 5

READING

Reading Passage 1, Questions 1-13

1 eastern
2 shells
3 fertilizer/ fertiliser
4 construction
5 dams
6 butterflies
7 mainland
8 F
9 F
10 T
11 NG
12 T
13 NG

Reading Passage 2, Questions 14-26

14 F
15 E
16 D
17 A
18 B
19 A
20 D
21 C
22 E
23 B
24 performance
25 intensity
26 libraries

Reading Passage 3, Questions 27-40

27 D
28 F
29 E
30 A
31 C
32 incubation
33 task
34 posters
35 TRUE
36 NG
37 FALSE
38 NG
39 NG
40 TRUE

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 6

READING

Reading Passage 1, Questions 1-13

1 TRUE
2 FALSE
3 NOT GIVEN
4 FALSE
5 NOT GIVEN
6 TRUE
7 drought
8 city
9 fishing
10 minerals
11 mountainous
12 settlements
13 spring

Reading Passage 2, Questions 14-26

14 II
15 VII
16 IV
17 I
18 VI
19 VIII
20 C
21 B
22 A
23 mistakes
24 comments
25 names
26 pause

Reading Passage 3, Questions 27-40

27 NO
28 YES
29 NG
30 YES
31 C
32 A
33 C
34 **D**
35 **F**
36 G
37 A
38 **H**
39 C
40 B

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 7

READING

Reading Passage 1, Questions 1-13

1 TRUE
2 FALSE
3 FALSE
4 TRUE
5 TRUE
6 FALSE
7 metals
8 rivers
9 priests
10 discs
11 clothes
12 animals
13 goblets

Reading Passage 2, Questions 14-26

14 D
15 E
16 G
17 C
18 F
19 law
20 science
21 experimental physics
22 literature
23 D
24 A
25 C
26 B

Reading Passage 3, Questions 27-40

27 C
28 D
29 B
30 B
31 G
32 D
33 F
34 B
35 C
36 NO
37 YES
38 NO
39 YES
40 YES

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 8

READING

Reading Passage 1, Questions 1-13

1 FALSE
2 TRUE
3 FALSE
4 TRUE
5 NG
6 TRUE
7 caves
8 canoes
9 stone
10 bones
11 obsidian
12 beads
13 spices

Reading Passage 2, Questions 14-26

14 C
15 G
16 A
17 **H**
18 B
19 carbon
20 fires
21 biodiversity
22 ditches
23 A
24 C
25 C
26 **D**

Reading Passage 3, Questions 27-40

27 **D**
28 **F**
29 A
30 B
31 C
32 B
33 A
34 YES
35 NO
36 YES
37 YES
38 NO
39 NG
40 YES

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 9

READING

Reading Passage 1, Questions 1-13

1 YES
2 YES
3 YES
4 NOT GIVEN
5 YES
6 NOT GIVEN
7 1882
8 dishwasher
9 1910
10 1917
11 refrigerator
12 farms
13 radio

Reading Passage 2, Questions 14-26

14 E
15 B
16 G
17 D
18 H
19 mail-order company
20 chain store
21 buying offices
22 sale
23 big family
24 B
25 C
26 A

Reading Passage 3, Questions 27-40

27 NO
28 YES
29 NOT GIVEN
30 YES
31 YES
32 NO
33 B
34 A
35 C
36 C
37 D
38 A
39 F
40 G

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable

TEST 10

READING

Reading Passage 1, Questions 1-13

1 concentration
2 offices
3 spring
4 yellow
5 melatonin
6 exams
7 NOT GIVEN
8 FALSE
9 FALSE
10 TRUE
11 FALSE
12 TRUE
13 NOT GIVEN

Reading Passage 2, Questions 14-26

14 IV
15 V
16 II
17 **X**
18 VII
19 I
20 VIII
21 A
22 C
23 parental
24 direction
25 predators
26 visible

Reading Passage 3, Questions 27-40

27 C
28 A
29 C
30 **D**
31 YES
32 NO
33 NG
34 YES
35 NG
36 G
37 **E**
38 C
39 A
40 **D**

If you score ...

1-17	18-26	27-40
you are highly unlikely to get an acceptable score under examination conditions and we recommend that you spend a lot of time improving your English before you take IELTS	you may get an acceptable score under examination conditions but we recommend that you think about having more practice or lessons before you take IELTS	you are likely to get an acceptable score under examination conditions but remember that different institutions will find different scores acceptable