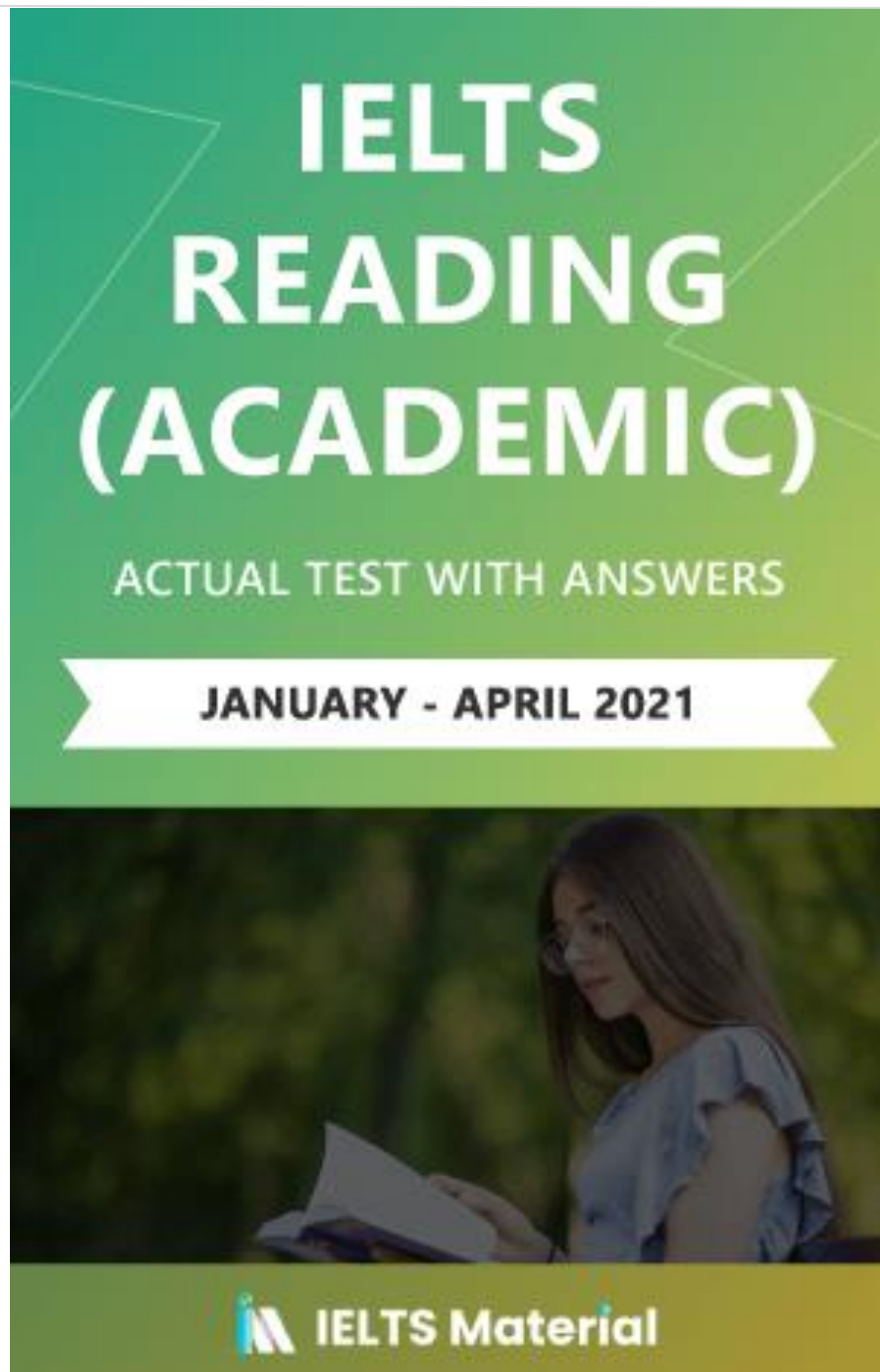


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JANUARY – APRIL 2021
WITH ANSWERS





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Preface

As far as you know, IELTS candidates will have only 60 minutes for this IELTS Reading part with a total of 40 questions. Therefore, it is absolutely necessary that you invest time in practicing the real IELTS reading tests for this module.

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Reading Test 1

SECTION 1

You should spend about 20 minutes on Questions 1-13 which are based on Section 1 below.

History of Refrigeration

A.

Refrigeration is a process of removing heat, which means cooling an area or a substance below the environmental temperature. Mechanical refrigeration makes use of the evaporation of a liquid refrigerant, which goes through a cycle so that it can be reused. The main cycles include vapour-compression, absorption steam-jet or steam-ejector, and airing. The term 'refrigerator' was first introduced by a Maryland farmer Thomas Moore in 1803, but it is in the 20th century that the appliance we know today first appeared.

B.

People used to find various ways to preserve their food before the advent of mechanical refrigeration systems. Some preferred using cooling systems of ice or snow, which meant that diets would have consisted of very little fresh food or fruits and vegetables, but mostly of bread, cheese and salted meals. For milk and cheeses, it was very difficult to keep them fresh, so such foods were usually stored in a cellar or window box. In spite of those measures, they could not survive rapid spoilage. Later on, people discovered that adding such chemical as sodium nitrate or potassium nitrate to water could lead to a lower temperature. In 1550 when this technique was first recorded, people used it to cool wine, as was the term 'to refrigerate'. Cooling drinks grew very popular in Europe by 1600, particularly in Spain, France, and Italy. Instead of cooling water at night, people used a new technique: rotating long-necked bottles of water which held dissolved saltpeter. The solution was intended to create very low temperatures and even to make ice. By the end of the 17th century, iced drink including frozen juices and liquors had become extremely fashionable in France.

C.

People's demand for ice soon became strong. Consumers' soaring requirement for fresh food, especially for green vegetables, resulted in reform in people's dieting habits between 1830 and the American Civil War, accelerated by a drastic expansion of the urban areas and the rapid amelioration in an economy of the populace. With the growth

of the cities and towns, the distance between the consumer and the source of food was enlarged. In the 1790s as a commercial product, ice was first transported out of Canal Street in New York City to Charleston, South Carolina. Unfortunately, this transportation was not successful because when the ship reached the destination, little ice left. Frederick Tudor and Nathaniel Wyeth, two New England' businessmen, grasped the great potential opportunities for ice business and managed to improve the storage method of ice in the process of shipment. The acknowledged 'Ice King' in that time, Tudor concentrated his efforts on bringing the ice to the tropical areas. In order to achieve his goal and guarantee the ice to arrive at the destination safely he tried many insulating materials in an experiment and successfully constructed the ice containers, which reduced the ice loss from 66 per cent to less than 8 per cent drastically. Wyeth invented an economical and speedy method to cut the ice into uniform blocks, which had a tremendous positive influence on the ice industry. Also, he improved the processing techniques for storing, transporting and distributing ice with less waste.

D.

When people realised that the ice transported from the distance was not as clean as previously thought and gradually caused many health problems, it was more demanding to seek the clean natural sources of ice. To make it worse, by the 1890s water pollution and sewage dumping made clean ice even more unavailable. The adverse effect first appeared in the blowing industry, and then seriously spread to such sectors as meat packing and dairy industries. As a result, the clean, mechanical refrigeration was considerably in need.

E.

Many inventors with creative ideas took part in the process of inventing refrigeration, and each version was built on the previous discoveries. Dr William Cullen initiated to study the evaporation of liquid under the vacuum conditions in 1720. He soon invented the first man-made refrigerator at the University of Glasgow in 1748 with the employment of ethyl ether boiling into a partial vacuum. American inventor Oliver Evans designed the refrigerator firstly using vapour rather than liquid in 1805. Although his conception was not put into practice in the end the mechanism was adopted by an American physician John Gorrie, who made one cooling machine similar to Evans' in 1842 with the purpose of reducing the temperature of the patient with yellow fever in a Florida hospital. Until 1851, Evans obtained the first patent for mechanical refrigeration in the USA. In 1820, Michael Faraday, a Londoner, first liquefied ammonia to cause cooling. In 1859, Ferdinand Carre from France invented the first version of the ammonia water cooling machine. In 1873, Carl von Linde designed the first practical and portable compressor refrigerator in Munich, and in 1876 he abandoned the methyl

ether system and began using an ammonia cycle. Linde later created a new method ('Linde technique') for liquefying large amounts of air in 1894. Nearly a decade later, this mechanical refrigerating method was adopted subsequently by the meat packing industry in Chicago.

F.

Since 1840, cars with the refrigerating system had been utilised to deliver and distribute milk and butter. Until 1860, most seafood and dairy products were transported with cold-chain logistics. In 1867, refrigerated, railroad cars are patented to J.B. Sutherland from Detroit, Michigan, who invented insulated cars by installing the ice bunkers at the end of the cars: air came in from the top, passed through the bunkers, circulated through the cars by gravity and controlled by different quantities of hanging flaps which caused different air temperatures. Depending on the cargo (such as meat, fruits etc.) transported by the cars, different car designs came into existence. In 1867, the first refrigerated car to carry fresh fruit was manufactured by Parker Earle of Illinois, who shipped strawberries on the Illinois Central Railroad. Each chest was freighted with 100 pounds of ice and 200 quarts of strawberries. Until 1949, the trucking industry began to be equipped with the refrigeration system with a roof-mounted cooling device, invented by Fred Jones.

G.

From the late 1800s to 1929, the refrigerators employed toxic gases – methyl chloride, ammonia, and sulfur dioxide – as refrigerants. But in the 1920s, a great number of lethal accidents took place due to the leakage of methyl chloride out of refrigerators. Therefore, some American companies started to seek some secure methods of refrigeration. Frigidaire detected a new class of synthetic refrigerants called halocarbons or CFCs (chlorofluorocarbons) in 1928. This research led to the discovery of chlorofluorocarbons (Freon), which quickly became the prevailing material in compressor refrigerators. Freon was safer for the people in the vicinity, but in 1973 it was discovered to have detrimental effects on the ozone layer. After that, new improvements were made, and Hydrofluorocarbons, with no known harmful effects, was used in the cooling system. Simultaneously, nowadays, Chlorofluorocarbons (CFS) are no longer used; they are announced illegal in several places, making the refrigeration far safer than before.

Questions 1-5

Look at the following events (Questions 1-5) and the list of dates below.

Match each event with the correct date, A-F.

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

List of Dates

- A.1550
- B.1799
- C.1803
- D.1840
- E.1949
- F.1973

1. Vehicles with refrigerators were used to transport on the road.
2. Ice was sold around the United States for the first time.
3. Some kind of chemical refrigerant was found harmful to the atmosphere.
4. The term 'refrigerator' was firstly introduced.
5. Some chemicals were added to refrigerate wine.

Questions 6-10

Look at the following opinions or deeds (Questions 6-10) and the list of people below. Match each opinion or deed with the correct person, A-G.

Write the correct letter, A-G, in boxes 6-10 on your answer sheet.

List of People

- A. Thomas Moore
- B. Frederick Tudor
- C. Carl Von Linde
- D. Nathaniel Wyeth
- E. J.B. Sutherland
- F. Fred Jones
- G. Parker Earle

6. patented the idea that refrigerating system can be installed on tramcars
7. invented an ice-cutting technical method that could save money and time
8. enabled the cold storage technology to be applied in fruit
9. invented a cooling device applied into the trucking industry
10. created a new technique to liquefy the air

Questions 11-13

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

Write the correct letter, A-E, in boxes 11-14 on your answer sheet.

11. A healthy dietary change between 1830 and the American Civil War was greatly associated with.....

12. The development of urbanisation was likely to cause.....

13. Problems due to water treatment contributed to.....

- A. new developments, such as the application of Hydrofluorocarbons.
- B. consumers' demand for fresh food, especially for vegetables.
- C. the discovery of chlorofluorocarbons (Freon).
- D. regional transportation system for refrigeration for a long distance.
- E. extensive spread of the refrigeration method.

SECTION 2

Smell and Memory

Smells like yesterday

Why does the scent of a fragrance or the mustiness of an old trunk trigger such powerful memories of childhood? New research has the answer, writes Alexandra Witze.

A.

You probably pay more attention to a newspaper with your eyes than with your nose. But lift the paper to your nostrils and inhale. The smell of newsprint might carry you back to your childhood, when your parents perused the paper on Sunday mornings. Or maybe some other smell takes you back -the scent of your mother's perfume, the pungency of a driftwood campfire. Specific odors can spark a flood of reminiscences. Psychologists call it the "Proustian phenomenon", after French novelist Marcel Proust. Near the beginning of the masterpiece *In Search of Lost Time*, Proust's narrator dunks a madeleine cookie into a cup of tea -and the scent and taste unleash a torrent of childhood memories for 3000 pages.

B.

Now, this phenomenon is getting the scientific treatment. Neuroscientists Rachel Herz, a cognitive neuroscientist at Brown University in Providence, Rhode Island, have discovered, for instance, how sensory memories are shared across the brain, with different brain regions remembering the sights, smells, tastes and sounds of a particular experience. Meanwhile, psychologists have demonstrated that memories triggered by smells can be more emotional, as well as more detailed, than memories not related to smells. When you inhale, odor molecules set brain cells dancing within a region known as the amygdala, a part of the brain that helps control emotion. In contrast, the other senses, such as taste or touch, get routed through other parts of the brain before reaching the amygdala. The direct link between odors and the amygdala may help explain the emotional potency of smells. “There is this unique connection between the sense of smell and the part of the brain that processes emotion,” says Rachel Herz.

C.

But the links don't stop there. Like an octopus reaching its tentacles outward, the memory of smells affects other brain regions as well. In recent experiments, neuroscientists at University College London (UCL) asked 15 volunteers to look at pictures while smelling unrelated odors. For instance, the subjects might see a photo of a duck paired with the scent of a rose, and then be asked to create a story linking the two. Brain scans taken at the time revealed that the volunteers' brains were particularly active in a region known as the olfactory cortex, which is known to be involved in processing smells. Five minutes later, the volunteers were shown the duck photo again, but without the rose smell. And in their brains, the olfactory cortex lit up again, the scientists reported recently. The fact that the olfactory cortex became active in the absence of the odor suggests that people's sensory memory of events is spread across different brain regions. Imagine going on a seaside holiday, says UCL team leader, Jay Gottfried. The sight of the waves becomes stored in one area, whereas the crash of the surf goes elsewhere, and the smell of seaweed in yet another place. There could be advantages to having memories spread around the brain. “You can reawaken that memory from any one of the sensory triggers,” says Gottfried. “Maybe the smell of the sun lotion, or a particular sound from that day, or the sight of a rock formation.” Or in the case of an early hunter and gatherer (out on a plain – the sight of a lion might be enough to trigger the urge to flee, rather than having to wait for the sound of its roar and the stench of its hide to kick in as well.

D.

Remembered smells may also carry extra emotional baggage, says Herz. Her research suggests that memories triggered by odors are more emotional than memories

triggered by other cues. In one recent study, Herz recruited five volunteers who had vivid memories associated with a particular perfume, such as opium for Women and Juniper Breeze from Bath and Body Works. She took images of the volunteers' brains as they sniffed that perfume and an unrelated perfume without knowing which was which. (They were also shown photos of each perfume bottle.) Smelling the specified perfume activated the volunteers' brains the most, particularly in the amygdala, and in a region called the hippocampus, which helps in memory formation. Herz published the work earlier this year in the journal *Neuropsychologia*.

E.

But she couldn't be sure that the other senses wouldn't also elicit a strong response. So, in another study Herz compared smells with sounds and pictures. She had 70 people describe an emotional memory involving three items—popcorn, fresh-cut grass and a campfire. Then they compared the items through sights, sounds and smells. For instance, the person might see a picture of a lawnmower, then sniff the scent of grass and finally listen to the lawnmower's sound. Memories triggered by smell were more evocative than memories triggered by either sights or sounds.

F.

Odor-evoked memories may be not only more emotional, but more detailed as well. Working with colleague John Downes, psychologist Simon Chu of the University of Liverpool started researching odor and memory partly because of his grandmother's stories about Chinese culture. As generations gathered to share oral histories, they would pass a small pot of spice or incense around; later, when they wanted to remember the story in as much detail as possible, they would pass the same smell around again. "It's kind of fits with a lot of anecdotal evidence on how smells can be really good reminders of past experiences," Chu says. And scientific research seems to bear out the anecdotes. In one experiment, Chu and Downes asked 42 volunteers to tell a life story, then tested to see whether odors such as coffee and cinnamon could help them remember more detail in the story. They could.

G.

Despite such studies, not everyone is convinced that Proust can be scientifically analyzed. In the June issue of *Chemical Senses*, Chu and Downes exchanged critiques with renowned perfumer and chemist J. Stephan Jellinek. Jellinek chided the Liverpool researchers for, among other things, presenting the smells and asking the volunteers to think of memories, rather than seeing what memories were spontaneously evoked by the odors. But there's only so much science can do to test a phenomenon that's

inherently different for each person, Chu says. Meanwhile, Jellinek has also been collecting anecdotal accounts of Proustian experiences, hoping to find some common links between the experiences. "I think there is a case to be made that surprise may be a major aspect of the Proust phenomenon," he says. "That's why people are so struck by these memories." No one knows whether Proust ever experienced such a transcendental moment. But his notions of memory, written as fiction nearly a century ago, continue to inspire scientists of today.

Questions 14-18

Use the information in the passage to match the people (listed A-C) with opinions or deeds below. Write the appropriate letters A-C in boxes 14-18 on your answer sheet.

NB you may use any letter more than once

- A. Rachel Herz
- B. Simon Chu
- C. Jay Gottfried

- 14. Found pattern of different sensory memories stored in various zones of a brain.
- 15. Smell brings detailed event under a smell of certain substance.
- 16. Connection of smell and certain zones of brain is different with that of other senses.
- 17. Diverse locations of stored information help us keep away the hazard.
- 18. There is no necessary correlation between smell and processing zone of brain.

Questions 19-22

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

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

19. What does the experiments conducted by Herz show?

- A. Women are more easily addicted to opium medicine
- B. Smell is superior to other senses in connection to the brain
- C. Smell is more important than other senses
- D. certain part of the brain relates the emotion to the sense of smell

20. What does the second experiment conducted by Herz suggest?

- A. Result directly conflicts with the first one
- B. Result of her first experiment is correct
- C. Sights and sounds trigger memories at an equal level
- D. Lawnmower is a perfect example in the experiment

21. What is the outcome of experiment conducted by Chu and Downes?

- A. smell is the only functional under Chinese tradition
- B. half of volunteers told detailed stories
- C. smells of certain odors assist story tellers
- D. odors of cinnamon is stronger than that of coffee

22. What is the comment of Jellinek to Chu and Downers in the issue of Chemical Senses:

- A. Jellinek accused their experiment of being unscientific
- B. Jellinek thought Liverpool is not a suitable place for experiment
- C. Jellinek suggested that there was no further clue of what specific memories aroused
- D. Jellinek stated that experiment could be remedied

Questions 23-26

Summary

Complete the following summary of the paragraphs of Reading Passage, using **NO MORE THAN THREE WORDS** from the Reading Passage for each answer. Write your answers in boxes 23-26 on your answer sheet.

In the experiments conducted by UCL, participants were asked to look at a picture with a scent of a flower, then in the next stage, everyone would have to 23 _____ for a connection. A method called 24 _____ suggested that specific areas of the brain named 25 _____ were quite active. Then in another paralleled experiment about Chinese elders, storytellers could recall detailed anecdotes when smelling a bowl of 26 _____ or incense around.

SECTION 3

Learning lessons from the past

A.

Many past societies collapsed or vanished, leaving behind monumental ruins such as those that the poet Shelley imagined in his sonnet, Ozymandias. By collapse, I mean a drastic decrease in human population size and/or political/economic/social complexity, over a considerable area, for an extended time. By those standards, most people would consider the following past societies to have been famous victims of full-fledged collapses rather than of just minor declines: the Anasazi and Cahokia within the boundaries of the modern US, the Maya cities in Central America, Moche and Tiwanaku societies in South America, Norse Greenland, Mycenaean Greece and Minoan Crete in Europe, Great Zimbabwe in Africa, Angkor Wat and the Harappan Indus Valley cities in Asia, and Easter Island in the Pacific Ocean.

B.

The monumental ruins left behind by those past societies hold a fascination for all of us. We marvel at them when as children we first learn of them through pictures. When we grow up, many of us plan vacations in order to experience them at first hand. We feel drawn to their often spectacular and haunting beauty, and also to the mysteries that they pose. The scales of the ruins testify to the former wealth and power of their builders. Yet these builders vanished, abandoning the great structures that they had created at such effort. How could a society that was once so mighty end up collapsing?

C.

It has long been suspected that many of those mysterious abandonments were at least partly triggered by ecological problems: people inadvertently destroying the environmental resources on which their societies depended. This suspicion of unintended ecological suicide (ecocide) has been confirmed by discoveries made in recent decades by archaeologists, climatologists, historians, paleontologists, and palynologists (pollen scientists). The processes through which past societies have undermined themselves by damaging their environments fall into eight categories, whose relative importance differs from case to case: deforestation and habitat destruction, soil problems, water management problems, overhunting, overfishing, effects of introduced species on native species, human population growth, and increased impact of people.

D.

Those past collapses tended to follow somewhat similar courses constituting variations on a theme. Writers find it tempting to draw analogies between the course of human societies and the course of individual human lives - to talk of a society's birth, growth, peak, old age and eventual death. But that metaphor proves erroneous for many past societies: they declined rapidly after reaching peak numbers and power, and those rapid declines must have come as a surprise and shock to their citizens. Obviously, too, this trajectory is not one that all past societies followed unvaryingly to completion: different societies collapsed to different degrees and in somewhat different ways, while many societies did not collapse at all.

E.

Today many people feel that environmental problems overshadow all the other threats to global civilisation. These environmental problems include the same eight that undermined past societies, plus four new ones: human-caused climate change, buildup of toxic chemicals in the environment, energy shortages, and full human utilisation of the Earth's photosynthetic capacity. But the seriousness of these current environmental problems is vigorously debated. Are the risks greatly exaggerated, or conversely are they underestimated? Will modern technology solve our problems, or is it creating new problems faster than it solves old ones? When we deplete one resource (e.g. wood, oil, or ocean fish), can we count on being able to substitute some new resource (e.g. plastics, wind and solar energy, or farmed fish)? Isn't the rate of human population growth declining, such that we're already on course for the world's population to level off at some manageable number of people?

F.

Questions like this illustrate why those famous collapses of past civilisations have taken on more meaning than just that of a romantic mystery. Perhaps there are some practical lessons that we could learn from all those past collapses. But there are also differences between the modern world and its problems, and those past societies and their problems. We shouldn't be so naive as to think that study of the past will yield simple solutions, directly transferable to our societies today. We differ from past societies in some respects that put us at lower risk than them; some of those respects often mentioned include our powerful technology (i.e. its beneficial effects), globalisation, modern medicine, and greater knowledge of past societies and of distant modern societies. We also differ from past societies in some respects that put us at greater risk than them: again, our potent technology (i.e., its unintended destructive

effects), globalisation (such that now a problem in one part of the world affects all the rest), the dependence of millions of us on modern medicine for our survival, and our much larger human population. Perhaps we can still learn from the past, but only if we think carefully about its lessons.

Questions 27-29

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

Write the correct answers in boxes 27-29 on your answer sheet.

27. When the writer describes the impact of monumental ruins today, he emphasises

- A. the income they generate from tourism.
- B. the area of land they occupy.
- C. their archaeological value.
- D. their romantic appeal.

28. Recent findings concerning vanished civilisations have

- A. overturned long-held beliefs.
- B. caused controversy amongst scientists.
- C. come from a variety of disciplines.
- D. identified one main cause of environmental damage.

29. What does the writer say about ways in which former societies collapsed?

- A. The pace of decline was usually similar.
- B. The likelihood of collapse would have been foreseeable.
- C. Deterioration invariably led to total collapse.
- D. Individual citizens could sometimes influence the course of events.

Questions 30-34

Do the following statements agree with the views of the writer in section 3?

In boxes 30-34 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

30. It is widely believed that environmental problems represent the main danger faced by the modern world.
31. The accumulation of poisonous substances is a relatively modern problem.
32. There is general agreement that the threats posed by environmental problems are very serious.
33. Some past societies resembled present-day societies more closely than others.
34. We should be careful when drawing comparisons between past and present.

Questions 35-39

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

Write the correct letter, A-F in boxes 35 -39 on your answer sheet.

35. Evidence of the greatness of some former civilisations
36. The parallel between an individual's life and the life of a society
37. The number of environmental problems that societies face
38. The power of technology
39. A consideration of historical events and trends

- A. is not necessarily valid.
- B. provides grounds for an optimistic outlook.
- C. exists in the form of physical structures.
- D. is potentially both positive and negative.
- E. will not provide direct solutions for present problems.
- F. is greater now than in the past.

Question 40

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

40. What is the main argument of Reading Passage?

- A. There are differences as well as similarities between past and present societies.
- B. More should be done to preserve the physical remains of earlier civilisations.
- C. Some historical accounts of great civilisations are inaccurate.
- D. Modern societies are dependent on each other for their continuing survival.

Reading Test 2

SECTION 1

The Mozart Effect

A.

Music has been used for centuries to heal the body. In the Ebers Papyrus (one of the earliest medical documents, circa 1550 BC), it was recorded that physicians chanted to heal the sick (Castleman, 1994). In various cultures, we have observed singing as part of healing rituals. In the world of Western medicine, however, using music in medicine lost popularity until the introduction of the radio. Researchers then started to notice that listening to music could have significant physical effects. Therapists noticed music could help calm anxiety, and researchers saw that listening to music, could cause a drop in blood pressure. In addition to these two areas, music has been used with cancer chemotherapy to reduce nausea, during surgery to reduce stress hormone production, during childbirth, and in stroke recovery (Castleman, 1994 and Westley, 1998). It has been shown to decrease pain as well as enhance the effectiveness of the immune system. In Japan, compilations of music are used as medication of sorts. For example, if you want to cure a headache or a migraine, the album suggested is Mendelssohn's "Spring Song", Dvorak's "Humoresque", or part of George Gershwin's "An American in Paris" (Campbell, 1998). Music is also being used to assist in learning, in a phenomenon called the Mozart Effect.

B.

Frances H. Rauscher, PhD, first demonstrated the correlation between music and learning in an experiment in 1993. His experiment indicated that a 10-minute dose of Mozart could temporarily boost intelligence. Groups of students were given intelligence tests after listening to silence, relaxation tapes, or Mozart's "Sonata for Two Pianos in D Major" for a short time. He found that after silence, the average IQ score was 110, and after the relaxation tapes, the score rose a point. After listening to Mozart's music, however, the score jumped to 119 (Westley, 1998). Even students who did not like the music still had an increased score in the IQ test. Rauscher hypothesised that "listening to complex, non-repetitive music, like Mozart's, may stimulate neural pathways that are important in thinking" (Castleman, 1994).

C.

The same experiment was repeated on rats by Rauscher and Hong Hua Li from Stanford. Rats also demonstrated enhancement in their intelligence performance.

These new studies indicate that rats that were exposed to Mozart's showed "increased gene expression of BDNF (a neural growth factor), CREB (a learning and memory compound), and Synapsin I (a synap-tic growth protein) " in the brain's hippocampus, compared with rats in the control group, which heard only white noise (e.g. the whooshing sound of a V radio tuned between stations).

D.

How exactly does the Mozart Effect work? Researchers are still trying to determine the actual mechanisms for the formation of these enhanced learning pathways.

Neuroscientists suspect that music can actually help build and strengthen connections between neurons in the cerebral cortex in a process similar to what occurs in brain development despite its type.

When a baby is born, certain connections have already been made - like connections for heartbeat and breathing. As new information is learned and motor skills develop, new neural connections are formed. Neurons that are not used will eventually die while those used repeatedly will form strong connections. Although a large number of these neural connections require experience, they must also occur within a certain time frame. For example, a child born with cataracts cannot develop connections within the visual cortex. If the cataracts are removed by surgery right away, the child's vi-sion develops normally. However, after the age of 2, if the cataracts are re-moved, the child will remain blind because those pathways cannot establish themselves.

E.

Music seems to work in the same way. In October of 1997, researchers at the University of Konstanz in Germany found that music actually rewires neural circuits (Begley, 1996). Although some of these circuits are formed for physical skills needed to play an instrument, just listening to music strengthens connections used in higher-order thinking. Listening to music can then be thought of as "exercise" for the brain, improving concentration and enhancing intuition.

F.

If you're a little sceptical about the claims made by supporters of the Mozart Effect, you're not alone. Many people accredit the advanced learning of some children who take music lessons to other personality traits, such as motivation and persistence, which are required in all types of learning. There have also been claims of that influencing the results of some experiments.

G.

Furthermore, many people are critical of the role the media had in turning an isolated study into a trend for parents and music educators. After the Mozart Effect was published to the public, the sales of Mozart CDs stayed on the top of the hit list for three weeks. In an article by Michael Linton, he wrote that the research that began this phenomenon (the study by re-searchers at the University of California, Irvine) showed only a temporary boost in IQ, which was not significant enough to even last throughout the course of the experiment. Using music to influence intelligence was used in Confucian civilisation and Plato alluded to Pythagorean music when he described its ideal state in *The Republic*. In both of these examples, music did not cause any overwhelming changes, and the theory eventually died out. Linton also asks, “If Mozart’s music were able to improve health, why was Mozart himself so frequently sick? If listening to Mozart’s music increases intelligence and encourages spirituality, why aren’t the world’s smartest and most spiritual people Mozart specialists?” Linton raises an interesting point, if the Mozart Effect causes such significant changes, why isn’t there more documented evidence?

H.

The “trendiness” of the Mozart Effect may have died out somewhat, but there are still strong supporters (and opponents) of the claims made in 1993. Since that initial experiment, there has not been a surge of support-ing evidence. However, many parents, after playing classical music while pregnant or when their children are young, will swear by the Mozart Effect. A classmate of mine once told me that listening to classical music while studying will help with memorisation. If we approach this controversy from a scientific aspect, although there has been some evidence that music does increase brain activity, actual improvements in learning and memory have not been adequately demonstrated.

Questions 1-5

Section 1 has eight paragraphs A-H.

Which paragraph contains the following information?

Write the correct letter A-H in boxes 1-5 on your answer sheet.

1. A description of how music affects the brain development of infants
2. Public’s first reaction to the discovery of the Mozart Effect
3. The description of Rauscher’s original experiment

4. The description of using music for healing in other countries
5. Other qualities needed in all learning

Questions 6-8

Complete the summary below.

Choose NO MORE THAN ONE WORD from the passage for each answer.

Write your answers in boxes 6-8 on your answer sheet.

During the experiment conducted by Frances Rauscher, subjects were exposed to the music for a 6 period of time before they were tested. And Rauscher believes the enhancement in their performance is related to the 7 nature of Mozart's music. Later, a similar experiment was also repeated on 8

Questions 9-13

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

In boxes 9-13 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

9. All kinds of music can enhance one's brain performance to somewhat extent.
10. There is no neural connection made when a baby is born.
11. There are very few who question the Mozart Effect.
12. Michael Linton conducted extensive research on Mozart's life.
13. There is not enough evidence in support of the Mozart Effect today.

SECTION 2

Vitamins – to supplement or not

A.

Mineral, vitamin, and antioxidant health supplements make up a multi-billion-dollar industry in the United States alone, but do they really work? Evidence suggests supplementation is clearly indicated in special circumstances, but can actually be

harmful in others. For the general population, however, supplements have negligible or no impact on the prevention of common cancers, cardiovascular diseases, cognitive decline, mortality, or any other major indicators of health. In pursuit of a longer, happier and healthier life, there are certainly better investments for most people than a tube of vitamin supplements.

B.

Particular sub-groups of the population can gain a proven benefit from supplementation. Folic acid has long been indicated as a prenatal supplement due to its assistance in foetal cell division and corresponding ability to prevent neural tube birth defects. Since Canada and the United States decided to require white flour to be fortified with folic acid, spinal birth defects have plummeted by 75%, and rates of neuroblastoma (a ravaging form of infant cancer) are now 50% lower. In countries without such fortification, or for women on low-carbohydrate diets, a prenatal multivitamin could make the crucial difference. The United States Department of Health and Human Services has concluded that the elderly may also benefit from extra vitamin D; calcium can help prevent bone fractures; and zinc and antioxidants can maintain vision while deflecting macular degeneration in people who would otherwise be likely to develop this affliction.

C.

There is mounting evidence, however, for many people to steer clear of multivitamins. The National Institutes of Health has noted a “disturbing evidence of risk” in tobacco users: beta-carotene, a common ingredient in multivitamins, was found over a six-year study to significantly contribute to higher lung cancer and mortality rates in smokers. Meanwhile, excessive vitamin A (a supplement often taken to boost the immune system) has been proven to increase women’s risk of a hip fracture, and vitamin E, thought to improve cardiovascular health, was contraindicated in a study that demonstrated higher rates of congestive heart failure among such vitamin users. Antioxidant supplementation has no purpose nor does it achieve anything, according to the Food and Nutrition Board of the National Academy of Sciences, and the Medical Letter Group has gone further in suggesting they may interfere with treatment and promote some cancers. Antioxidants are generally regarded as counteracting the destructive effect of free radicals in the body, but according to the Medical Letter’s theory, free radicals may also serve the purpose of sending a powerful signal to the body’s immune system to fix the damage. By taking supplements, we risk undermining that message and upsetting the balance of antioxidants and free radicals in the body. The supplements counteract the free radicals, the immune system is not placed on alert, and the disease could sneak through the gates.

D.

One problem with supplementation by tablet is the poor record on digestibility. These tablets are often stocked with metal-based minerals that are essentially miniature rocks, and our bodies are unable to digest them. Even the vitamin elements of these pills that are theoretically digestible are often unable to be effectively extracted by our bodies when they arrive in such a condensed form. In Salt Lake City, for example, over 150 gallons of vitamin and mineral pills are retrieved from the sewer filters each month. According to the physician's desk reference, only about 10% – 20% of multivitamins are absorbed by the body. The National Advisory Board is even more damning, suggesting that every 100mg of tablet corresponds to about 8.3mg of blood concentration, although noting that this can still potentially perform a helpful role in some cases. In effect, for every \$100 you spend on vitamin supplements, over \$90 of that is quite literally flushed down the toilet.

E.

A final argument against multivitamins is the notion that they can lead people – consciously or not – to the conclusion that supplementation fills in the gaps of an unhealthy diet and mops up afterwards, leaving their bodies none the wiser that instead of preparing a breakfast of fresh fruit and muesli, they popped a tiny capsule with coffee and a chocolate bar. In a seven-year study, however, the Heart Protection study did not find any positive outcome whatsoever from multivitamins and concluded that while vitamins in the diet are important, multivitamin tablets are safe but completely useless. There is evidently no shortcut around the task of buying, preparing, and consuming fresh fruit and vegetables every day. Boosting, supplementing, and fortifying products alter people's very perception of what healthy food is; instead of heading for the fresh produce aisle in the supermarket, they are likely to seek out sugary, processed foods with a handful of extra B vitamins as a healthy choice. We cannot supplement our way out of a bad diet.

Questions 14-16

Choose the correct letter, A, B, C, or D. Write the correct letters in boxes 14-16 on your answer sheet.

14. The writer does not recommend multivitamin supplementation for _____

- A. pregnant woman.
- B. young children.

- C. anyone prone to eye problems.
- D. old people.

15. According to the writer, vitamin E has been shown to_____

- A. lead to heart problems.
- B. be good for heart health.
- C. support the immune system.
- D. have no effect.

16. The Medical letter Group believes antioxidant supplementation_____

- A. is ineffective in attacking free radicals.
- B. alerts the immune system to the presence of free radicals.
- C. attacks both free radicals and the immune system.
- D. prevents the immune system from responding to free radicals.

Questions 17-21

Do the following statements agree with the information given in section 2?

In boxes 17-21 on your answer sheet, write

YES if the statement agrees with the views of the writer

NO if the statement contradicts the views of the writer

NOT GIVEN if it is impossible to say what the writer thinks about this

- 17. Some multivitamin tablets have indigestible ingredients.
- 18. Some individual vitamins are better absorbed than others in a tablet form.
- 19. Our bodies cannot distinguish food-based from supplement-based vitamins.
- 20. Multivitamins can lead to poorer overall eating habits in a person's life.
- 21. People typically know that fortified processed foods are not good for them.

Questions 22-26

Classify the following groups of people according to whether they believe

Write the correct letter A, B or C, in boxes 22-26 on your answer sheet.

- A. the supplementation may have a positive effect
- B. the supplementation may have a negative effect

C. supplementation has no effect

22.The United States Department of Health and Human Services

23.The National Institutes of Health

24.The Food and Nutrition Board of the National Academy of Sciences

25.The National Advisory Board

26.The Heart Protection Group

SECTION 3

LONG-TERM FORECAST: HOT AND DRY

A.

Melting land ice in the Arctic is set to cause a global rise in sea levels, leading to disastrous effects for both man and wildlife. Many species worldwide are threatened with extinction, and low-lying islands and landmasses will disappear entirely. But the havoc wreaked by the effect of greenhouse gases won't be confined to just too much water, but the absence of it, as well. In other words, desertification. A decrease in the total amount of rainfall in arid and semi-arid areas could increase the total area of drylands worldwide, and thus the total amount of land potentially at risk from desertification.

B.

Desertification is officially recognised as land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors including climatic variations and human activities. This degradation of formerly productive land is a complex process. It involves multiple causes, and it proceeds at varying rates in different climates. Desertification may intensify a general climatic trend, or initiate a change in local climate, both leading towards greater aridity. The more arid conditions associated with desertification accelerate the depletion of vegetation and soils. Land degradation occurs all over the world, but it is only referred to as desertification when it takes place in drylands. This is because these areas are especially prone to more permanent damage as different areas of degraded land spread and merge together to form desert-like conditions.

C.

Global warming brought about by increasing greenhouse gas levels in the atmosphere is expected to increase the variability of weather conditions and extreme events. Many dryland areas face increasingly low and erratic rainfalls, coupled with soil erosion by wind and the drying-up of water resources through increased regional temperatures. Deforestation can also reduce rainfall in certain areas, increasing the threat of desertification. It is not yet possible, despite sophisticated technology, to identify with an acceptable degree of reliability those parts of the Earth where desertification will occur. Existing drylands, which cover over 40% of the total land area of the world, most significantly in Africa and Asia, will probably be most at risk from climate change. These areas already experience low rainfall, and any that falls is usually in the form of short, erratic, high-intensity storms. In addition, such areas also suffer from land degradation due to over-cultivation, overgrazing, deforestation and poor irrigation practices.

D.

It is a misconception that droughts cause desertification. Droughts are common in arid and semi-arid lands. Well-managed lands can recover from drought when the rains return. Continued land abuse during droughts, however, increases land degradation. Nor does desertification occur in linear, easily definable patterns. Deserts advance erratically, forming patches on their borders. Areas far from natural deserts can degrade quickly to barren soil, rock, or sand through poor land management. The presence of a nearby desert has no direct relationship to desertification. Unfortunately, an area undergoing desertification is brought to public attention only after the process is well underway. Often little or no data are available to indicate the previous state of the ecosystem or the rate of degradation. Scientists still question whether desertification, as a process of global change, is permanent or how and when it can be halted or reversed.

E.

But desertification will not be limited to the drylands of Africa and Asia. According to the environmental organisation Greenpeace, the Mediterranean will suffer substantially, too. If current trends in emissions of greenhouse gases continue, global temperatures are expected to rise faster over the next century than over any time during the last 10,000 years. Significant uncertainties surround predictions of regional climate changes, but it is likely that the Mediterranean region will also warm significantly, increasing the frequency and severity of droughts across the region. As the world warms, global sea levels will rise as oceans expand and glaciers melt. Around much of the Mediterranean basin, sea levels could rise by close to 1m by 2100. As a result,

some low-lying coastal areas would be lost through flooding or erosion, while rivers and coastal aquifers would become saltier. The worst affected areas will be the Nile Delta, Venice in Italy and Thessaloniki in Greece, two major cities where local subsidence means that sea levels could rise by at least one-and-a-half times as much as elsewhere.

F.

The consequences of all this say Greenpeace, are far-reaching, and the picture is a gloomy one. Livestock production would suffer due to a deterioration in the quality of rangeland. Yields of grains and other crops could decrease substantially across the Mediterranean region due to increased frequency of drought. Crop production would be further threatened by increases in competition for water and the prevalence of pests and diseases and land loss through desertification and sea-level rise. The combination of heat and pollution would lead to an upsurge in respiratory illness among urban populations, while extreme weather events could increase death and injury rates. Water shortages and damaged infrastructure would increase the risk of cholera and dysentery, while higher temperatures would increase the incidence of infectious diseases, such as malaria and dengue fever. Serious social disruption could occur as millions are forced from their homelands as a result of desertification, poor harvests and sea-level rise, while international disputes over shared water resources could turn into conflict.

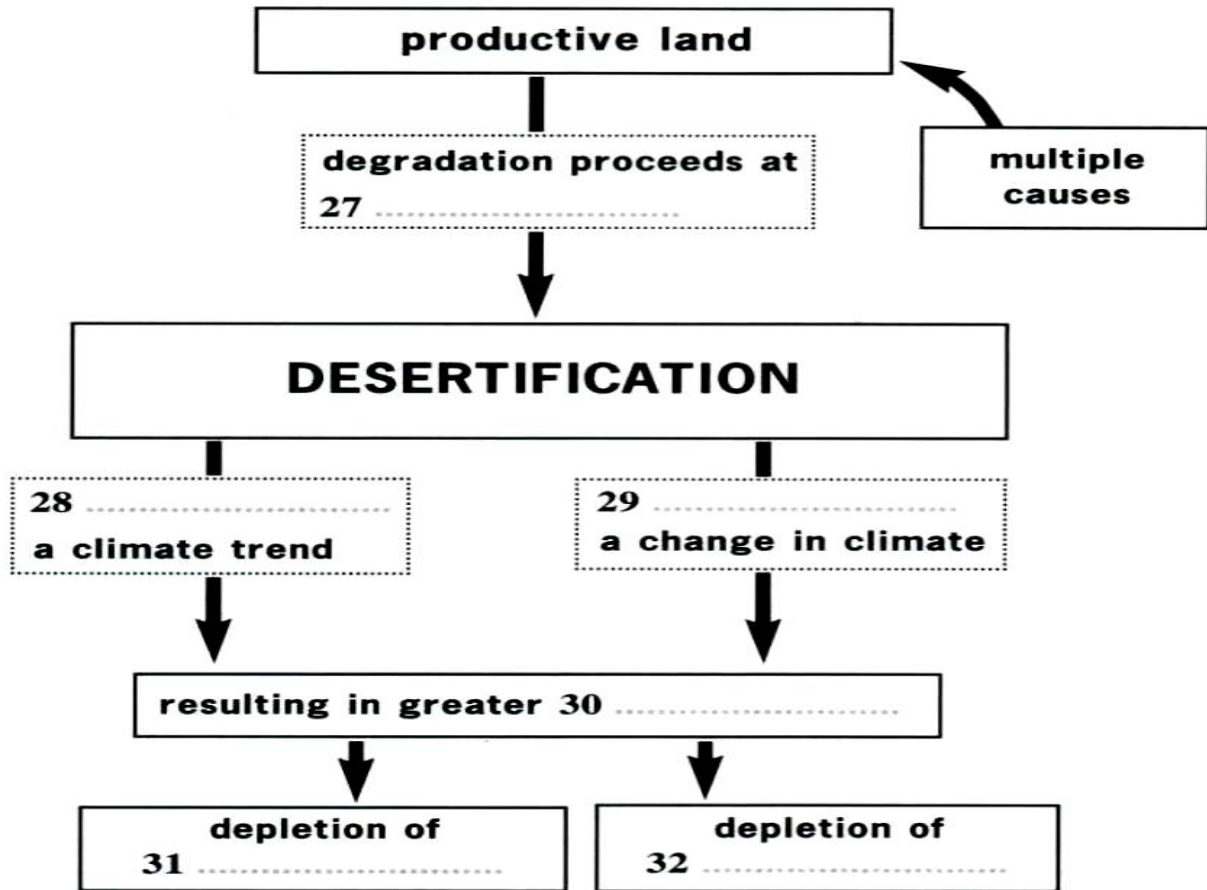
G.

Future climate change could critically undermine efforts for sustainable development in the Mediterranean region through its impacts on the environment and social and economic well-being. While in many respects climate change exacerbates existing problems instead of creating new ones, the sheer magnitude of the potential problem means it cannot be ignored. There is some scope for adaptation, but the fact that many measures would be beneficial irrespective of climate change suggests that radical changes in our policies and practices will be needed. It is also vital that developed countries meet their obligations to assist adaptation in developing countries through access to know-how and financial assistance. Ultimately, however, the long-term sustainability of the Mediterranean region requires keeping climate change within tolerable bounds. Current understanding of safe limits points to the need for prompt international agreement – and action – to make the drastic cuts in emissions of greenhouse gases required to stabilize atmospheric concentrations of these gases.

Questions 27-32

Complete the flow-chart below

Write **NO MORE THAN THREE WORDS** for each answer.



Questions 33-36

Section 3 has seven paragraphs, A-G.

Which paragraph contains the following information?

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

33. Human intervention is a potential solution to a potential disaster.

34. The rate of climate change is set to accelerate dramatically.

35. There is seldom enough information available in some areas to track how fast the effects of climate change have happened in the past.
36. Desertification is attributable to a number of factors.

Questions 37-40

Complete the summary with the list of words A-I below.

Write the correct letter A-I in boxes 37-40 on your answer sheet.

Climate change may have catastrophic effects on the human and animal world. As glaciers melt, sea levels will rise, causing extensive flooding and land 37..... Another consequence of global warming is 38....., which affects areas known as 39..... These areas are subject to irregular weather patterns but also suffer from human intervention or neglect, such as inadequate or inefficient 40..... systems.

- | | | |
|-------------------|-----------|------------|
| A irrigation | B cooling | C drylands |
| D cause | E loss | F abuse |
| G desertification | H deserts | I emission |

Reading Test 3

SECTION 1

Ancient Egypt

A.

The people of ancient Egypt emerged as one of the first Western civilisations. Sustained by the River Nile and protected by vast deserts, the Egyptians lived in comparative security, prosperity and peace for thousands of years. When such conditions exist, the civilisation and its arts usually flourish. To this day, many of the Egyptian artistic creations display the wealth, splendour and talent of this great civilisation.

B.

Ancient Egypt has been called a land of temples and tombs, and for centuries people have been filled with wonder at the ingenuity of the Egyptians, whose impressive works have withstood the ravages of time so well. Had it not been for the long-lasting nature of their monuments and carved inscriptions in the form of hieroglyphics', much

evidence of their activities would have vanished from all historical records. In about 3000 BC, Upper and Lower Egypt were united under the first pharaoh, and generally, from that time until the invasion by Alexander the Great in 332 BC, Egypt prospered as a nation of skilful craftsmen and artists.

C.

The Egyptians were industrious, highly civilised and deeply religious people, who obediently accepted the supreme authority of their pharaohs. The people were content to serve and work for the state in return for a secure livelihood. They considered this earthly life to be a segment in a great cycle, at the end of which everything would be returned to its original form. The richer and more important the person, the more careful and elaborate would be his or her burial, and the stronger and safer the tomb in which they would be buried.

D.

The burial of the dead in the ground was not considered sufficiently safe for kings, queens and court officials, so sunken, sealed tombs were ingeniously constructed to protect personal treasures, food and instructions for the safe conduct of the soul after death. The design of these tombs developed into the stepped pyramid, and finally into the square pyramid that we know today.

E.

There are about 80 ancient pyramids in Egypt. The Great Pyramid at Gizeh, which King Cheops built as his tomb 5000 years ago, holds the most interest. It stands with two other pyramids on a slight rise overlooking the River Nile. At the centre of the pyramid is the King's Chamber and leading down from there is a long narrow area known as the Grand Gallery. The pyramid covers 13 acres and contains 2,300,000 blocks of limestone, each weighing an average of 1.5 tons. Its pyramidal form has a perfectly square base with sides of 756 feet and a height of 481 feet. Situated directly below the King's Chamber is the Queen's Chamber and there are two air channels leading upwards from the centre of the pyramid to the outside.

F.

Originally the exterior was covered in highly polished limestone slabs, all of which have been stolen over the years. It is estimated that a total of 100,000 men laboured for 20 years to build this gigantic structure, and although architecturally unimportant in design, it has aroused the curiosity of millions of people because of the uncanny accuracy of its

measurements and proportions. It reveals the remarkable ingenuity and the great organising ability of the ancient Egyptians.

G.

Near these pyramids stands the Great Sphinx, the origin and purpose of which constitute one of the world's most famous puzzles. Shaped from an outcrop of stone in the form of a human-headed lion, the face is possibly a portrait of King Khafra, the son of Cheops, who was buried in the second largest pyramid. The Sphinx is one of the biggest statues ever made.

H.

The Egyptian people showed reverence towards natural objects such as the lotus flower, the scarab beetle, the falcon, the lion, the sun and the River Nile. All these subjects and many more were used symbolically and conventionally as motifs in low-relief carving and painting. It was the custom of the Egyptians to depict the various parts of the human figure, usually in the most characteristic positions. The head was shown in profile except for the eye, which was represented from the front, the shoulders and a portion of the arms were portrayed from the front, while the hips and legs were side views. Wall decoration showed little or no attempt to indicate depth or perspective, except by placing distant objects above near things. It was essentially two-dimensional, and relative size indicated the status of the person, so the pharaoh was the largest figure in the composition.

I.

Egyptian art is characterised by a passion for permanence, a desire to impress by size, and a determination to make each item serve its function without much regard for the whole. It is obvious that art among these people reached a very high level and the strong influence of Egyptian art can be seen in the work of nearby civilisations.

J.

The fortunate discovery and subsequent deciphering in 1822 of the Rosetta Stone, which showed the same laws inscribed both in Egyptian hieroglyphics and the Egyptian demotic, or popular version of their language, as well as the Greek language, eventually gave the key to the meaning of Egyptian inscriptions, and therefore the significance of much Egyptian art.

Questions 1-3

Complete the sentences below.
Choose NO MORE THAN THREE WORDS from the passage for each answer.

Write your answers in boxes 1-3 on your answer sheet.

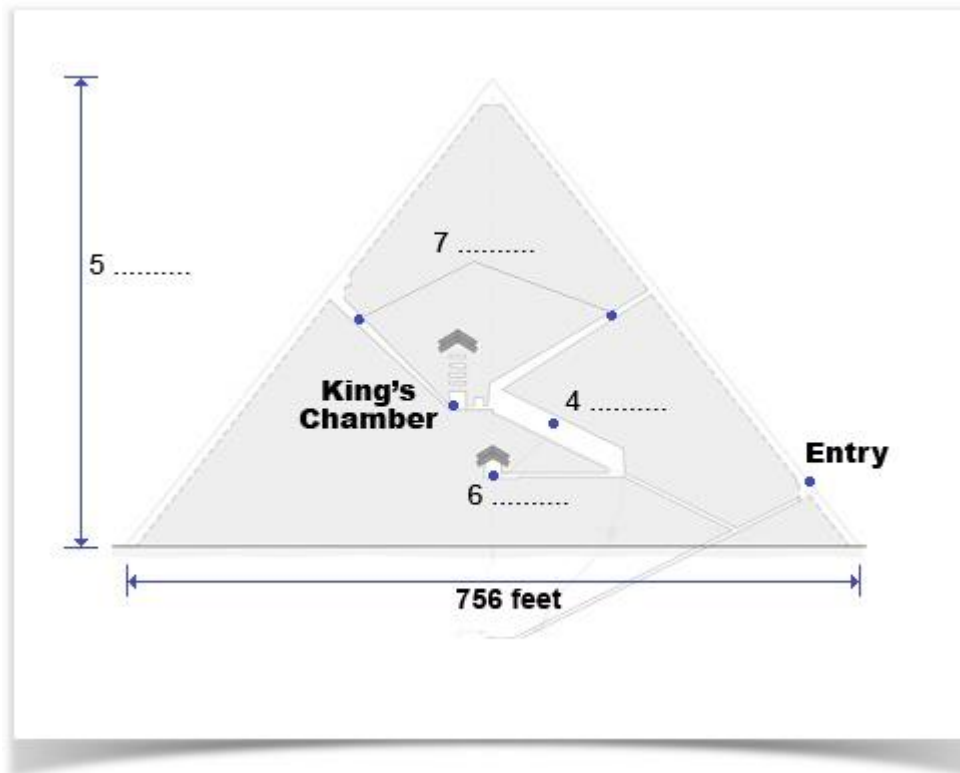
1. Security and peace are two that are necessary for a civilisation to be successful.
2. Ancient Egyptians worked as both.....
3. Ordinary Egyptians expected to receive for their hard work.

Questions 4-7

Label the diagram below.

Choose NO MORE THAN THREE WORDS AND/OR NUMBERS from the passage for each answer.

Write your answers in boxes 4-7 on your answer sheet.



- 4
- 5
- 6
- 7

Questions 8-12

Do the following statements agree with the information given in the Section 1.

In boxes 8-12 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. The surface of the Great Pyramid is covered in polished limestone slabs.
9. King Khafra died before King Cheops.
10. Egyptian carvings were often based on things found in nature.
11. Important characters in Egyptian carvings were bigger than less important characters.
12. Egyptian art was greatly influenced by the art of neighbouring cultures.

Question 13

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

Write the correct letter in box 13 on your answer sheet.

The writer's aim in this passage is to --

- A. describe the construction methods of the pyramids.
- B. explain the beliefs of the ancient Egyptians.
- C. offer an interpretation of Egyptian art and sculpture.
- D. provide an overview of early Egyptian society.

SECTION 2

Stress of Workplace

A.

How busy is too busy? For some it means having to miss the occasional long lunch; for others it means missing lunch altogether. For a few, it is not being able to take a "sickie" once a month. Then there is a group of people for whom working every evening and weekend is normal, and frantic is the tempo of their lives. For most senior executives, workloads swing between extremely busy and frenzied. The vice-president of the management consultancy AT Kearney and its head of telecommunications for the Asia-Pacific region, Neil Plumridge, says his work weeks vary from a "manageable" 45 hours to 80 hours, but average 60 hours.

B.

Three warning signs alert Plumridge about his workload: sleep, scheduling and family. He knows he has too much on when he gets less than six hours of sleep for three consecutive nights; when he is constantly having to reschedule appointments; “and the third one is on the family side”, says Plumridge, the father of a three-year-old daughter, and expecting a second child in October. “If I happen to miss a birthday or anniversary, I know things are out of control.” Being “too busy” is highly subjective. But for any individual, the perception of being too busy over a prolonged period can start showing up as stress: disturbed sleep, and declining mental and physical health. National workers’ compensation figures show stress causes the most lost time of any workplace injury. Employees suffering stress are off work an average of 16.6 weeks. The effects of stress are also expensive. Comcare, the Federal Government insurer, reports that in 2003-04, claims for psychological injury accounted for 7% of claims but almost 27% of claim costs. Experts say the key to dealing with stress is not to focus on relief – a game of golf or a massage – but to reassess workloads. Neil Plumridge says he makes it a priority to work out what has to change; that might mean allocating extra resources to a job, allowing more time or changing expectations. The decision may take several days. He also relies on the advice of colleagues, saying his peers’ coach each other with business problems. “Just a fresh pair of eyes over an issue can help,” he says.

C.

Executive stress is not confined to big organisations. Vanessa Stoykov has been running her own advertising and public relations business for seven years, specialising in work for financial and professional services firms. Evolution Media has grown so fast that it debuted on the BRW Fast 100 list of fastest-growing small enterprises last year – just after Stoykov had her first child. Stoykov thrives on the mental stimulation of running her own business. “Like everyone, I have the occasional day when I think my head’s going to blow off,” she says. Because of the growth phase the business is in, Stoykov has to concentrate on short-term stress relief – weekends in the mountains, the occasional “mental health” day – rather than delegating more work. She says: “We’re hiring more people, but you need to train them, teach them about the culture and the clients, so it’s actually more work rather than less.”

D.

Identify the causes: Jan Elsnera, Melbourne psychologist who specialises in executive coaching, says thriving on a demanding workload is typical of senior executives and other high-potential business people. She says there is no one-size-fits-all approach to stress: some people work best with high-adrenalin periods followed by quieter patches,

while others thrive under sustained pressure. “We could take urine and blood hormonal measures and pass a judgment of whether someone’s physiologically stressed or not,” she says. “But that’s not going to give us an indicator of what their experience of stress is, and what the emotional and cognitive impacts of stress are going to be.”

E.

Eisner’s practice is informed by a movement known as positive psychology, a school of thought that argues “positive” experiences – feeling engaged, challenged, and that one is making a contribution to something meaningful – do not balance out negative ones such as stress; instead, they help people increase their resilience over time. Good stress, or positive experiences of being challenged and rewarded, is thus cumulative in the same way as bad stress. Eisner says many of the senior business people she coaches are relying more on regulating bad stress through methods such as meditation and yoga. She points to research showing that meditation can alter the biochemistry of the brain and actually help people “retrain” the way their brains and bodies react to stress. “Meditation and yoga enable you to shift the way that your brain reacts, so if you get proficient at it you’re in control.”

F.

The Australian vice-president of AT Kearney, Neil Plumridge, says: “Often stress is caused by our setting unrealistic expectations of ourselves. I’ll promise a client I’ll do something tomorrow, and then promise another client the same thing, when I really know it’s not going to happen. I’ve put stress on myself when I could have said to the clients: ‘Why don’t I give that to you in 48 hours?’ The client doesn’t care.” Over-committing is something people experience as an individual problem. We explain it as the result of procrastination or Parkinson’s law: that work expands to fill the time available. New research indicates that people may be hard-wired to do it.

G.

A study in the February issue of the Journal of Experimental Psychology shows that people always believe they will be less busy in the future than now. This is a misapprehension, according to the authors of the report, Professor Gal Zauberman, of the University of North Carolina, and Professor John Lynch, of Duke University. “On average, an individual will be just as busy two weeks or a month from now as he or she is today. But that is not how it appears to be in everyday life,” they wrote. “People often make commitments long in advance that they would never make if the same commitments required immediate action. That is, they discount future time investments relatively steeply.” Why do we perceive a greater “surplus” of time in the future than in

the present? The researchers suggest that people underestimate completion times for tasks stretching into the future, and that they are bad at imagining future competition for their time.

Questions 14-18

Use the information in the passage to match the people (listed A-D) with opinions or deeds below.

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

NB You may use any letter more than once.

- A. Jan Elsnera
- B. Vanessa Stoykov
- C. Gal Zauberman
- D. Neil Plumridge

- 14. Work stress usually happens in the high level of a business.
- 15. More people's ideas involved would be beneficial for stress relief
- 16. Temporary holiday sometimes doesn't mean less work.
- 17. Stress leads to the wrong direction when trying to satisfy customers.
- 18. It is not correct that stress in the future will be eased more than now.

Questions 19-21

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

Write your answers in boxes 19-21 on your answer sheet.

19. Which of the following workplace stress is NOT mentioned according to Plumridge in the following option?

- A. Not enough time spend on family
- B. Unable to concentrate on work
- C. Inadequate time of sleep
- D. Alteration of appointment

20. Which of the following solution is NOT mentioned in helping reduce the work pressure according to Plumridge?

- A. Allocate more personnel
- B. Increase more time
- C. Lower expectation
- D. Do sports and massage

21. What is the point of view of Jan Elsnera towards work stress?

- A. Medical test can only reveal part of the date needed to cope with stress
- B. Index somebody samples will be abnormal in a stressful experience
- C. Emotional and cognitive affection is superior to a physical one
- D. One well a designed solution can release all stress

Questions 22-25

Complete the following summary of the paragraphs of Reading Passage

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

Write your answers in boxes 22-27 on your answer sheet.

Statistics from National worker's compensation indicate stress plays the most important role in 22..... which cause the time losses. Staffs take about 23..... for absence from work caused by stress. Not just time is our main concern but great expenses generated consequently. An official insurer wrote sometime that about 24..... of all claims were mental issues whereas nearly 27% costs in all claims. Sports such as 25.....

SECTION 3

Toddlers Bond with Robot

A.

Will the robot revolution begin in nursery school? Researchers introduced a state-of-the-art social robot into a classroom of 18- to 24-month-olds for five months as a way of studying human-robot interactions. The children not only came to accept the robot, but treated it as they would a human buddy - hugging it and helping it - a new study says.

"The results imply that current robot technology is surprisingly close to achieving autonomous bonding and socialization with human toddlers," said Fumihide Tanaka, a researcher at the University of California, San Diego

B.

The development of robots that interact socially with people has been difficult to achieve, experts say, partly because such interactions are hard to study. "To my knowledge, this is the first long-term study of this sort," said Ronald Arkin, a roboticist at the Georgia Institute of Technology, who was not involved with the study. "It is groundbreaking and helps to forward human-robot interaction studies significantly," he said.

C.

The most successful robots so far have been storytellers, but they have only been able to hold human interest for a limited time. For the new study, researchers introduced a toddler-size humanoid robot into a classroom at a UCSD childhood education center. Initially the researchers wanted to use a 22-inch-tall model, but later they decided to use another robot of the QRIO series, the 23-inch-tall (58-centimeter-tall) machine was originally developed by Sony. Children of toddler age were chosen because they have no preconceived notions of robots, said Tanaka, the lead researcher, who also works for Sony. The researchers sent instructions about every two minutes to the robot to do things like giggle, dance, sit down, or walk in a certain direction. The 45 sessions were videotaped, and interactions between toddlers and the robot were later analyzed.

D.

The results showed that the quality of those interactions improved steadily over 27 sessions. The tots began to increasingly interact with the robot and treat it more like a peer than an object during the first 11 sessions. The level of social activity increased dramatically when researchers added a new behavior to QRIO's repertoire: If a child touched the humanoid on its head, it would make a giggling noise. The interactions deteriorated quickly over the next 15 sessions, when the robot was reprogrammed to behave in a more limited, predictable manner. Finally, the human-robot relations improved in the last three sessions, after the robot had been reprogrammed to display its full range of behaviors. "Initially the children treated the robot very differently than

the way they treated each other," Tanaka said. "But by the end they treated the robot as a peer rather than a toy."

E.

Early in the study some children cried when QRIO fell. But a month into the study, the toddlers helped QRIO stand up by pushing its back or pulling its hands. "The most important aspect of interaction was touch", Tanaka said. "At first the toddlers would touch the robot on its face, but later on they would touch only on its hands and arms, like they would with other humans". Another robotlike toy named Robby, which resembled QRIO but did not move, was used as a control toy in the study. While hugging of QRIO increased, hugging of Robby decreased throughout the study. Furthermore, when QRIO laid down on the floor as its batteries ran down, a toddler would put a blanket over his silver-colored "friend" and say "night-night."

F.

"Our work suggests that touch integrated on the time-scale of a few minutes is a surprisingly effective index of social connectedness," Tanaka says. "Something akin to this index may be used by the human brain to evaluate its own sense of social well-being." He adds that social robots like QRIO could greatly enrich classrooms and assist teachers in early learning programs. Hiroshi Ishiguro - robotics expert at Osaka University in Japan - says, "I think this study has clearly reported the possibilities of small, almost autonomous humanoid robots for toddlers. Nowadays robots can perform a variety of functions that were thought to be incident to people only - in short time we'll have electronic baby-sitters and peer-robots in every kindergarten," said Ishiguro, who was not involved with the study but has collaborated with its authors on other projects.

G.

Now this study has taken a new direction - the researchers are now developing autonomous robots for the toddler classroom. "I cannot avoid underlining how great potential it could have in educational settings assisting teachers and enriching the classroom environment," Tanaka said. However, some scientists don't share his opinion.

H.

Arkin, the Georgia Tech roboticist, said he was not surprised by the affection showed by the toddlers toward the robot. "Humans have a tremendous propensity to bond with artifacts with any or all sort, whether it be a car, a doll, or a robot," he said. But he also cautioned that researchers don't yet understand the consequences of increased human-robot interaction. "Just studying how robots and humans work together can give us insight into whether this is a good thing or a bad thing for society," Arkin said. "What are the consequences of introducing a robot artifact into a cadre of children? How will that enhance, or potentially interfere with, their social development? It might make life easier for the teacher, but we really don't understand the long-term impact of having a robot as a childhood friend, do we?"

Questions 26-32

Section 3 has eight paragraphs, A-H.

Which paragraph contains the following information?

Write the correct letter, A-H, in boxes 26-32 on your answer sheet. You may use any letter more than once.

26. Changes in toddler-robot interactions quality.
27. Comparison of two different robots.
28. The fact that previous robots could maintain people's interest only for a short time.
29. The importance of touch.
30. The new direction of the study.
31. Technical parameters of the introduced robot.
32. The significance and novelty of the conducted study.

Questions 33-37

Connect each of the statements below with the name of scientist who expressed it.

Answer A, B, or C to questions 33-37.

- A. Fumihide Tanaka
- B. Ronald Arkin
- C. Hiroshi Ishiguro

33. Robots will perform duties of baby-sitters in the nearest future.

34. By the end of the study children treated the robot as a living creature rather than a toy.
35. The long-term impact of having a robot as a childhood friend can be negative.
36. The conducted study is the first major study of this sort.
37. Robots can be used in classrooms and assist teachers.

Questions 38-40

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

Write the correct letter in boxes 38-40 on your answer sheet.

38. For the study, researchers introduced a toddler-size humanoid robot that was
- A. 58-inch-tall
 - B. 22-inch-tall
 - C. 23-inch-tall
 - D. 45-inch-tall
39. The researchers sent instructions to the robot to perform different actions EXCEPT
- A. laugh
 - B. dance
 - C. sit down
 - D. crawl
40. The toddlers began to increasingly interact with the robot during
- A. the first 11 sessions
 - B. the next 15 sessions
 - C. the first 27 sessions
 - D. the last 15 sessions

Reading Test 4

SECTION 1

The History of Woodlands in Britain

A.

The climate in Britain has been arctic for the last several million years, punctuated by relatively warm timespans, or interglacial of thousands of years, one of which we are in

as of now. Since the last glaciation, British woodland history is considered quite short in terms of geological time spans, and is also closely related to the human civilization developing.

B.

At the peak of the last glaciation (100,000 – 12,000 BC), the majority of Britain would have had no trees. Birch and willow scrub may have grown along the lower reaches of the ice, with pine in some areas. It's possible that remnants of pre-glacial flora were sheltered along the western bays of Great Britain and Ireland's coasts, but as far as the southern parts of England, the ice kept any land barren. Information regarding the development of Britain's flora following glaciation can be found by studying the deposits of pollen and seed in peat, as well as by the use of radiocarbon dating. Tundra and moorland followed the retreating ice, which led to phases of different tree species spreading from the south. First came birch, aspen and sallow, followed by pine and hazel continuing to spread north as of 8500 BC, replacing birch to make it less commonly found for the next few thousand years. Oak and alder came after pine, then lime, elm, beech, and maple, all spreading northwards one after the other. From the moment lime arrived, in about 7300, to about 4500 BC the climate remained stable for a length of time known as the Atlantic Period, a time in which numerous species grew to form a series of wildwood or wilderness types.

C.

What did the wilderness or wildwood look like, before man started interfering with it? One theory holds that Britain and Western Europe in Palaeolithic times was covered from coast to coast in a wildwood of continuous trees. However, a modern theory proposed by Francis Vera holds that Western Europe wilderness was a combination of grassland, scrub, and clusters or groves of trees. It was not a dense, impassable wildwood, but instead, an area similar to a park, kept up by wild herbivores eating the plants and grass. Throughout earlier interglacial periods, this may also have been the case in Britain, as creatures of the Palaeolithic era needed to roam large areas of grassland to survive. A variety of grassland plants continued to live there in the last interglacial, as according to pollen records. However, since the last glaciation, the bison, elk and other large herbivores which persisted on mainland Europe were extinct in Britain, so Vera's theory may not apply so well to Britain.

D.

Meanwhile, throughout the period since it's spread northwards after the last glaciation, the sustained growth of oak in Britain demonstrates that the wildwood was not as

continual as once believed. Oak is a pioneer species, which requires vacant space to generate more of itself. Grazing animals are also present to keep areas open, so Oak regenerates in the thorny brush as a protective measure from their grazing. Archaeological evidence indicates that red deer, who graze on grass as well as browse from trees, were essential to the economy in Mesolithic Britain, with people utilizing them for meat, skins, antlers and bones.

E.

As the Mesolithic (10,000-3000 BC) era ended, evidence of the beginnings of agriculture emerges. Agricultural weeds, such as plantain and stinging nettle, were also increasing in number. Nearly all the wildwood was cut down as the population increased rapidly. However, the falling elm population around 4,000 BC all across Europe has been attributed not to the clearing of trees, but to what's referred to as Elm disease.

F.

Throughout the Bronze Age (2400-750 BC), people were cutting down trees more than ever before, until the prevalence of the practice "coppicing" peaked, likely at some point during the early Iron Age. Oliver Rackham (1990) theorizes that nearly 50% of land throughout England was no longer wildwood by 500 BC. The regrowth from a stump grows more readily than the original tree, and Neolithic man had discovered this practice, known as coppicing. Much of the remaining woods were maintained by way of this method during the Bronze Age.

G.

The Celtic peoples living in the Iron Age were able to master woodworking as an artform. Today, Celtic woodworking can be seen in houses, boats, wheels and other artifacts of the time. Coppicing as a means to manage woodland was of massive importance throughout two millennia that followed. Buildings, roads, fences, carts, and the fuel for heating, cooking, metalworking and pottery were all made possible due to wood materials gained from the vital practice of coppicing.

H.

A clear divide has existed between wooded and non-wooded regions of Britain since the time of the Romans. As evidenced by The Domesday Book (1086), all the wood in England had an economic value and was the property of either an individual or community owner. Woods were the territories, or 'exclaves' of communities who lived

some miles away. Even though it had to be transported over long distances, the materials which woodlands produced were of obvious value, and their ownership was long before established. Merely around 15% of land in England was represented by woodland or wood-pasture in the year 1086.

I.

English woodlands produced mostly underwood used as fuel along with other things, with small oaks being used to construct buildings. The average wood-framed houses of the Medieval era mostly used oaks shorter than 18” in diameter. Longer pieces of timber were hard to come by, and kept only for elaborate buildings intended for the Church. Imported boards of thin oak or wainscot from Central Europe were brought in for the purpose of domestic building. Woodland cover was as low as 15% in 1086, and continued to decline from as a result of an ever-growing population to 10% by 1350. This stopped suddenly with the plague of the Black Death of 1349 wiping out some of the human population. Woods which had persisted up to 1350 mostly prospered over the next 500 years.

Questions 1-9

Do the following statements agree with the information given in the reading passage? In boxes 1-9 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. An understanding of Britain’s pre-glacial flora’s development has been deduced from studies of pollen and seed deposits in peat.
2. Various species of wildwood types began growing in Britain in around the year 8500 BC.
3. Beech and lime did not spread beyond southern Britain.
4. The extinction of large herbivores in Europe adds to speculation that Vera’s theory might not be as applicable to Britain.
5. The persistence of oak in Britain supports Francis Vera’s theory.
6. The sharp decline in elm around 4000 BC is more likely to be the result of clearance than elm disease.
7. The first evidence of clearance of land for agriculture appears at the end of the Bronze Age.
8. The practice of coppicing is traceable back to the Neolithic period.
9. The Black Death negatively impacted growth of forests of Europe.

Questions 10-14

Look at the following items (Questions 10-14) and a list of periods of time below.

Match each item with the period of time it best corresponds with

Write the correct number A-F in boxes Questions 10-14 on your answer sheet.

NB You may use any letter more than once.

A list of periods of time

1. The Palaeolithic era
2. The Bronze age
3. The Iron age
4. The Medieval era
5. The Mesolithic age
6. Roman times

10. Every type of wood in England belonged to some person or some community.
11. People used woodworking to create elaborate boats, houses, and wheels.
12. Animals kept expansive areas of land clear without human interference.
13. Coppicing was first used for woodland management.
14. Houses were made with short pieces of wood, and longer pieces were used for religious buildings.

SECTION 2

The Ingenuity Gap

A. 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.

B. 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 ageing one, an abundance of natural resources or a scarcity of them, an easy climate or a punishing one, whatever the case may be.

C. How much and what kinds of ingenuity a society supplies also depends 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.

D. A good supply of the right kind 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, prosperity, stability and justice usually depend on the resolution, or at least the containment, of major political struggles over wealth and power. Yet within our economies ingenuity often supplants labor, and growth in the stock of physical plant is usually accompanied by growth in the stock of ingenuity. And in our political systems, we need great ingenuity to set up institutions that successfully manage struggles over wealth and power. Clearly, our economic and political processes are intimately entangled with the production and use of ingenuity.

E. The past century's countless incremental changes in our societies around the planet, in our technologies and our interactions with our surrounding natural environments, have accumulated to create a qualitatively new world. Because these changes have accumulated slowly, it's often hard for us to recognize how profound and sweeping they've been. They include far larger and denser 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.

F. 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 in subgroups, such as political special interests and ethnic factions.

G. As a result, people in all walks of life—from our political and business leaders to all of us in our day-to-day—must cope with much more complex, urgent, and often unpredictable circumstances. The management of our relationship with this new world requires immense and ever-increasing amounts of social and technical ingenuity. As we strive to maintain or increase our prosperity and improve the quality of our lives, we must make far more sophisticated decisions, and in less time, than ever before.

H. 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. In general, as the human-made and natural systems, we depend upon becoming more complex, and as our demands on them increase, the institutions and technologies we use to manage them must become more complex too, which further boosts our need for ingenuity.

I. The good news, though, is that the last century's stunning changes in our societies and technologies have not just increased our need for ingenuity; they have also produced a huge increase in its supply. The growth and urbanization of human populations have combined with astonishing new communication and transportation technologies to expand interactions among people and produce larger, more integrated, and more efficient markets. These changes have, in turn, vastly accelerated the generation and delivery of useful ideas.

J. But—and this is the critical “but”—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. Very few of us have more than a rudimentary understanding of how these systems work. They remain fraught with countless “unknown unknowns,” which makes it hard to supply the ingenuity we need to solve problems associated with these systems.

K. 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, many people believe that new communication technologies strengthen democracy and will make it easier to find solutions to our societies' collective problems, but the story is less clear than it seems. 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.

L. Modern 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 characteristic 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 between 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 understand; but we desperately need better social scientific knowledge to build the sophisticated institutions today's world demands.

Questions 15-18

Complete each sentence with the appropriate answer, A, B, C, or D.
Write the correct answer in boxes 15-18 on your answer sheet

- 15. The definition of ingenuity
- 16. The requirement for ingenuity
- 17. The creation of social wealth
- 18. The stability of society

- A. depends on many factors including climate.
- B. depends on the management and solution of disputes.
- C. is not only of technological advance but more of institutional renovation.
- D. also depends on the availability of some traditional resources.

Questions 19-21

Choose the correct letter, A, B, C or D.
Write your answers in boxes 19-21 on your answer sheet

- 19. What does the author say about the incremental change of the last 100 years?
 - A. It has become a hot scholastic discussion among environmentalists.
 - B. Its significance is often not noticed.
 - C. It has reshaped the natural environments we live in.
 - D. It benefited a much larger population than ever.

- 20. The combination of changes has made life:
 - A. easier
 - B. faster
 - C. slower
 - D. less sophisticated

21. What does the author say about the natural systems?

- A. New technologies are being developed to predict change with precision.
- B. Natural systems are often more sophisticated than other systems.
- C. Minor alterations may cause natural systems to change dramatically.
- D. Technological developments have rendered human being more independent of natural systems.

Questions 22-28

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

In boxes 22-28 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

- 22. The demand for ingenuity has been growing during the past 100 years.
- 23. The ingenuity we have may be inappropriate for solving problems at hand.
- 24. There are very few who can understand the complex systems of the present world.
- 25. More information will help us to make better decisions.
- 26. The next generation will blame the current government for their conduct.
- 27. Science tends to develop faster in certain areas than others.
- 28. Social science develops especially slowly because it is not as important as natural science.

SECTION 3

Questions 29-32

Reading Passage 3 has seven sections, A-G.

Choose the correct heading for sections B-E and G from the list of headings below.

Write the correct number, i-ix, inboxes 28-32 on your answer sheet.

List of Headings

- i An application of short codes on the TV screen

- ii An overview of a fast-growing business
- iii The trend that profitable games are gaining more concerns
- iv Why Netherlands takes the leading role
- v A new perspective towards sharing the business opportunities
- vi Factors relevant to the rapid increase in interactive TV
- vii The revenue gains and bonus share
- viii The possibility of the complex technology replaced by the simpler ones
- ix The mind change of set-top box providers

Example Answer

Section A ii

29. Section C

30. Section D

31. Section E

Example Answer

Section F ix

32. Section G

Texting the Television

A.

Once upon a time, if a television show with any self-respect wanted to target a young audience, it needed to have an e-mail address. However, in Europe's TV shows, such addresses are gradually substituted by telephone numbers so that audiences can text the show from their mobile phones. Therefore, it comes as no shock that according to Gartner's research, texting has recently surpassed Internet usage across Europe. Besides, among the many uses of text messaging, one of the fastest-growing uses is to interact with television. The statistics provided by Gartner can display that 20% of French teenagers, 11% in Britain and 9% in Germany have responded to TV programmes by sending a text message.

B.

This phenomenon can be largely attributed to the rapid growth of reality TV shows such as 'Big Brother', where viewers get to decide the result through voting. The majority of reality shows are now open to text-message voting, and in some shows like the latest

series of Norway's 'Big Brother', most votes are collected in this manner. But TV-texting isn't just about voting. News shows encourage viewers to, comment by texting messages; game shows enable the audience to be part of the competition; music shows answer requests by taking text messages; and broadcasters set up on-screen chatrooms. TV audiences tend to sit on the sofa with their mobile phones right by their sides, and 'it's a supernatural way to interact.' says Adam Daum of Gartner.

C.

Mobile service providers charge appreciable rates for messages to certain numbers, which is why TV-texting can bring in a lot of cash. Take the latest British series of 'Big Brother' as an example. It brought about 5.4m text-message votes and £1.35m (\$2,1m) of profit. In Germany, MTV's 'Videoclash' encourages the audience to vote for one of two rival videos, and induces up to 40,000 texts per hour, and each one of those texts costs €0.30 (\$0.29), according to a consultancy based in Amsterdam. The Belgian quiz show '1 Against 100' had an eight-round texting match on the side, which brought in 110,000 participants in one month, and each of them paid €0.50 for each question. In Spain, a cryptic-crossword clue invites the audience to send their answers through text at the expense of €1, so that they can be enrolled in the poll to win a €300 prize. Normally, 6,000 viewers would participate within one day. At the moment, TV-related text messaging takes up a considerable proportion of mobile service providers' data revenues. In July, Mm02 (a British operator) reported an unexpectedly satisfactory result, which could be attributed to the massive text waves created by 'Big Brother'. Providers usually own 40%-50% of the profits from each text, and the rest is divided among the broadcaster, the programme producer and the company which supplies the message-processing technology. So far, revenues generated from text messages have been an indispensable part of the business model for various shows. Obviously, there has been grumbling that the providers take too much of the share. Endemol, the Netherlands-based production firm that is responsible for many reality TV, shows including 'Big Brother', has begun constructing its own database for mobile-phone users. It plans to set up a direct billing system with the users and bypass the providers.

D.

How come the joining forces of television and text message turn out to be this successful? One crucial aspect is the emergence of one-of-a-kind four-, five- or six-digit numbers known as 'short codes'. Every provider has control over its own short codes, but not until recently have they come to realise that it would make much more sense to work together to offer short codes compatible with all networks. The emergence of this universal short codes was a game-changer, because short codes are much easier to

remember on the screen, according to Lars Becker of Flytxt, a mobile-marketing company.

E.

Operators' co-operation on enlarging the market is by a larger trend, observes Katrina Bond of Analysys, a consultancy. When challenged by the dilemma between holding on tight to their margins and permitting the emergence of a new medium, no provider has ever chosen the latter WAP, a technology for mobile-phone users to read cut-down web pages on their screens, failed because of service providers' reluctance towards revenue sharing with content providers. Now that they've learnt their lesson, they are altering the way of operating. Orange, a French operator, has come such a long way as to launch a rate card for sharing revenue of text messages, a new level of transparency that used to be unimaginable.

F.

At a recent conference, Han Weegink of CMG, a company that offers the television market text-message infrastructure, pointed out that the television industry is changing in a subtle yet fundamental way. Instead of the traditional one-way presentation, more and more TV shows are now getting viewers' reactions involved. Certainly, engaging the audiences more has always been the promise of interactive TV. An interactive TV was originally designed to work with exquisite set-top devices, which could be directly plugged into the TV. However, as Mr Daum points out, that method was flawed in many ways. Developing and testing software for multiple and incompatible types of set-top box could be costly, not to mention that the 40% (or lower) market penetration is below that of mobile phones (around 85%). What's more, it's quicker to develop and set up apps for mobile phones. 'You can approach the market quicker, and you don't have to go through as many greedy middlemen,' Mr Daum says. Providers of set-top box technology are now adding texting function to the design of their products.

G.

The triumph of TV-related texting reminds everyone in the business of how easily a fancy technology can all of a sudden be replaced by a less complicated, lower-tech method. That being said, the old-fashioned approach to interactive TV is not necessarily over; at least it proves that strong demands for interactive services still exist. It appears that the viewers would sincerely like to do more than simply staring at the TV screen. After all, couch potatoes would love some thumb exercises.

Questions 33-35

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

Write the correct letter in boxes 33-35 on your answer sheet.

33. In Europe, a research hints that young audiences spend more money on

- A. thumbing text messages.
- B. writing e-mails.
- C. watching TV programmes.
- D. talking through mobile phones.

34. What would happen when reality TV shows invite the audience to vote?

- A. Viewers would get attractive bonus.
- B. They would be part of the competition.
- C. Their questions would be replied.
- D. Their participation could change the result.

35. Interactive TV will change from concentrating on set-top devices to

- A. increasing their share in the market.
- B. setting up a modified set-top box.
- C. building an embedded message platform.
- D. marching into the European market.

Questions 36-40

Look at the following descriptions (Questions 36-40) and the list of companies below.
Match each description with the correct company, A-F.

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

List of Companies

- A. Flytxt
- B. Analysys

- C. Endemol
- D. CMG
- E. Mm02
- F. Gartner

- 36. offered mobile phone message technology
- 37. earned considerable amount of money through a famous programme
- 38. expressed the view that short codes are convenient to remember when turning up
- 39. built their own mobile phone operating applications
- 40. indicated that it is easy for people to send message in an interactive TV

Reading Test 5

SECTION 1

Sustainable architecture - lessons from the ant

Termite mounds were the inspiration for an innovative design in sustainable living

A.

Africa owes its termite mounds a lot. Trees and shrubs take root in them. Prospectors mine them, looking for specks of gold carried up by termites from hundreds of metres below. And of course, they are a special treat to aardvarks and other insectivores.

B.

Now, Africa is paying an offbeat tribute to these towers of mud. The extraordinary Eastgate Building in Harare, Zimbabwe's capital city, is said to be the only one in the world to use the same cooling and heating principles as the termite mound.

C.

Termites in Zimbabwe build gigantic mounds inside which they farm a fungus that is their primary food source. This must be kept at exactly 30.5°C, while the temperatures on the African yield outside can range from 1.5°C at night only just above freezing to a baking hot 40°C during the day. The termites achieve this remarkable feat by building a system of vents in the mound. Those at the base lead down into chambers cooled by wet mud carried up from water tables far below, and others lead up through a Hue to

the peak of the mound. By constantly opening and closing these heating and cooling vents over the course of the day the termites succeed in keeping the temperature constant in spite of the wide fluctuations outside.

D.

Architect Mick Pearce used precisely the same strategy when designing the Eastgate Building, which has no air conditioning and virtually no heating. The building the country's largest commercial and shopping complex uses less than 10% of the energy of a conventional building ns size. These efficiencies translated directly to the bottom line: the Eastgate's owners saved \$3.5 million on a \$36 million building because an air-conditioning plant didn't have to be imported. These savings were also passed on to tenants: rents are 20% lower than in a new building next door.

E.

The complex is actually two buildings linked by bridges across a shady, glass-roofed atrium open to the breezes. Fans suck fresh air in from the atrium, blow it upstairs through hollow spaces under the floors and from there into each office through baseboard vents. As it rises and warms, it is drawn out via ceiling vents and finally exits through forty- eight brick chimneys.

F.

To keep the harsh, high yield sun from heating the interior, no more than 25% of the outside is glass, and all the windows are screened by cement arches that just out more than a metre.

G.

During summer's cool nights, big fans flush air through the building seven times an hour to chill the hollow floors. By day, smaller fans blow two changes of air an hour through the building, to circulate the air which has been in contact with the cool floors. For winter days, there are small heaters in the vents.

H.

This is all possible only because Harare is 1600 feet above sea level, has cloudless skies, little humidity and rapid temperature swings days as warm as 31°C commonly drop to 14°C at night. 'You couldn't do this in New York, with its fantastically hot

summers and fantastically cold winters,' Pearce said. But then his eyes lit up at the challenge.' Perhaps you could store the summer's heat in water somehow.

I.

The engineering firm of Ove Arup & Partners, which worked with him on the design, monitors daily temperatures outside, under the floors and at knee, desk and ceiling level. Ove Arup's graphs show that the temperature of the building has generally stayed between 23°C and 25°C. with the exception of the annual hot spell just before the summer rains in October, and three days in November, when a janitor accidentally switched off the fans at night. The atrium, which funnels the winds through, can be much cooler. And the air is fresh far more so than in air-conditioned buildings, where up to 30% of the air is recycled.

J.

Pearce, disdaining smooth glass skins as 'igloos in the Sahara', calls his building, with its exposed girders and pipes, 'spiky'. The design of the entrances is based on the porcupine-quill headdresses of the local Shona tribe. Elevators are designed to look like the mineshaft cages used in Zimbabwe's diamond mines. The shape of the fan covers, and the stone used in their construction, are echoes of Great Zimbabwe, the ruins that give the country its name.

Standing on a roof catwalk, peering down inside at people as small as termites below. Pearce said he hoped plants would grow wild in the atrium and pigeons and bats would move into it. like that termite fungus, further extending the whole 'organic machine' metaphor. The architecture, he says, is a regionalised style that responds to the biosphere, to the ancient traditional stone architecture of Zimbabwe's past, and to local human resources.

Questions 1-5

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

Write your answers in boxes 1-5 on your answer sheet.

1. Why do termite mounds have a system of vents?

- A. to allow the termites to escape from predators
- B. to enable the termites to produce food
- C. to allow the termites to work efficiently
- D. to enable the termites to survive at night

2. Why was Eastgate cheaper to build than a conventional building?

- A. Very few materials were imported.
- B. Its energy consumption was so low.
- C. Its tenants contributed to the costs.
- D. No air conditioners were needed.

3. Why would a building like Eastgate not work efficiently in New York?

- A. Temperature change occurs seasonally rather than daily.
- B. Pollution affects the storage of heat in the atmosphere.
- C. Summer and winter temperatures are too extreme.
- D. Levels of humidity affect cloud coverage.

4. What does Ove Arup's data suggest about Eastgate's temperature control system?

- A. It allows a relatively wide range of temperatures.
- B. The only problems are due to human error.
- C. It functions well for most of the year.
- D. The temperature in the atrium may fall too low.

5. Pearce believes that his building would be improved by

- A. becoming more of a habitat for wildlife.
- B. even closer links with the history of Zimbabwe.
- C. giving people more space to interact with nature.
- D. better protection from harmful organisms.

Questions 6-10

Complete the sentences below with words taken from Section 1.

Use **NO MORE THAN THREE WORDS** for each answer.

Write your answers in boxes 6-10 on your answer sheet.

- 6. Warm air leaves the offices through.....
- 7. The warm air leaves the building through.....
- 8. Heat from the sun is prevented from reaching the windows by.....
- 9. When the outside temperature drops..... bring air in from outside.

10. On cold days..... raise the temperature in the offices.

Questions 11-13

Answer the question below, using NO MORE THAN THREE WORDS from the passage for each answer.

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

Which three parts of the Eastgate Building reflect important features of Zimbabwe's history and culture?

- A. entrances
- B. quill
- C. cages
- D. elevators
- E. fan covers
- F. stone

SECTION 2

Multitasking

A.

Do you read while listening to music? Do you like to watch TV while finishing your homework? People who have these kinds of habits are called multi-taskers. Multitaskers are able to complete two tasks at the same time by dividing their focus. However, Thomas Lehman, a researcher in Psychology, believes people never really do multiple things simultaneously. Maybe a person is reading while listening to music, but in reality, the brain can only focus on one task. Reading the words in a book will cause you to ignore some of the words of the music. When people think they are accomplishing two different tasks efficiently, what they are really doing is dividing their focus. While listening to music, people become less able to focus on their surroundings. For example, we all have experience of times when we talk with friends and they are not responding properly. Maybe they are listening to someone else talk, or maybe they are reading a text on their smart phone and don't hear what you are saying. Lehman called this phenomenon "email voice"

B.

The world has been changed by computers and its spin offs like smart-phones or cellphones. Now that most individuals have a personal device, like a smart-phone or a

laptop, they are frequently reading, watching or listening to virtual information. This raises the occurrence of multitasking in our day to day life. Now when you work, you work with your typewriter, your cellphone, and some colleagues who may drop by at any time to speak with you. In professional meetings, when one normally focuses and listens to one another, people are more likely to have a cell phone in their lap, reading or communicating silently with more people than ever, even inventions such as the cordless phone has increased multitasking. In the old days, a traditional wall phone would ring, and then the housewife would have to stop her activities to answer it. When it rang, the housewife will sit down with her legs up and chat, with no laundry or sweeping or answering the door. In the modern era, our technology is convenient enough to not interrupt our daily tasks.

C.

Earl Miller, an expert at the Massachusetts Institute of Technology, studied the prefrontal cortex, which controls the brain while a person is multitasking. According to his studies, the size of this cortex varies between species, He found that for humans, the size of this part constitutes one third of the brain, while it is only 4 to 5 percent in dogs, and about 15% in monkeys. Given that this cortex is larger on a human, it allows a human to be more flexible and accurate in his or her multitasking.. However, Miller wanted to look further into whether the cortex was truly processing information about two different tasks simultaneously. He designed an experiment where he presents visual stimulants to his subjects in a way that mimics multi-tasking. Miller then attached sensors to the patients' heads to pick up the electric patterns of the brain. This sensor would show if the brain particles, called neurons, were truly processing two different tasks. What he found is that the brain neurons only lit up in singular areas one at a time, and never simultaneously.

D.

Davis Meyer, a professor of University of Michigan, studied the young adults in a similar experiment. He instructed them to simultaneously do math problems and classify simple words into different categories. For this experiment. Meyer found that when you think you are doing several jobs at the same time, you are actually switching between jobs. Even though the people tried to do the tasks at the same time, and both tasks were eventually accomplished, overall, the task took more time than if the person focused on a single task one at a time.

E.

People sacrifice efficiency when multitasking, Gloria Mark set office workers as his subjects. He found that they were constantly multitasking. He observed that nearly every 11 minutes people at work were disrupted. He found that doing different jobs at the same time may actually save time. However, despite the fact that they are faster, it does not mean they are more efficient. And we are equally likely to self-interrupt as be interrupted by outside sources. He found that in office nearly every 12 minutes an employee would stop and with no reason at all, check a website on their computer, call someone or write an email. If they concentrated for more than 20 minutes, they would feel distressed. He suggested that the average person may suffer from a short concentration span. This short attention span might be natural, but others suggest that new technology may be the problem. With cellphones and computers at our sides at all times, people will never run out of distractions. The format of media, such as advertisements, music, news articles and TV shows are also shortening, so people are used to paying attention to information for a very short time.

F.

So even though focusing on one single task is the most efficient way for our brains to work, it is not practical to use this method in real life. According to human nature, people feel more comfortable and efficient in environments with a variety of tasks, Edward Hallowell said that people are losing a lot of efficiency in the workplace due to multitasking, outside distractions and self-distractions. As a matter of fact, the changes made to the workplace do not have to be dramatic. No one is suggesting we ban e-mail or make employees focus on only one task. However, certain common workplace tasks, such as group meetings, would be more efficient if we banned cell-phones, a common distraction. A person can also apply these tips to prevent self-distraction. Instead of arriving to your office and checking all of your e-mails for new tasks, a common workplace ritual, a person could dedicate an hour to a single task first thing in the morning. Self-timing is a great way to reduce distraction and efficiently finish tasks one by one, instead of slowing ourselves down with multi-tasking.

QUESTIONS 14-26

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 reference to a domestic situation that does not require multitasking
15. a possible explanation of why we always do multitask together
16. a practical solution to multitask in work environment
17. relating multitasking to the size of prefrontal cortex
18. longer time spent doing two tasks at the same time than one at a time

Questions 19-23

Look at the following statements (Questions 19-23) and the list of scientists below.
Match each statement with the correct scientist, A-E.

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

NB You may use any letter more than once.

List of Scientists

- A. Thomas Lehman
- B. Earl Miller
- C. David Meyer
- D. Gloria Mark
- E. Edward Hallowell

19. When faced multiple visual stimulants, one can only concentrate on one of them.
20. Doing two things together may be faster but not better.
21. People never really do two things together even if you think you do.
22. The causes of multitask lie in the environment.
23. Even minor changes in the workplace will improve work efficiency.

Questions 24-27

Complete the sentences below.

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

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

A term used to refer to a situation when you are reading a text and cannot focus on your surroundings is 24 _____

The 25 _____

part of the brain controls multitasking.

The practical solution of multitask in work is to curb ...26..... by not allowing the use of cellphone in 27 _____

SECTION 3

The Pursuit of Happiness

"New research uncovers some anti-intuitive insights into how many people are happy - and why."

A.

Compared with misery, happiness is a relatively unexplored terrain for social scientists. Between 1967 and 1994, 46,380 articles indexed in Psychological Abstracts mentioned depression, 36,851 anxiety, and 5,099 anger. Only 2,389 spoke of happiness, 2,340 life satisfaction, and 405 joy.

B.

Recently we and other researchers have begun a systematic study of happiness. During the past two decades, dozens of investigators throughout the world have asked several hundred thousand Representative sampled people to reflect on their happiness and satisfaction with life or what psychologists call "subjective well-being". In the US the National Opinion Research Center at the University of Chicago has surveyed a representative sample of roughly 1,500 people a year since 1957; the Institute for Social Research at the University of Michigan has carried out similar studies on a less regular basis, as has the Gallup Organization. Government-funded efforts have also probed the moods of European countries.

C.

We have uncovered some surprising findings. People are happier than one might expect, and happiness does not appear to depend significantly on external circumstances. Although viewing life as a tragedy has a long and honorable history, the responses of random samples of people around the world about their happiness paints a much rosier picture. In the University of Chicago surveys, three in 10 Americans say they are very happy, for example. Only one in 10 chooses the most negative description "not too happy". The majority describe themselves as "pretty happy", ...

D.

How can social scientists measure something as hard to pin down as happiness? Most researchers simply ask people to report their feelings of happiness or unhappiness and to assess how satisfying their lives are. Such self-reported well-being is moderately consistent over years of retesting. Furthermore, those who say they are happy and satisfied seem happy to their close friends and family members and to a psychologist-interviewer. Their daily mood ratings reveal more positive emotions, and they smile more than those who call themselves unhappy. Self-reported happiness also predicts other indicators of well-being. Compared with the depressed, happy people are less self-focused, less hostile and abusive, and less susceptible to disease.

E.

We have found that the even distribution of happiness cuts across almost all demographic classifications of age, economic class, race and educational level. In addition, almost all strategies for assessing subjective well-being - including those that sample people's experience by polling them at random times with beepers - turn up similar findings. Interviews with representative samples of people of all ages, for example, reveal that no time of life is notably happier or unhappier. Similarly, men and women are equally likely to declare themselves "very happy" and "satisfied" with life, according to a statistical digest of 146 studies by Marilyn J, Haring, William Stock and Morris A, Okun, all then at Arizona State University.

F.

Wealth is also a poor predictor of happiness. People have not become happier over time as their cultures have become more affluent. Even though Americans earn twice as much in today's dollars as they did in 1957, the proportion of those telling surveyors from the National Opinion Research Center that they are "very happy" has declined from 35 to 29 percent.

G.

Even very rich people - those surveyed among Forbes magazine's 100 wealthiest Americans - are only slightly happier than the average American. Those whose income has increased over a 10-year period are not happier than those whose income is stagnant. Indeed, in most nations the correlation between income and happiness is negligible - only in the poorest countries, such as Bangladesh and India, is income a good measure of emotional well-being.

H.

Are people in rich countries happier, by and large, than people in not so rich countries? It appears in general that they are, but the margin may be slim. In Portugal, for example, only one in 10 people reports being very happy, whereas in the much more prosperous Netherlands the proportion of very happy is four in 10. Yet there are curious reversals in this correlation between national wealth and well-being -the Irish during the 1980s consistently reported greater life satisfaction than the wealthier West Germans. Furthermore, other factors, such as civil rights, literacy and duration of democratic government, all of which also promote reported life satisfaction, tend to go hand in hand with national wealth. As a result, it is impossible to tell whether the happiness of people in wealthier nations is based on money or is a by-product of other felicities.

I.

Although happiness is not easy to predict from material circumstances, it seems consistent for those who have it. In one National Institute on Aging study of 5,000 adults, the happiest people in 1973 were still relatively happy a decade later, despite changes in work, residence and family status.

[From "The Pursuit of Happiness" by David G. Myers and Ed Diener. Copyright © May 1996 by Scientific American, Inc. All rights reserved.]

Questions 28-30

Choose the appropriate letters A-D and write them in boxes 23-30 on your answer sheet.

28 What point are the writers making in the opening paragraph?

- A. Happiness levels have risen since 1967.
- B. Journals take a biased view on happiness.
- C. Happiness is not a well-documented research area
- D. People tend to think about themselves negatively.

29 What do the writers say about their research findings?

- A. They had predicted the results correctly.
- B. They felt people had responded dishonestly.
- C. They conflict with those of other researchers.
- D. Happiness levels are higher than they had believed.

30 In the fourth paragraph, what does the reader learn about the research method used?

- A. It is new.
- B. It appears to be reliable.
- C. It is better than using beepers.
- D. It reveals additional information.

Questions 31-34

According to the passage, which of the findings below (31-34) is quoted by which Investigative Body (A-G)? Write your answers in boxes 31-34 on your answer sheet.

NB There are more Investigative Bodies than findings, so you do not have to use all of them.

- 31. Happiness is not gender related.
- 32. Over fifty percent of people consider themselves to be 'happy'.
- 33. Happiness levels are marginally higher for those in the top income brackets.
- 34. Happy' people remain happy throughout their lives.

Investigative Bodies

- A. The National Opinion Research Center, University of Chicago
- B. Arizona State University
- C. The Institute for Social Research, University of Michigan
- D. Forbes Magazine
- E. The National Institute on Aging
- F. The Gallup Organization
- G. The Government

Questions 35-40

Complete the summary of Reading Passage 20 below. Choose your answers from the box at the bottom of the page and write them in boxes 35-40 on your answer sheet

NB There are more words than spaces so you will not use them all. You may use any of the words more than once.

HOW HAPPY ARE WE?

Example :

Answer

Our happiness levels are by relatively few factors.

Affected

For example, incomes in the States have (35)..... over the past forty years but happiness levels have (36)..... over the same period. In fact, people on average incomes are only slightly (37)..... happy than extremely rich people and a gradual increase in prosperity makes (38)..... difference to how happy we are. In terms of national wealth, populations of wealthy nations are (39)..... happier than those who live in poorer countries. Although in some cases this trend is (40)..... and it appears that other factors need to be considered.

List of words			
Stopped	Slightly	too	great
Doubled	Significant	similar	some
Stabilized	Remarkably	reversed	dropped
No	Less	much	affected
Crept up	Slowed down	more	clearly

Reading Test 6

SECTION 1

Video game research

A. Although video games were first developed for adults, they are no longer exclusively reserved for the grown-ups in the home. In 2006, Rideout and Hamel reported that as many as 29 percent of preschool children (children between two and six years old) in the United States had played console video games, and 18 percent had played hand-held ones. Given young children's insatiable eagerness to learn, coupled with the fact that they are clearly surrounded by these media, we predict that preschoolers will both continue and increasingly begin to adopt video games for personal enjoyment.

Although the majority of gaming equipment is still designed for a much older target audience, once a game system enters the household it is potentially available for all family members, including the youngest. Portable systems have done a particularly good job of penetrating the younger market.

B. Research in the video game market is typically done at two stages: some time close to the end of the product cycle, in order to get feedback from consumers, so that a marketing strategy can be developed; and at the very end of the product cycle to 'fix bugs' in the game. While both of those types of research are important, and may be appropriate for dealing with adult consumers, neither of them aids in designing better games, especially when it comes to designing for an audience that may have particular needs, such as preschoolers or senior citizens. Instead, exploratory and formative research has to be undertaken in order to truly understand those audiences, their abilities, their perspective, and their needs.

C. In the spring of 2007, our preschool-game production team at Nickelodeon had a hunch that the Nintendo DS - with its new features, such as the microphone, small size and portability, and its relatively low price point - was a ripe gaming platform for preschoolers. There were a few games on the market at the time which had characters that appealed to the younger set, but our game producers did not think that the game mechanics or design were appropriate for preschoolers. What exactly preschoolers could do with the system, however, was a bit of a mystery. So we set about doing a study to answer the query: What could we expect preschoolers to be capable of in the context of hand-held game play, and how might the child development literature inform us as we proceeded with the creation of a new outlet for this age group? Our context in this case was the United States, although the games that resulted were also released in other regions, due to the broad international reach of the characters. In order to design the best possible DS product for a preschool audience we were fully committed to the ideals of a 'user-centered approach', which assumes that users will be at least considered, but ideally consulted during the development process. After all, when it comes to introducing a new interactive product to the child market, and particularly such a young age group within it, we believe it is crucial to assess the range of physical and cognitive abilities associated with their specific developmental stage.

D. Reville and Medoff (2002) review some of the basic reasons why home entertainment systems, computers, and other electronic gaming devices, are often difficult for preschoolers to use. In addition to their still developing motor skills (which make manipulating a controller with small buttons difficult), many of the major stumbling blocks are cognitive. Though preschoolers are learning to think symbolically, and understand that pictures can stand for real-life objects, the vast majority are still unable to read and write. Thus, using text-based menu selections is not viable. Mapping is yet another obstacle since preschoolers may be unable to understand that there is a direct link between how the controller is used and the activities that appear before them on screen. Though this aspect is changing, in traditional mapping systems real life movements do not usually translate into game-based activity.

E. Over the course of our study, we gained many insights into how preschoolers interact with various platforms, including the DS. For instance, all instructions for preschoolers need to be in voice-over, and include visual representations, and this has been one of the most difficult areas for us to negotiate with respect to game design on the DS. Because the game cartridges have very limited memory capacity, particularly in comparison to console or computer games, the ability to capture large amounts of voice-over data via sound files or visual representations of instructions becomes limited. Text instructions take up minimal memory, so they are preferable from a technological perspective. Figuring out ways to maximise sound and graphics files, while retaining the clear visual and verbal cues that we know are critical for our youngest players, is a constant give and take. Another of our findings indicated that preschoolers may use either a stylus, or their fingers, or both although they are not very accurate with either. One of the very interesting aspects of the DS is that the interface, which is designed to respond to stylus interactions, can also effectively be used with the tip of the finger. This is particularly noteworthy in the context of preschoolers for two reasons. Firstly, as they have trouble with fine motor skills and their hand-eye coordination is still in development, they are less exact with their stylus movements; and secondly, their fingers are so small that they mimic the stylus very effectively, and therefore by using their fingers they can often be more accurate in their game interactions.

Questions 1-5

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

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. Video game use amongst preschool children is higher in the US than in other countries.
2. The proportion of preschool children using video games is likely to rise.
3. Parents in the US who own gaming equipment generally allow their children to play with it.
4. The type of research which manufacturers usually do is aimed at improving game design.
5. Both old and young games consumers require research which is specifically targeted.

Questions 6-10

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

Preschool children find many electronic games difficult, because neither their motor skills nor their 6..... are sufficiently developed.

Certain types of control are hard for these children to manipulate, for example, 7..... can be more effective than styluses.

Also, although they already have the ability to relate 8.....to real-world objects, preschool children are largely unable to understand the connection between their own 9.....and the movements they can see on the screen. Finally, very few preschool children can understand 10

A actions	B buttons	C cognitive skills
D concentration	E fingers	F pictures
G Sounds	H Spoken instructions	I Written menus

Questions 11-13

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

11. In 2007, what conclusion did games producers at Nickelodeon come to?

- A. The preschool market was unlikely to be sufficiently profitable.
- B. One of their hardware products would probably be suitable for preschoolers.
- C. Games produced by rival companies were completely inappropriate for preschoolers.
- D. They should put their ideas for new games for preschoolers into practice.

12. The study carried out by Nickelodeon

- A. was based on children living in various parts of the world.
- B. focused on the kinds of game content which interests preschoolers.
- C. investigated the specific characteristics of the target market.
- D. led to products which appealed mainly to the US consumers.

13. Which problem do the writers highlight concerning games instructions for young children?

- A. Spoken instructions take up a lot of the available memory.
- B. Written instructions have to be expressed very simply.
- C. The children do not follow instructions consistently.
- D. The video images distract attention from the instructions.

14 Which is the best title for Reading Passage 3?

- A. An overview of video games software for the preschool market
- B. Researching and designing video games for preschool children
- C. The effects of video games on the behaviour of young children
- D. Assessing the impact of video games on educational achievement

SECTION 2

Questions 15-20

Section 2 has seven paragraphs, A-G

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

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

List of headings

- i 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 trouble of wind
- ix Contrast between long-distance migration and short-distance migration
- x Mysterious migration despite lack of teaching

- 15. Paragraph B
- 16. Paragraph C
- 17. Paragraph D
- 18. Paragraph E
- 19. Paragraph F
- 20. Paragraph G

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 are able to accumulate considerable layers of fat, in order 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 several thousands of miles further to their preferred winter home in South Africa Cape Province. Another mystery involves the huge migrations performed by arctic terns and mudflat-feeding shorebirds that breed close to 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 encounters its young again. It is mind-boggling to consider that, once raised by its host species, the young cuckoo makes its own 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 own 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 seem also 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, true 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 landmass, 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 change 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 European migrants in sunny African climes.

Questions 21-22

Choose TWO letters, A-E

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

Which TWO of the following statements are true of 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 using NO MORE THAN TWO WORDS from the passage.

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

24. Evidence shows birds can tell directions like a 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.

SECTION 3

THE HISTORY OF THE TORTOISE

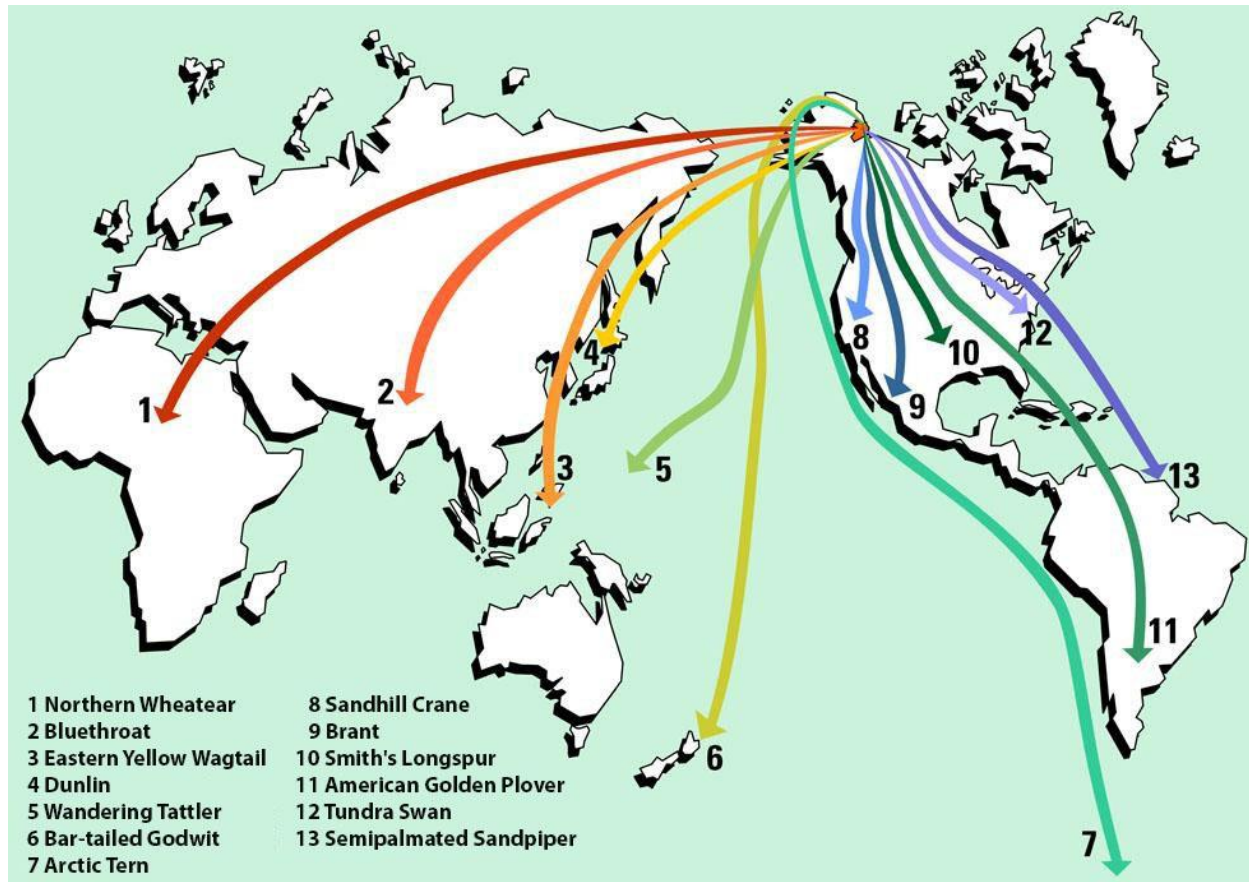
A. If you go back far enough, everything lived in the sea. At various points in evolutionary history, enterprising individuals within many different animal groups moved out onto the land, sometimes even to the most parched deserts, taking their own private seawater with them in blood and cellular fluids. In addition to the reptiles, birds, mammals and insects which we see all around us, other groups that have succeeded out of water include scorpions, snails, crustaceans such as woodlice and land crabs, millipedes and centipedes, spiders and various worms. And we mustn't forget the plants, without whose prior invasion of the land none of the other migrations could have happened.

B. Moving from water to land involved a major redesign of every aspect of life, including breathing and reproduction. Nevertheless, a good number of thoroughgoing land animals later turned around, abandoned their hard-earned terrestrial re-tooling, and returned to the Water. Seals have only gone part way back. They show us what the intermediates might have been like, on the way to extreme cases such as whales and dugongs. Whales (including the small whales we call dolphins) and dugongs, with their close cousins the manatees, ceased to be land creatures altogether and reverted to the full marine habits of their remote ancestors. They don't even come ashore to breed. They do, however, still breathe air, having never developed anything equivalent to the gills of their earlier marine incarnation. Turtles went back to the sea a very long time ago and, like all vertebrate returnees to the water, they breathe air. However, they are, in one respect, less fully given back to the water than whales or dugongs, for turtles still lay their eggs on beaches.

C. There is evidence that all modern turtles are descended from a terrestrial ancestor which lived before most of the dinosaurs. There are two key fossils called *Proganochelys quenstedtii* and *Palaeochersis talampayensis* dating from early dinosaur times, which appear to be close to the ancestry of all modern turtles and tortoises. You might wonder how we can tell whether fossil animals lived on land or in water, especially if only

fragments are found. Sometimes it's obvious. Ichthyosarus were reptilian contemporaries of the dinosaurs, with fins and streamlined bodies. The fossils look like dolphins and they surely lived like dolphins, in the water. With turtles it is a little less obvious. One way to tell is by measuring the bones of their forelimbs.

D.



Walter Joyce and Jacques Gauthier, at Yale University, obtained three measurements in these particular bones of 71 species of living turtles and tortoises. They used a kind of triangular graph paper to plot the three measurements against one another. All the land tortoise species formed a tight cluster of points in the upper part of the triangle; all the water turtles cluster in the lower part of the triangular graph. There was no overlap, except when they added some species that spend time both in water and on land. Sure enough, these amphibious species show up on the triangular graph approximately half way between the 'wet cluster' of sea turtles and the 'dry cluster' of land tortoises. The next step was to determine where the fossil fell. The bones of *P. quenstedti* and *P. talampayensis* leave us in no doubt. Their points on the graph are right in the thick of the dry cluster. Both these fossils were dry-land tortoises. They come from the era before our turtles returned to the water.

E. You might think, therefore, that modern land tortoises have probably stayed on land ever since those early terrestrial times, as most mammals did after a few of them went back to the sea. But apparently not. If you draw out the family tree of all modern turtles and tortoises, nearly all the branches are aquatic. Today's land tortoises constitute a single branch, deeply nested among branches consisting of aquatic turtles. This suggests that modern land tortoises have not stayed on land continuously since the time of *P. quenstedti* and *P. talampayensis*. Rather, their ancestors were among those who went back to the water, and they then re-emerged back onto the land in (relatively) more recent times.

F. Tortoises therefore represent a remarkable double return. In common with all mammals, reptiles and birds, their remote ancestors were marine fish and before that various more or less worm-like creatures stretching back, still in the sea, to the primeval bacteria. Later ancestors lived on land and stayed there for a very large number of generations. Later ancestors still evolved back into the water and became sea turtles. And finally, they returned yet again to the land as tortoises, some of which now live in the driest of deserts.

Questions 27-30

Answer the questions below

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

Write your answers in boxes 27-30 on your answer sheet.

27. What had to transfer from sea to land before any animals could migrate?
28. Which TWO processes are mentioned as those in which animals had to make big changes as they moved onto land?
29. Which physical feature, possessed by their ancestors, do whales lack?
30. Which animals might ichthyosaurs have resembled?

Questions 31-33

Do the following statements agree with the information given in Reading Passage 3?
In boxes 31-33 on your answer sheet, write

- TRUE if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this more than once.

31. Turtles were among the first group of animals to migrate back to the sea.
32. It is always difficult to determine where an animal lived when its fossilized remains are incomplete.
33. The habitat of ichthyosaurs can be determined by the appearance of their fossilized remains.

Questions 34-39

Complete the flow-chart below

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

Write your answers in boxes 34-39 on your answer sheet.

Method of determining where the ancestors of turtles and tortoises come from

Step 1: 71 species of living turtles and tortoises were examined and a total of 34 were taken from the bones of their forelimbs.

Step 2: The data was recorded on a 35 (necessary for comparing the information). Outcome: Land tortoises were represented by a dense 36 of points towards the top. Sea turtles were grouped together in the bottom part.

Step 3: The same data was collected from some living 37 species and added to the other results. Outcome: The points for these species turned out to be positioned about 38 up the triangle between the land tortoises and the sea turtles.

Step 4: Bones of *R. quenstedti* and *P. tampanensis* were examined in a similar way and the results added.

Outcome: The position of the points indicated that both these ancient creatures were 39.....

Questions 40

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

Write the correct letter in box 40 on your answer sheet.

According to the writer, the most significant thing about tortoises is that

- A. they are able to adapt to life in extremely dry environments.
- B. their original life form was a kind of primeval bacteria,
- C. they have so much in common with sea turtles.
- D. they have made the transition from sea to land more than once.

Reading Test 7

SECTION 1

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

Questions 1-5

Reading Passage 1 has 9 paragraphs A-I.

From the List of headings below choose the 5 most suitable headings for paragraphs B, C, D, E and F. Write the appropriate numbers (i-x). NB There are more headings than paragraphs, so you will not use them all.

List of Headings

- i. A convenient and cost-effective solution
- ii. Encouraging audience participation
- iii. The backup technology
- iv. Tailoring the service
- v. Success brought by interactive software
- vi. The features of the new platform
- vii. Synchronization and connectivity
- viii. The application server
- ix. The Mobile Interactive TV Platform
- x. Different market segmentation

- 1. Paragraph B
- 2. Paragraph C
- 3. Paragraph D
- 4. Paragraph E
- 5. Paragraph F

TV

A.

Interactive production company Two Way TV has been commissioned by ITV Play to create a unique new programming strand, Play DJ. Play DJ features a number of Play-along SMS games, produced using Two Way TV's unique Simcast text-to-TV platform. William van Rest, Controller of ITV Play, said: "Play DJ is a little bit different from the traditional quiz TV formats, contributing to our aim of moving the sector on. It has a unique blend of entertainment and game play which we hope will build up a loyal following".

B.

Broadcasters, programme-makers and TV networks now have the widest ever range of interactive TV and mobile to TV products and services available. With interactive software solutions, TV networks like ITV and BBC Channel 4 have succeeded in designing and building many of flagship services including Pop Idol, The Premiership and Big Brother. More recently, Two Way TV helped ITV go interactive on cable TV for the first time with X Factor and This Morning.

C.

The sudden surge in the number of interactive TV platforms clearly demonstrates that viewers are enjoying participating in voting, quizzes and other interactive activities using their mobile phones. The "getting the audience involved" experience lets viewers interact with one another or with content associated with reality shows, regular shows, or advertisements by sending in messages that are displayed or accumulated on the television screen. They can answer questions, cast votes or predict what's about to happen on screen. The voting and response services utilize the mobile phone of the TV viewer to interactively and directly participate in what's happening on TV—simply by sending his vote or SMS message to a premium number during the broadcast of the TV programme. The solution can analyze up to 6,000 SMS per second and provides an easy-to-use web-based administration tool to track and manage the SMS and MMS traffic. It also generates graphical results that bring value to the show and act as a compulsive element for audience participation.

D.

The primary technological underpinnings of the new platform are an application server, located in the service provider's computer center, and a broadcasting system installed at the broadcaster's central control station. The application server provides web-based tools for the moderation and selection of SMS and MMS messages, and its graphical user interface (GUI) enables screen design and control of the programme. In addition, the server provides all the interface connections with SMS and MMS gateways, as well as with mobile operators' billing systems. The broadcasting system, meanwhile, creates the video signals for TV broadcast, and offers interfaces with programme planning tools, video servers, and text and graphics generators.

E.

Whereas the market was previously characterized by closed, proprietary platforms that offered broadcasters only one limited alternative and necessitated using different platforms for different applications, the new platform, differentiated in the marketplace by its open and modular approach, enables numerous applications, and provides interfaces for the seamless integration of games and TV formats from third-party providers. The differences between mobile interactive TV platform and other technologies in the market add up to this; fast and easy creation, delivery, integration, and management of rich media interactive TV applications into live or prerecorded programs. The Mobile Interactive TV Platform allows broadcasters to integrate interactive services into their TV programme. Broadcasters merely have to select the desired services from the platform. Applications, like SMS2TV, MMS2TV, games, chats or votings, can be used in any combination. The production phase of interactive TV applications should not require costly programming and specialist technical knowledge. The TV programme can be arranged individually by means of a userfriendly graphical user interface. A suite of software and hardware is available that delivers multimode applications for broadcasters and other application service providers.

F.

The mobile platform offers convenience and a cost-effective solution to the broadcaster, while putting great emphasis on reliability. Its key features include a

provisioning environment, synchronization of diverse media while supporting mass interactions by many viewers supporting mass interactions by many viewers to the same TV application in a real-time mode, enabling the easy creation of TV applications, the production of very low-cost TV applications, and a high degree of connectivity to external interfaces. These features are ideal for media owners who want to reach users regardless of their public network provider. They give a fast and reliable platform for processing high volume traffic, seamless connections to communication networks and to the broadcast control room, an "invisible" dynamic and flexible billing system and an interactive "back channel" (an immediate, "always-on" channel through which users can respond or receive messages in any format: SMS, MMS, ringtones, icons, etc.).

G.

This is a real end-to-end solution tying all the knots needed to create a show that gather information from a magnitude of diverse media, while handling aspects of accounting, connecting to all kinds of cellular networks, supplying scalable and robust configurations, and referring to third parties for purposes of playing for real money, raising donations, and even selling services and products.

H.

For these reasons texting and other user interactions in response to television fl I programming or to influence television programming have gained a lot of popularity lately. Next-generation television services that focus on interactivity are most likely to find success in Spain, the UK and Japan, with the US ranking sixth in a study that examines the digital readiness of 12 countries for interactive and personalized television services. In Spain, nearly 80% of those surveyed showed an interest in at least one key advanced television offering, especially those related to interactive features such as personalized recommendations and voting. In both the UK and Japan, 75% showed an inclination towards interactive services.

I.

"Different populations have quite unique reactions to an interest in applications regarding advanced TV services," said Deepa Iyer, research analyst at Parks Associates. "Consumers in the United Kingdom are more inclined toward interactive features such as voting abilities whereas the Japanese prefer features such as personalized recommendations and one-button access capabilities. "The 'one size fits all' mind-set regarding television services is obsolete," Iyer said. "The challenge is to meet the broadcaster's needs quickly, limiting the amount of time required to make a broadcast-quality product and to allow all the viewers to participate."

Questions 6-9

Matching the following descriptions as referring to

- A. SMS
- B. GUI
- C. Back Channel
- D. The Application Server
- E. The Mobile Interactive TV Platform

- 6. It provides a passage through which users receive and send messages.
- 7. It enables screen design and control of the programme.
- 8. It provides web-based tools to select messages.
- 9. It enables broadcasters to combine interactive services with their TV programmes.

Questions 10-13

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

In boxes 10-13 on your answer sheet write

TRUE, if the statement is true
FALSE, if the statement is false
NOT GIVEN, if the information is not given in the passage.

- 10. The Japanese market calls for more promotional messaging.
- 11. The United States was among the first countries to implement Two Way TV
- 12. Texting is just one form of user interface

13. UK consumers prefer conventional TV, as they are a more passive audience

SECTION 2

You should spend about 20 minutes on Questions 14 — 27 which are based on Reading Passage 2 below.

SPELLING SYSTEM REFORM

A.

Our children are being beaten up by a crazy spelling system that appears to be loved by millions. They are being beaten up because they are constantly bombarded by unpredictable silent letters, double consonants that defy explanation, endless varieties of vowel combinations, and rules that are notoriously unreliable. They are forced to attempt to learn a system that is illogical, inconsistent, and — system that is illogical, inconsistent, and — worst of all — needlessly complicated. Not only are they physically beaten up, but many of them do end up with well-concealed scars on their psyches. At least one study has shown that using a system as irrational as ours may arrest the development of logical thinking. That's not just being beaten up; it's child abuse exactly.

B.

There's a social stigma attached to being a poor speller, although the only thing being a good speller makes one better at is spelling. It doesn't make one a better writer, a better poet, a more creative person with words. It doesn't make him understand the essence of the language better. Shakespeare would have been the exact same creative genius he was whether he was a good or bad speller. He was just lucky enough to have lived in a day when he was judged by the meaning of his words, rather than the placement of the letters within those words. In Shakespeare's day, most people's spelling was erratic; therefore, when he spelled words many different ways no one even noticed.

C.

During the last 30 years or so, literacy in the English-speaking world has been declining at an alarming rate. It's not hard to guess why. During the rapid development of electronics in the past 40 years speech for the first time in the entire years, speech, for the first time in the entire course of history, has become a mass medium. The people, having discovered those electronic channels through which they can receive Information in their own language, are now circumventing the outdated writing system which has been the bottleneck in mass communication. And having alienated themselves from it, they have become less able and less willing to cope with its irrational complexities. In an attempt to correct this situation, the Federal Government of the United States initiated its "Decade of the '70's" program. During that ten-year period, both State and Federal governments have poured massive sums into programs designed to eradicate illiteracy not by re designing the outdated writing system, but by attempting to shape the minds of human beings into conformity with the system. This extravagant program achieved nothing. The drift to illiteracy continues as before, except that it now has reached the proportions of a crisis. For example, the United States Navy now complains that from 40% to 50% of today's recruits can't read the instruction manuals. The Navy is plainly worried about the future. And they are not alone.

D.

The problem in the English-speaking world is that the writing system has been shaped a bit, here and there. In the direction of Modern English, but the fact is that its spelling is based primarily on another language. Middle English, which hasn't been spoken in at least 400 years, and is no longer understood. From the point of view of a technician, this problem is easily solved. All one needs to do is to design a writing system specifically for Modern English, so that all three elements in the chain of communication can function in harmony. The proposal is that we systematically and definitively wipe out all the anomalous spellings in English so that anyone looking at a word in print will immediately know how to pronounce it — and, conversely, anyone attempting to write English will be able to get every single spelling right the first time. In

other words, proponents of English spelling reform want us to adopt a mostly phonetic orthography. Indeed, a certain amount of reform has happened all by itself over the years, as previously alternative spellings have worked their way into the dictionary as standard forms. Think of the word "catalog", which was formerly spelled "catalogue", or "draft", formerly spelled "draught".

E.

On a relatively small scale, sensible spellings do sometimes replace less sensible ones. But the design of a new writing system is only a partial solution. The major obstacle that confronts the orthographic reformer is the existing system itself, which, with all its scandalous lack of utility, happens to be an Investiture that seems to defy displacement. The first question that arises is how far such a reform would go. We could make a good start by simply removing letters that are never pronounced. Though could become tho, guard could become gard, foreign could become forin, doubt could become dout, Christmas could become Chrismas, and so on. We could also, perhaps, reduce the number of ways to write any particular sound — so the “ee” sound in street, for example, might always be written "ee", never "ea", "ie", "ei", "i", "e", or whatever. Although these changes would help, however, they would save only a subset of the problems — and the more extensive the changes are, the more difficult they would be for the public to accept.

F.

Since we've already programmed our brains to work under the current, flawed system simplified spellings would be at least initially — much harder for all the hundreds of millions of English readers to read. There's also that little matter of what to do with the billions of books, magazines, web sites, and other documents that already use the "old" spelling. Then there are those who point out that a word's spelling gives important clues to its etymology, meaning, and relationship to other words. So even though the “a” in the word real is not pronounced, it serves the important function of showing the word's connection to the word "reality", in which the "a" is pronounced. Lose that letter, and the words no longer appear to have anything to do with each other. Thus, at

least some of the peculiarities of English spelling exist for entirely legitimate, and still useful, historical reasons.

G.

Sir Winston Churchill opposed a spelling reform bill in British parliament in 1949. He felt that changing the appearance of words would "mess up the language of Shakespeare" If Mr. Churchill had understood the detrimental effect that needlessly complex spelling has on literacy, he would have realized that unreformed spelling ruins the language of Shakespeare because it prevents an extra 10% of the population from being literate enough to read t. That may be too high a price to pay.

Questions 14 — 20

Do the following statements agree with the information given in Reading Passage 2?

In boxes 14-20 on your answer sheet write

TRUE, if the statement is true

FALSE, if the statement is false

NOT GIVEN, if the information is not given in the passage.

14. The presence of unpronounced letters sometimes serves to connect meanings of words.

15. Some people already used new spelling systems to write books and magazines.

16. The problem lies not with the system of spelling but with the method of teaching.

17. Simplified spelling would not be immediately successful because we have grown accustomed to the flawed system.

18. The current spelling system may hinder children from developing logical thinking

19. The program initiated by the Federal Government aimed at eliminating illiteracy.

20. Shakespeare was both a good writer and speller

Questions 21-23

Complete the sentences below USING NO MORE THAN THREE WORDS taken from the passage.

21. Spelling reform is based on an essentially _____ orthography

22. The spelling system we use today has a _____ effect on people's literacy.

23. Churchill feared that a spelling reform bill would _____ the language of Shakespeare.

Questions 24-27

Match the following statements with their example word.

- A. self-change over time
- B. limited way to write
- C. unpronounced letter
- D. unpronounced letter works

- 24. real
- 25. Christmas
- 26. catalogue
- 27. street

SECTION 3

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

PERFUME

A.

Perfume comes from the Latin "per" meaning "through" and "fumum" , or "smoke". Many ancient perfumes were made by extracting natural oils from plants through pressing and steaming. The oil was then burned to scent the air. Since the beginning of recorded history, humans have attempted to mask or enhance their own odor by using perfume, which emulates nature's pleasant smells. Many natural and man-made materials have been used to make perfume to apply to the skin and clothing, to put in cleaners and cosmetics, or to scent the air. Because of differences in body chemistry, temperature, and body odors, no perfume will smell exactly the same on any two people.

B.

Before perfumes can be composed, the odorants used in various perfume compositions must first be obtained. Synthetic odorants are produced through organic synthesis and purified. Odorants from natural sources require the use of various methods to extract the aromatics from the raw materials. Enfleurage a process from the raw materials. Enfleurage, a process that uses odorless fats that are solid at room temperature to capture the fragrant compounds exuded by plants, is the oldest of fragrance extraction techniques. The process can be "cold" enfleurage or "hot" enfleurage. In cold enfleurage, a large framed plate of glass, called a chassis, is smeared with a layer of animal fat, usually from pork or beef, and allowed to set. Botanical matter, usually petals or whole flowers, is then placed on the fat and its scent is allowed to diffuse into the fat over the course of 13 days. The process is then repeated by replacing the spent botanicals with fresh ones until the fat has reached a desired degree of fragrance saturation.

C.

In hot enfleurage, solid fats are heated and botanical matter is stirred into the fat. Spent botanicals are repeatedly strained from the fat and replaced with fresh material until the fat is saturated with fragrance. In both instances, the fragrance-saturated fat is now called the "enfleurage pomade". The enfleurage pomade is washed or soaked in ethyl alcohol to draw the fragrant molecules into the alcohol. The alcohol is then separated from the fat and allowed to evaporate, leaving behind the essential oil of the botanical matter. The spent fat is usually used to make soaps since it is still relatively fragrant. This method of fragrance extraction is by far one of the oldest. It is also highly inefficient and costly but was the sole method of extracting the fragrant compounds in delicate floral botanical such as jasmine and tuberose, which would be destroyed or denatured by the high temperatures required by methods of fragrance extraction such as steam distillation. The method is now superseded by more efficient techniques such as solvent extraction or supercritical fluid extraction using liquid carbon dioxide (CO₂) or similar compressed gases.

D.

The results of the extraction are either essential oils, absolutes, concretes, or butters, depending on the amount of waxes in the extracted product. All these techniques will to a certain extent, distort the odour of the aromatic compounds obtained from the raw materials. This is due to the use of heat, harsh solvents, or through exposure to oxygen in the extraction process which will denature the aromatic compounds, which either change their odour character or renders them odourless. The country-island Madagascar—known for its extremely unique biodiversity—is recognized as holding tremendous potential for the development of new products in the essential oils, cosmetic and body care, due to the fact that 80% of its flora and fauna is endemic—meaning so unique that they are found nowhere else in the world.

E.

For 85 million years, the flora and fauna of Madagascar evolved in isolation from the rest of the world. Examples of the totally unique essential oils and botanicals from Madagascar include the Ravinsara leaf known for its aroma, spice and therapeutic applications. Aromatherapists believe that the oil can travel deep into muscle tissues and joints. Some have suggested that the oil has antiviral properties, and it is thought to relieve rheumatism and joint inflammation. Another totally unique essential oil from Madagascar to relieve rheumatic pains is Katrafay, which is also used in Madagascar by women after giving birth as a fortifier and tonic. It is also believed to have anti-inflammatory properties. *Cinnamosma fragrans* is used traditionally as a decoction for treatment of malarial symptoms. The essential oil is used for tired and aching muscles.

F.

According to suppliers, there are quite a few other high quality aromatherapy oils produced in Madagascar. These include niaouli used for clearing, cleansing and mental stimulation; *lantana camara* used for flu, colds, coughs, fevers, yellow fever, dysentery and jaundice; ylang-ylang used as an aphrodisiac; cinnamon (bark and leaf) used to destroy microbes and bacteria, and holding promise for people with diabetes; tamanu (*Calophyllum inophyllum*) used to treat skin ailments; wild orange petit grains, used as a lively and soothing fragrance and to relieve dry skin; a unique ginger (fresh) oil used

for circulation, aching muscles and nausea; and clove bud oil, which has been utilized as a local anesthetic in dentistry, as a food preservative and as an alternative to Deet.

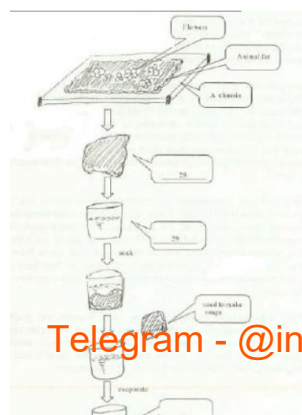
G.

Because perfumes and essential oils depend heavily on harvests of plant substances and the availability of animal products, perfumery can often turn risky. Thousands of flowers are needed to obtain just one pound of essential oils, and if the season's crop is destroyed by disease or adverse weather, perfumeries could be in jeopardy. In addition, consistency is hard to maintain in natural oils. The same species of plant raised in several different areas with slightly different growing conditions may not yield oils with exactly the same scent. Problems are also encountered in collecting natural animal oils. Many animals once killed for the value of their oils are on the endangered species list and now cannot be hunted. For example, sperm whale products like ambergris have been outlawed since 1977. Also, most animal oils in general are difficult and expensive to extract. Deer musk must come from deer found in Tibet; civet cats, bred in Ethiopia, are kept for their fatty gland secretions; beavers from Canada and the former Soviet Union are harvested for their castor. Synthetic perfumes have allowed perfumers more freedom and stability in their craft, even though natural ingredients are considered more desirable in the very finest perfumes. The use of synthetic perfumes and oils eliminates the need to extract oils from animals and removes the risk of a bad plant harvest, saving much expense and the lives of many animals.

Questions 28-30

The flowchart below demonstrates the cold enfleurage method of fragrance extraction.

Complete the flowchart with NO MORE THAN THREE WORDS for each blank from the passage.



Questions 31-34

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

In boxes 31-34 on your answer sheet write;

TRUE, if the statement is true

FALSE, if the statement is false

NOT GIVEN, if the information is not given in the passage.

31. Synthetic perfumes outweigh natural counterparts in all aspects.

32. The fragrance of jasmine can be extracted by employing the method of steam distillation.

33. Nowadays, the biggest industry of Madagascar is perfumery.

34. The original Latin meaning of perfume is the scent smoke.

Questions 35-39

Use the information in the passage to match the essential oils listed (A — F) with their purposes.

Write the appropriate letter (A— F) in boxes 34- 39 on your answer sheet.

A. Katralay

B. Clove bud oil

C. Ylang-ylang

D. Cinnamon

E. Lantana caniara

F. Ginger oil

35. used as postpartum tonic

36. used as medicine for influenza

37. used as medicine for diabetes

38. used as medicine for nausea

39. used as anesthetic medicine

Question 40

List three kinds of protected animals whose oils are highly valued. Write **NO MORE THAN THREE WORDS** for each blank.

Reading Test 8

SECTION 1

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

COASTLINE DANGER

A.

On July 1, 1998, an unexpected tsunami pounded the northern coastline of Papua New Guinea. In three massive waves, as high as 15 meters, it washed away entire villages, drowned over 2500 people and left thousands homeless. Survivors of the Papua New Guinea disaster described the tsunami as a wall of water hurling toward shore, averaging 10 meters high and extending about 5 kilometres from front to back. The largest wave swept over the shore at speeds of up to 20 kilometres per hour for more than a minute, before draining away in preparation for the next.

B.

What are tsunamis? Tsunamis are enormous waves initiated by sudden seismic events. A tsunami is generated when a large mass of water is displaced suddenly, creating a swell that moves away from its origin. The effect is similar to the ripples that form when a pebble is dropped into a pond-but a thousand times larger. A tsunami wave can be 100 to 200 kilometres wide and long. It can reach speeds of 725 to 800 km/hour. It can travel thousands of kilometres across the ocean and maintain a barely not likeable height of less than a half meter. However, as the tsunami enters the shallow waters of a

coastline, it bunches up into a monstrous wall of seawater that can reach heights of 30 meters and still be many kilometres in length.

C.

The impact of such large waves on a shoreline can be devastating. Buildings, bridges, and other structures may be destroyed. Extensive beach erosion commonly occurs. In addition, water may flood areas hundreds of meters inland. The amount of damage depends on the geometry of the coastline as well as the size of the tsunami. Because variations in the shapes of coastal areas can focus or diffuse the energy in a wave, different parts of a coastline may experience very different degrees of damage from a given tsunami. The largest waves, hence the greatest amount of damage, are generally observed in embayment that funnel the waves into a narrow bay.

D.

Tsunamis are frequently caused by underwater earthquakes with a magnitude greater than 7 on the Richter scale. The most dangerous tsunamis are triggered by quakes with a shallow focus that produce extended vibrations and shift the seafloor vertically. Tsunamis are sometimes generated by other catastrophic events, such as underwater volcanic explosions. For example, the disastrous eruption of Krakatau that killed more than 30,000 people in 1883 produced waves that were 35 meters high and that travelled thousands of kilometres. Although scientists are not certain exactly how this eruption led to a tsunami, a recent study of sea-floor deposits suggests that water displaced by immense ash flows was the cause. Underwater landslides have also been known to create tsunamis. For instance, the Hawaiian Islands have all experienced enormous landslides in the past, and coastal sediments record evidence of tsunamis that were generated from them.

E.

The exact trigger of the Papua New Guinea tsunami is not yet known, although an earthquake was certainly involved. Because the earthquake was relatively small, scientists were somewhat surprised by the disastrous results. One study of seismic

data indicated that the earthquake was centred offshore and produced a 2-meter vertical displacement of the seafloor; the conclusion was that this abrupt motion triggered the tsunami. Other evidence indicates that the tsunami was produced by a huge offshore landslide, itself triggered by the earthquake. Eyewitness accounts indicate that the first wave struck shore about 20 minutes after the mainshock of the earthquake, too long for the tsunami to have originated from sub-sea faulting during the quake. A slump or landslide typically lags several minutes behind an earthquake and could explain the delay. Further support comes from a 70-seconds long rumble recorded in the middle of the Pacific soon after the earthquake. This sound lasted too long to have come from a small aftershock and may have represented a seafloor slide.

F.

Unfortunately, tsunamis cannot be stopped or prevented. However, effective warning systems might save hundreds of lives. In the United States, the National Tsunami Hazard Mitigation Program has been developed to reduce the impacts of tsunamis along the U.S. Pacific Coast. One goal of this program is to improve the tsunami warning systems. Components of such systems include seismic sensors that warn of large earthquakes and oceanic sensors that detect tsunamis crossing the ocean. Destructive tsunamis need to be detected quickly so that warnings can be issued to allow the orderly evacuation of coastal communities in the path of the waves. Of course, evacuation can only save lives if the tsunami is triggered far enough away to give advanced warning.

Questions 1-4

Reading Passage 1 has six paragraphs, labelled A-F.

Answer questions and write the appropriate letter; A-F, in boxes on your answer sheet.

1. Which paragraph explains the measures that have been taken to reduce the impact of tsunamis along the U.S. Pacific coast?
2. Which paragraph discusses the probable cause of the Papua New Guinea tsunami?

Write the name and the year in the box on your answer sheet.

3. On what island and in what year was a tsunami triggered by a volcanic eruption that killed 30,000 people?

Using **NO MORE THAN THREE WORDS**, write your answer in the box on your answer sheet.

4. Tsunamis are frequently caused by underwater earthquakes with a magnitude greater than 7, as indicated on what scale?

Questions 5-6

Complete the summary below about the tsunami that hit Papua New Guinea. Choose **NO MORE THAN TWO WORDS** from the passage for each answer:

On July 1, 1998, an unexpected tsunami ___5___ the northern coast of Papua New Guinea. In three massive waves, as high as 15 meters, it ___6___ entire villages, drowned over 2500 and left thousands homeless. Survivors of the Papua New Guinea disaster described the tsunami as a wall of water ___7___ shore, averaging 10 meters high and extending about 5 kilometres from front to back. The largest wave ___8___ the shore at speeds of up to 20 kilometres per hour for more than a minute, before draining away in preparation for the next.

Questions 9-10

Complete the table below which describes the power of a tsunami. Using **NO MORE THAN THREE WORDS**.

<u>Physical Characteristic</u>	<u>Measurement</u>
Example The width and length of a tsunami can be ____	Answer 100 - 200 kilometers
It can reach speeds of ____	___ 9 ___ kilometers/hour
It can cover vast distances equal to ____	___ 10 ___

Question 11

Choose the appropriate letter, A-D, and write it on your answer sheet.

11. According to the text, tsunamis generally cause the greatest amount of observable damage ____

- A. in unpaved areas.
- B. in wide and flat areas.
- C. in embayments.
- D. in sandy beach areas.

SECTION 2

You should spend about 20 minutes on Questions 12-25 which are based on Reading Passage 2.

MEASURING HUMAN BEHAVIOR

A. Psychological Testing is the measurement of some aspect of human behavior by procedures consisting of carefully prescribed content, methods of administration, and interpretation. The test may address any aspect of intellectual or emotional functioning, including personality traits, attitudes, intelligence, or emotional concerns. Interpretation is based on a comparison of the individual's responses with those previously obtained to establish appropriate standards for the test scores. The usefulness of psychological tests depends on their accuracy in predicting behavior. By providing information about the probability person's responses or performance, tests aid making a variety of decisions.

B. The primary drive behind the development of the major tests used today was the need for practical guidelines for solving social problems. The first useful intelligence test was prepared in 1905 by the French psychologists Alfred Binet and Theodore Simon. The two developed a 30- item scale to ensure that no child could be denied instruction in the Paris school system without formal examination. In 1916, the American psychologist Lewis Terman produced the first Stanford Revision of the Binet-Simon scale to provide comparison standards for Americans from age three to adulthood. The test was further revised in 1937 and 1960, and today the Stanford Binet remains one of the most widely used intelligence tests.

C. The need to classify soldiers during World War I resulted in the development of two group intelligence tests - Army Alpha and Army Beta. To help detect soldiers who might break down in combat, the American psychologist Robert Woodworth designed the Personal Data Sheet, a forerunner of the modern personality inventory. During the 1930s controversies over the nature of intelligence led to the development of the Wechsler-Bellevue Intelligence Scale, which not only provided an index of general mental ability but also revealed patterns of intellectual strengths and weaknesses. The Wechsler tests now extend from the preschool through the adult age range and are at least as prominent as the Stanford-Binet.

D. As interest in the newly emerging field of psychoanalysis grew in the 1930s, two important projective techniques introduced systematic ways to study unconscious motivation: the Rorschach or Inkblot test developed by the Swiss psychiatrist Hermann Rorschach-using a series of inkblots on cards, and a story-telling procedure called the Thematic Apperception Test developed by the American psychologists Henry A. Murray and C. D. Morgan. Both of these tests are frequently included in contemporary personality assessment.

E. In educational settings, intelligence and achievement tests are administered routinely to assess individual accomplishment and to improve instruction and curriculum planning. Elementary schools use kindergarten and first grade screening procedures to determine readiness for reading and writing programs. Screening tests also identify developmental, visual, and auditory problems for which the child may need special assistance. If the child's progress in school is unusually slow, or if he or she shows signs of a learning disability or behavior disorder, testing may clarify whether the difficulty is neurologically or emotionally based. Many high schools administer interest inventories and aptitude tests to assist in the students' educational or vocational planning.

F. In clinics or hospitals, psychological tests may be administered for purposes of diagnosis and treatment planning. Clinical tests can provide information about overall personality functioning and the need for psychotherapy; testing also may focus on some specific question, such as the presence or absence of organically based brain

disorder. Clinical testing usually involves a battery of tests, interpreted as a whole, to describe intellectual and emotional states. Decisions about treatment do not depend exclusively on psychological test results but are based on the judgment of relevant staff members with whom the psychologist collaborates.

G. Tests are also used in industrial and organizational settings, primarily for selection and classification. Selection procedures provide guidelines for accepting or rejecting candidates for jobs. Classification procedures, which are more complex, aim to specify the types of positions for which an individual seems best suited. Intelligence testing is usually supplemented by methods devised expressly to meet the needs of the organization.

H. The major psychological testing controversies stem from two interrelated issues: technical shortcomings in test design and ethical problems in interpretation and application of results. Some technical weaknesses exist in all tests. Because of this, it is crucial that results be viewed as only one kind of information about any individual.

Questions 12-16

Reading Passage 2 has eight paragraphs, A-H. Choose the most suitable headings for paragraphs B, D and F-H from the list of headings below. Write the appropriate number i-x, in boxes on your answer sheet.

NB: There are more headings than paragraphs, so you will not use them all.

List of Headings

- i Present Criticisms of Testing
- ii What is Psychological Testing?
- lii Obtaining Information for Clinical Purposes
- iv Inkblots and Story-telling
- v The First Intelligence Test
- vi Employment Testing
- vii Expansion during WWII
- viii Current Accord on the Validity of Testing

- ix Utilization in Academic Settings
- x Progress Sparked by WWI

Example Answer

Paragraph C x

- 12. Paragraph B
- 13. Paragraph D
- 14. Paragraph F
- 15. Paragraph G
- 16. Paragraph H

Questions 17-22

Do the following statements agree with the views of the writer in Reading Passage 2?

In boxes 17-22 on your answer sheet, write

YES, if the statement agrees with the writer

NO, if the statement does not agree with the writer

NOT GIVEN, if there is no information about this in the passage

17. The first useful intelligence test was prepared in 1905 by Alfred Binet and Theodore Simon.

18. The Stanford-Binet intelligence test is comprised of multiple-choice questions

19. During WW I, psychologist Robert Woodworth designed the Personal Data Sheet to help detect soldiers who had an especially high level of intelligence.

20. The Wechsler tests are not nearly as prominent as the Stanford-Binet tests

21. Swiss psychiatrist Hermann Rorschach invented a story-telling procedure called the Thematic Apperception Test.

22. Most criticisms of testing arise from the over-valuation of and inappropriate reliance on test results in making major life decisions, especially in the case of intelligence testing.

Questions 23-25

Complete the notes below with words taken from Reading Passage 2.

Use **NO MORE THAN ONE OR TWO WORDS** for each answer.

Write your answers in boxes 23-25 on your answer sheet.

Present-day uses of Psychological Testing

i. Educational settings

- A. to assess individual accomplishment
- B. to improve instruction and ___23___
- C. to identify individual learning problems and their causes
- D. to assist students with educational or vocational planning

ii. Clinics or hospitals

- A. to assist with ___24___ and treatment planning
- B. to assess overall personality functioning
- C. to detect organic brain disorders

iii. Industrial and organizational settings

- A. to determine the acceptance or rejection of job candidates
- B. to specify the positions for which an individual seems ___25___.

SECTION 3

You should spend about 20 minutes on Questions 26-38, which are based on Reading Passage 3 below.

UNDERWATER BOATS

A. Efforts to build underwater boats began in Europe over 500 years ago. Although the technology was not advanced enough to create a successful submarine, several attempts were made with varying degrees of success. In 1578, English scientist William Bourne wrote of the possible use of ballast tanks (hollow tanks that possible use of ballast tanks (hollow tanks that can be filled with seawater) to enable a submersible boat to descend and rise to the surface, though he never built one himself. In 1620, Cornelis Drebbel, a Dutch inventor, created several prototype submersibles resembling two wooden rowboats, one atop the other and bound with leather for a watertight skin. These were propelled by oars that emerged from the hull through watertight openings.

Drebbel tested his crafts several times below the Thames River in London, England. Historians consider Drebbel's tests the first practical use of a maneuverable submarine.

B. For the next two centuries, scientists and inventors in America, England, France, Germany, and Italy attempted to create a true submersible warship with little success. In 1776, American inventor David Bushnell designed the Turtle for use against the British ships that were blockading New York. The Turtle was an egg-shaped craft, slightly larger than an adult man, constructed of wood and designed to briefly submerged under an anchored enemy ship. Its one-man crew could propel the craft by vigorously cranking a hand-turned propeller. The boat's weapon was an explosive charge that could be screwed into the underside of the target ship's wooden hull. However, the one and only attempt to use Bushnell's craft failed when its pilot discovered that the British ships had copper-plated hulls.

C. In 1800, American inventor Robert Fulton built a 6.4-meter submarine named the Nautilus, which was similar in shape to the modern submarine. Fulton introduced two important innovations: rudders for vertical and horizontal control and compressed air as an underwater supply of oxygen. When submerged, the Nautilus was powered by a hand-operated, four-blade propeller. On the surface, the boat was propelled by means of sails attached to a folding mast.

D. During the latter half of the 19th century, many attempts were made to develop an adequate means of submarine propulsion. Inventors experimented with compressed air, steam, and electricity as power sources. In 1898, American inventor John Philip Holland used a dual propulsion system to develop the first practical submarine with an efficient source of power. His submarine was equipped with a gasoline engine for surface cruising and an electric motor for underwater power. In 1900, the U.S. government purchased the 16.2-meter submarine and named it the USS Holland.

E. At the outbreak of World War I in 1914, submarine technology had evolved to the point that the United States, the United Kingdom, Germany and Russia had all developed diesel-powered submarines that could operate on electrical batteries underwater. The German Uboat was the most advanced. With an average of only 30

submarines at sea at any one time, the German U-boat service put a stranglehold on wartime shipping and merchant supply lines and nearly brought the United Kingdom to its knees in four years of conflict.

F. During World War II, Germany continued to develop superior U-boats. The Germans invented the snorkel, a retractable tube that could be extended above the surface of the water to capture air and to release exhaust while the submarine continues to operate unseen 18 meters below the surface. They also created streamlined hull designs and larger electric batteries to enable their submarines to travel at much higher speeds and for longer distances. After Germany surrendered in 1945, both the U.S. and Soviet navies benefited from Germany's advanced submarine technology. Postwar diesel-electric submarines made the most of these innovations, and underwater manoeuvrability and speed increased.

G. The nuclear age began in the 1950s and it led to the development of nuclear reactor power in submarines to increase range and capability. The first nuclear-powered submarine, the USS Nautilus, was developed by the Americans and launched in 1954. In a trial run conducted in 1955, the Nautilus sailed totally submerged for an incredible distance of 2170 km in 84 hours. Its underwater cruising speed was more than 20 knots, and since the sub was nuclear-powered, it no longer needed to periodically surface for air or for refuelling.

H. During the 1990s, the U.S. Navy began allowing some of its submarines to be used for scientific missions. In 1995, for example, the U.S. Navy allowed civilian scientists to conduct missions below the polar ice caps aboard Sturgeon-class attack submarines. The agreement provided for one mission a year for five years. Access to this underwater region had been restricted for years due to the harshness of the environment.

Questions 26-29

Do the following statements agree with the views of the writer in Reading Passage 3?
In boxes 26-29 on your answer sheet, write;

YES, if the statement agrees with the writer

NO, if the statement does not agree with the writer

NOT GIVEN, if there is no information about this in the passage

26. William Bourne built the first practical and manoeuvrable submarine.

27. Robert Fulton pioneered two important submarine innovations: rudders and submarine innovations: rudders and compressed air.

28. John Philip Holland developed the first submarine with an efficient source of power.

29. Germany 's U-boats destroyed more ships than any other submarine during World War II.

Questions 30-34

Choose the appropriate letter, A-D, and write them in boxes 30-34 on your answer sheet.

30. In 1995, the U.S. Navy allowed some of its Sturgeon-class attack submarines

A. to be put on display in Germany as part of an international U-boat show.

B. to be sold to the general public as research vessels.

C. to be used by civilian scientists to conduct missions below the polar ice caps.

D. to be fitted with an advanced prototype hydrogen-based engine.

31. During World War II, Germany invented the snorkel, a retractable tube that ____

A. launched torpedoes with greater accuracy.

B. was extended above the water to capture air and to release the exhaust.

C. was used to receive fuel from surface ships while still hidden underwater.

D. was used to plant explosives on the hulls of enemy ships.

32. In 1898, American inventor John Philip Holland developed a submarine with ____

A. a hand-operated propeller for underwater power and sails for surface cruising.

B. a diesel engine capable of cruising at a speed of 20 kilometres per hour.

C. an electric motor for surface cruising and a gasoline engine for underwater power.

D. a gasoline engine for surface cruising and an electric motor for underwater power.

33. In 1620, Dutchman Cornelis Drebbel created several submersibles ____
- A. that resembled two wooden rowboats, one atop the other and bound with leather.
 - B. that were used against the British ships that were blockading New York.
 - C. that were used to conduct scientific missions below the polar ice caps.
 - D. that were equipped with rudders for control and compressed air for oxygen.
34. During World War I, which country's submarines put a stranglehold on wartime shipping and merchant supply lines, nearly bringing the United Kingdom to its knees?
- A. United States.
 - B. Italy.
 - C. Germany.
 - D. Russia.

Questions 35-38

Complete the table below. Choose **NO MORE THAN TWO WORDS** from the passage for each answer. Write your answers in boxes on your answer sheet.

Year	Development	Name of Person or People
1578	35_____	William Bourne
1776	The Turtle	36_____
37_____	First Nuclear-powered Submarine launch	The Americans
World War II	The Snorkel	38_____

Reading Test 9

SECTION 1

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

HOT SPRINGS ON THE OCEAN FLOOR

A. In many areas of the ocean floor, wherever magma nears the sea floor, or where lava erupts directly at the sea floor surface, hot springs on the sea floor called hydrothermal vents commonly are found. Vent fields are generally associated with submarine volcanoes where lava is erupting or preparing to erupt. Hydrothermal vents also are found in areas of the ocean floor that are spreading, such as at mid-ocean ridges, where tectonic plates are being pulled apart. This movement allows the molten magma to rise from deep inside the Earth, super heating the cold ocean water around it. The average temperature of deep-ocean water is only 2 °C (36 °F) . The water coming directly from a hydrothermal vent can reach up to 350 °C (662 °F) and is rich in dissolved chemicals. The hot spring water forms a plume above the vent, somewhat like smoke rising from a chimney into the air. Temperature sensing instruments, towed behind research vessels, can detect these hot water plumes and aid oceanographers in locating hydrothermal vents on the ocean floor.

B. Vent Circulation and Chemistry

Sea floor hydrothermal systems influence local ocean chemistry because hydrothermal circulation removes some chemical compounds from sea water, such as magnesium and sulfate, and adds many others. Further, the circulation pattern of sea water within the hydrothermal vent system creates the unique landforms and biological communities found in vent fields. Sea water enters into the sea floor by seeping down through fracture systems. As water percolates through the cracks, it heats as it nears the magma chamber. Subsurface water can heat to 60 °C (140 °F), warm enough to begin dissolving chemicals and minerals from the surrounding rock. The water becomes rich in surrounding rock. The water becomes rich in chemical compounds of sulfur, iron, and magnesium. When this vent fluid comes close to the magma chamber, it enters a high temperature reaction zone where temperatures rise to 400 °C (752 °F). This superheated, highpressure, mineral laden vent fluid rises forcefully, searching for fracture systems or other openings to the ocean floor.

C. Black smokers form when hot vent water mixes with cold sea water, causing the precipitation of tiny particles of manganese-rich and iron-rich sulfide minerals. White smokers form from slightly cooler vent water and the precipitation of minerals rich in

barium and calcium. Vent openings can be as small as several centimeters or as large as a meter or more in diameter. At these openings, the vent fluid becomes focused and expels forcefully into the surrounding cold sea water. At this point, the temperature of the vent fluid varies around 350 °C (662 °F). The reaction between the two waters of differing temperature causes some of the dissolved minerals to precipitate out, forming tiny grains in the vent fluid. The particles give the fluid the appearance of a dark cloud. Because a large percentage of the chemical compounds are sulfides, such as hydrogen sulfide, the vent fluid is highly toxic, with a PH near 4.0, or about that of vinegar. As the vent fluid rises, it slows and begins to mix with the surrounding ocean water, producing a plume of warm water that starts to drift with the currents. The plume tends to hang together as it cools, aiding in its detection. Many of the chemical and mineral compounds begin to drop from the plume, forming metalliferous sediments and iron and manganese crusts on the nearby ocean floor. Because deposits from hydrothermal vent, fluid can contain iron, manganese, copper, zinc, and other minerals, vents have relevance to certain types of ore deposits.

D. Chemosynthesis

The chemicals in hydrothermal vent fluid would be toxic to most forms of life familiar to humans; but amazingly, a unique ecosystem has evolved to live near hydrothermal vents. The organisms that are supported by the vents rely on microbes, similar to colonies of bacteria, which grow in the vent fluid and on the surface of the surrounding rocks and chimneys . The ability of microbes to create a food source from otherwise toxic chemicals provides for animal species that biologists are just beginning to understand. Because each species can tolerate certain levels of heat and toxicity, the communities form concentric rings around hydrothermal vents with each species existing in its preferred habitat. Animals also are categorized as vent and non-vent species. Some are directly dependent on the vents for survival while others can migrate between vents and the open ocean.

E. Tubeworms are one of the most common and distinctive animals found at hydrothermal vents. Tubeworms attach themselves to the sea floor and have no mouth or anus, a notable trait found extremely amazing. Instead, they have symbiotic microbes living inside them. Tubeworms live in colonies consisting of hundreds to many thousands of individuals, with many other smaller vent species living among them. The colonies form mounds of long, white stalks topped with red, branching filaments. Numerous species of clams are found near the vents, siphoning they warm water to digest plume microbes and detritus (decaying matter) dropping from above. Gastropods such as limpets and snails move about the rocks, rasping the mat forming microbes with their radulas. Other species of annelid worms and sea cucumbers also feed from the mat-forming microbes. Species of crabs and arthropods scrape away at the microbes as well as prey on the sedentary and slow-moving species. Some fish prefer the vent fields and can tolerate the high heat and toxins, whereas others roam between the vents in search of food. Rarely, a small gray octopus will swim by. Termed Bentosoctopus, it is very reclusive and not much is known about the species.

F. Colonization

When hydrothermal vents begin to develop, animal communities colonize the vents with a set progression. Plume and mat-forming microbes begin to grow almost immediately. Within a few months, fast-colonizing animals, such as tubeworms, scale worms, snails, and limpets begin to colonize hydrothermal vents. Newly colonized vents typically have few species and few individuals, and if tubeworms are present, they are white and small (generally less than 50 centimeters long, or 19.5 inches). Older, established vents have more species and more animals, and the tubeworms are brown have more species and more animals and the tubeworms are brown and larger (usually more than 50 centimeters long). Some sessile (nonmobile) and slow-colonizing animals like sponges, sea fans, and crinoids are mostly found on older lava away from active hydrothermal areas. They are sparsely distributed and colonize new lava flows and vents very slowly, often taking many years. Some species of octopus, crab, and fish are mobile and can move freely from one site to another, and can be found near

either old or new lava. Hydrothermal vents do not remain active forever. Inevitably, the underground magma will cool. Vents begin to cool and go dormant.

The non-sessile animals have the ability to migrate to other active vent fields. But those species that are attached or move too slowly will perish as their heat and food source slowly dies out.

Questions 1-4

Choose the appropriate letters A—D and write them in boxes 1-4 on your answer sheet.

1. Which of the following is true of hydrothermal vents?

- A. Their numbers have been increasing.
- B. They exist in large numbers on the ocean floor.
- C. They were detected for the first time by research vessels.
- D. Only submarine volcanoes cause them.

2. What supports animal lives around vents?

- A. Bacteria.
- B. Food created from poisonous chemicals.
- C. Their ability tolerate heat and toxicity.
- D. Migration between vents and the open ocean.

3. What features of tubeworms are found intriguing?

- A. They live in a toxic environment.
- B. They have no mouth or anus.
- C. They attach themselves to the seafloor.
- D. They form colonies.

4. Which of the following species is NOT mentioned in the text to feed on microbes?

- A. Limpets.
- B. Annelid worms.

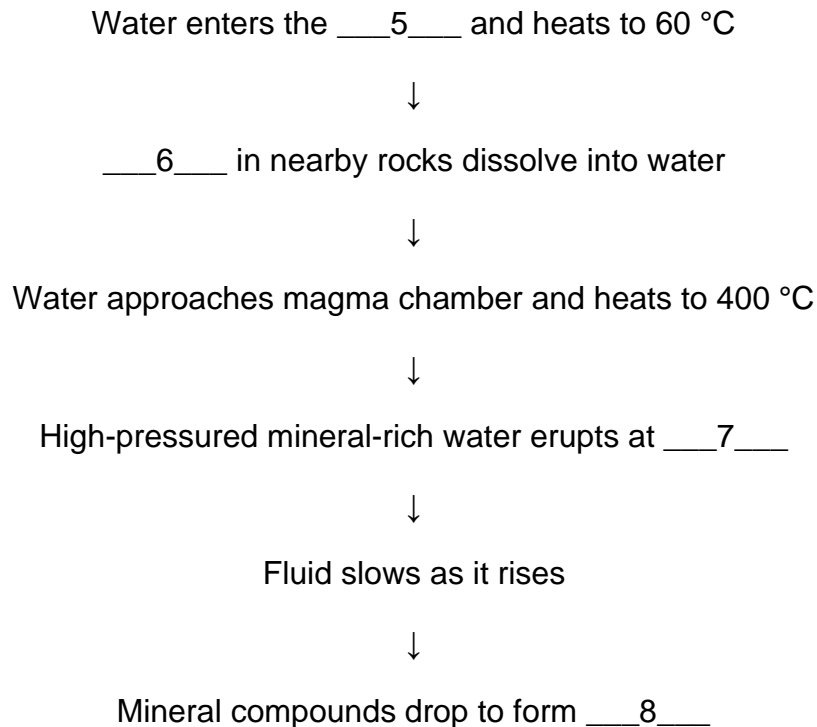
- C. Crabs and arthropods.
- D. Bentosoctopus.

Questions 5-8

The diagram below is based on the Vent Circulation and Chemistry part of the passage.

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

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



Questions 9-13

Complete the summary below.

Choose your answers from the passage.

Use NO MORE THAN THREE WORDS for each answer and write them in boxes 9-13 on your answer sheet.

The development of animal communities often follows certain procedures. Mat-forming microbes are among the first to ___9___ the vents. ___10___ tube worms are often found around newly colonized vents while ___11___ typically have larger ones with a darker color. ___12___ such as sponges and sea fans spread very slowly. Animals like ___13___ can be found at both old and new vents because they can swim at will between different sites, so unlike sessile ones they do not die out at the hydrothermal vents eventually deplete.

SECTION 2

You should spend about 20 minutes on Questions 14-27 which are based on Reading Passage 2 below.

E-BOOK

A.

Reading on paper is so much a part of our lives that it is hard to imagine anything could ever replace inky marks on shredded trees. Since Johannes Gutenberg invented an economical way to make movable metal type in the 15th century, making it possible to produce reading matter quickly, comparatively cheaply and in large quantities, the printed word has proved amazingly resilient. So how could anyone believe that sales of electronic books will equal those of paper books within a decade or so? First, it is worth remembering that paper is only the latest in long line of reading "technologies" that were made obsolete each time an improved solution emerged. Pictures drawn on rock gave way to clay tablets with cuneiform characters pressed into the clay before it dried. Clay gave way to animal skin scrolls marked with text, and then to papyrus scrolls. By AD 100 the codex had arrived, but it was not until the ninth century that the first real paper book was produced. In Europe, paper was rare until after Gutenberg's breakthrough.

B.

It took a few more centuries for e-books to emerge. They were first envisioned in 1945 by Vannevar Bush, director of the United States Office of Scientific Research and Development. In his classic essay, "As We May Think" , Bush described a gadget he

called a "Memex" — "a device in which an individual stores all his books, records, and communications. Most of the memex contents are purchased on microfilm ready for insertion. Books of all sorts, pictures, current periodicals, newspapers, are thus obtained and dropped into place. Wholly new forms of encyclopedias will appear, ready-made with a mesh of associative trails running through them."

C.

Although science-fiction writers eagerly adopted Bush's ideas notably on the television show Star Trek, where portable electronic books featured regularly, the real world has remained loyal to paper. Only in the encyclopedia market, which was transformed by CD-roms in the mid-1980s, has the e-book made real progress. Far more encyclopedias, from Microsoft's Encarta to Encyclopedia Britannica, were sold on CD-rom than on paper, because they cost only a fraction of the price and are easier to search. But attempts to broaden the appeal of e-book technology to appeal to readers have been unsuccessful. Since the late 1980s the electronic publishing world has seen several failed e-book ventures. Why? Most of them used devices that were either too bulky to carry around, or forced users to "stock up" their electronic library in inconvenient ways. One even required visits to a "book bank" , an ATM-like machine that was to be located in bookstores. Before widespread adoption of the Internet, there was no universal way to download new reading material.

D.

But the most fundamental problem was the lack of a display technology that could compete with paper when it came to lucid reading. For paper books, readability depends on many factors: typeface and size, line length and spacing, page and margin size, and the color of print and paper. But for e-books there are even more factors, including resolution, flicker, luminance, contrast and glare. Most typefaces were not designed for screens and, thanks to a limited number of pixels, are just fuzzy reproductions of the originals. The result is that reading on screen is hard on the eyes and takes a lot more effort. People do it only for short documents. The longer the read, the more irritating and distracting are all the faults in display, layout and rendering.

E.

Most of these problems are now being solved. The World Wide Web offers an amazingly flexible way to deliver books and as investments in broadband infrastructure increase, it will get even easier to stock an e-library. And dozens of companies established publishing firms such as R. R. Donnelly, Penguin Putnam, and Nokia, Barnes & Noble and Microsoft have joined to create an open e-book standard, so that booklovers will be able to read any title on any e-book. There have also been some incredible technological breakthroughs that will make it much easier to read long texts on a screen.

Microsoft has developed a font display technology called ClearType that, by manipulating the red, green and blue sub-pixels that make up the pixels on an LCD screen, improves resolution by up to a factor of three, coupled with the latest e-book reading software and hardware, this provides an on-screen reading experience that begins to rival paper.

F.

But why would anyone prefer an e-book to a pbook, regardless of improved readability? Because e-books have many other advantages. You will get instant delivery from your web bookshop to your e-book, and be able to store hundreds of novels on a device the size of a paperback. E-book technology enables you to have an entire library in your pocket. Or you can keep it on your PCs — a modern laptop can hold more than 30,000 books. You won't have to wait for out-of-stock books to be ordered, and books will never go out of "print". Your children will be able to listen to unfamiliar words pronounced for them as they read. You will have unabridged audio synchronized to the text, so you can continue the story in situations where you are unable to read, for example, while driving.

G.

In addition, e-books promise to revolutionize the way the world reads. Whereas paper books are stand-alone entities, e-books can include hypertext links to additional

content, whether it is in other books, databases or web sites. So ebooks will not be restricted to a linear structure that is the same for everyone. Every reader will be free to make use of the links, images and sounds differently. You will also be able to customize e-books by adding your own notes, links and images. In a paper book, content is fixed; with e-book technology it is flexible.

H.

The e-book will also revolutionize the economics of the industry. The cost of publishing-books will fall dramatically, the result of savings on materials, labour, manufacturing and distribution, In the process, a lot of trees will also be saved and even the most obscure author will be able to self-publish , which means more choice for readers. The retail price of books will fall; sales will explode.

I.

It is hard to imagine today, but one of the greatest contributions of e-books may eventually be in improving literacy and education in less-developed countries. Today people in poor countries cannot afford to buy books and rarely have access to a library. But in a few years, as the cost of hardware continues to decline, it will be possible to set up "virtual" public libraries which will have access to the same content as the Library of Congress.

Questions 14-18

Reading Passage 2 has 9 paragraphs A— I

From the list of headings below choose the 5 most suitable headings for paragraphs C, E, F, G, and H.

Write the appropriate numbers (i —x).

NB There are more headings than paragraphs, so you will not use them all.

List of Headings

- i. "Virtual" libraries on the horizon
- ii. The problem of lucid reading
- iii. The success of electronic encyclopedias
- iv. Early setbacks in electronic publishing
- v. Problems solved with the advent of the World Wide Web
- vi. Improved readability
- vii. Unrestrained reading experience
- viii. Easy delivery and mass storage capacities
- ix. Milestones in reading "technology" evolution
- x. Accessing Library of Congress made possible

Example Answer

Paragraph A ix

14. Paragraph C
15. Paragraph E
16. Paragraph F
17. Paragraph G
18. Paragraph H

Questions 19-23

Classify the following statements as applying to

- A. 1980s e-book devices
- B. Memex
- C. Movable metal type
- D. ClearType
- E. Animal skin scroll

19. stores contents on readymade microfilms.
20. is a more improved solution than clay tablets.
21. facilitated the mass production of books in Europe.
22. are not easily portable.
23. improves resolution quality almost equal to books.

Questions 24 — 27

Complete the sentences below with words taken from the reading passage.

Use NO MORE THAN THREE WORDS for each blank. Write your answers in boxes 24-27 on your answer sheet.

24. _____ joins forces with Microsoft to develop e-book standards.
25. E-books allow users to listen to _____ read simultaneously with the text.
26. _____ can be added to e-books to guide readers to additional content.
27. Ordinary people will be free to publish their own e-books, giving readers _____.

SECTION 3

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

OPTIMISM: THE KEY TO A GOOD LIFE

A.

It's an age-old battle. Pessimists think optimists are foolish; optimists think pessimists make themselves unnecessarily miserable. A lot of research has been done on this issue in the last 30 years. Have we answered the question yet? Is the glass half-full or half-empty? Optimistic people are happier than pessimists. When something bad happens, optimists think of it as temporary, limited in its effect, and not entirely their fault. Pessimists do the opposite. They consider the setback to be permanent, far-reaching and their entire fault. There are varying degrees of this, of course; it's not black or white. Most people fall somewhere between the two extremes. The main difference between optimists and pessimists is how they explain setbacks to themselves. Optimism and pessimism both tend to be self-fulfilling prophecies. Pessimistic explanations tend to make people feel defeated — making them less likely to take constructive action. Optimistic explanations, on the other hand, make people more likely to act. If they think the setback is only temporary, people are apt to try to do something about it, and because they take action, they make it temporary.

B.

Using these definitions, researchers find that optimism contributes to good health and pessimism contributes to illness. Chris Peterson was teaching a class in abnormal psychology at Virginia Tech, when he told his students to fill out an Attributional Style Questionnaire — a carefully designed test that determines a person's level of optimism and pessimism. The students also answered questions about their general health, including how often they went to a doctor. Peterson followed the health of his students the following year and discovered that the pessimists had twice as many infectious diseases and made twice as many trips to the doctor as the optimists. Later, Martin Seligman of the University of Pennsylvania and two of his colleagues, using interviews and blood tests, found that optimists have better immune activity than pessimists. The study shows that university freshmen who participated in a workshop on cognitive coping skills reported fewer adverse physical problems and took a more active role in maintaining their health.

C.

In the study, incoming freshmen were asked to complete a questionnaire designed to reflect their overall attitudes and coping behaviors. Seligman and Buchanan invited those students identified as the most pessimistic to participate in the study. Students were randomly assigned to attend either the 16-hour workshop or a control group. Workshop participants learned to dispute their chronic negative thoughts as well as learned social and work skills that can help avert depression. After an 18-month follow-up, the preliminary findings showed that 22 percent of the workshop participants had suffered moderate or severe depression by blind clinical diagnosis, compared with 32 percent of the control group subjects. Also, only 7 percent of the workshop participants suffered from a moderate or severe anxiety disorder, compared with 15 percent of the control group. Workshop participants also reported fewer health problems during the course of the workshop, and were more likely than control subjects to see a physician for maintenance or checkups rather than wait until they became ill. While the subjects were young and generally healthy, Buchanan speculated the study could be replicated using older more vulnerable subjects.

D.

Studies by other researchers show the same thing. Why? One big factor is that "pessimistic individuals," as Seligman writes, "get depressed more easily and more often." When a person is depressed, certain brain hormones become depleted, creating a chain of biochemical events that end up slowing down the activity of the immune system. For example, two key players in our immune systems are T cells and NK cells. T cells recognize invaders (like viruses) and make more copies of them to kill off the invaders. Pessimists' T cells don't multiply as quickly as optimists', allowing invaders to get the upper hand; and NK cells circulate in the blood and kill whatever they come across that they identify as alien (such as cancer cells). Pessimists' NK cells can identify alien entities, but they don't destroy them as well as the optimists' NK cells. Optimists also look at information in more depth to find out what they can do about the risk factors.

E.

In a study by Lisa Aspinwall, PhD, at the University of Maryland, subjects read health-related information on cancer and other topics. She discovered that optimists spent more time than pessimists reading the severe risk material and they remembered more of it. "These are people," says Aspinwall, "who aren't sitting around wishing things were different. They believe in a better outcome, and that whatever measures they take will help them to heal." In other words, instead of having their heads in the clouds, optimistic people look. They do more than look, they seek. They aren't afraid to look into the situation because they're optimistic. Thus, for yet another reason, optimists are likely to be healthier. And it is also true that the better their health, the easier it is for them to maintain an optimistic outlook. And every effort they make to keep an optimistic attitude will reward them with a stronger immune system.

F.

The best news is what research has shown repeatedly: anyone can become more optimistic with effort. Pessimists can learn to see the temporary aspects of setbacks. They can be more specific about the effects of it, they can learn to not take all the blame and they can learn to take credit for the good they do. All it takes is practice.

Optimism is simply a way of thinking about good and bad; it's a cognitive skill anyone can learn. So, what about the age-old conflict? Is the glass half-full or half-empty? The best answer is that the glass is both half-full and half-empty, but you're much better off if you think of it as half-full. When bad happens: assume it won't last long, look to see what isn't affected, and don't indulge in self-blame. When good happens: consider its effects permanent, see how much of your life is affected, and look to see how much you can take credit for.

Questions 28-33

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

In boxes 28-33 on your answer sheet write;

TRUE, if the statement is true

FALSE, if the statement is false

NOT GIVEN, if the information is not given in the passage

28. Studies indicate that pessimists are unhealthy.
29. Students were assigned, according to their levels of pessimism, to attend a workshop or a control group respectively.
30. Control subjects are more reluctant to see doctors and waited for their situations to worsen.
31. Pessimists' NK cells have the same function and efficiency as optimists'.
32. Lisa Aspinwall discovered that optimists have better memory than pessimists.
33. People ought to see the glass as both half-full and half-empty.

Questions 34-37

Use the information in the passage to match the people (listed A—D) with opinions or deeds (listed 34-37) below. Write the appropriate letter (A—D) in boxes 34- 37 on your answer sheet.

- A. Chris Peterson
- B. Lisa Aspinwall
- C. Buchanan
- D. Martin Seligman and colleagues

34. concludes that optimists are better aware of their situations because of the more positive attitude they take.
35. conducted a one-year study.
36. invited university freshmen to participate in a cognitive coping skills workshop.

37. suggested conducting the study on older subjects.

Questions 38-40

Choose **NO MORE THAN THREE WORDS** from the passage to complete the summary below.

Studies have identified the mechanism by which pessimists get healthier as a biochemical chain reaction. Depression inhibits the secretion of ___38___, which in turn reduces the efficiency of 39. Although pessimists and optimists have T cells and NK cells alike, the former's reproduce fewer T cells which detect and attack viruses. And their NK cells are less powerful in combating ___40___, making it possible for invaders to prevail.

Reading Test 10

SECTION 1

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

Hyperactivity of Children

A. For children with Attention Deficit Hyperactivity Disorder (ADHD), life can feel like a never-ending video game. They are wired — restless, impulsive, and easily distracted. Their minds are constantly bombarded with different elements of reality that compete for their attention. So far, the most popular treatment for ADHD has been Ritalin, a rapid-acting stimulant for adults that has the opposite effect in children, calming the jitters associated with the disorder. According to the National Institute of Mental Health, about three percent of American schoolchildren take stimulants like Ritalin regularly. However, current research suggests a surprising new strategy for treating this disorder: video games linked to brain-wave biofeedback that can help kids with ADHD train their minds to tune in and settle down.

B. It is difficult for a child with ADHD to learn how to self-regulate and know what it feels like to concentrate. Biofeedback teaches patients to control normally involuntary body functions such as heart rate by providing real-time monitoring of such responses. More

than 15 monitoring of such responses. More than 15 years of studies show that with the aid of a computer display and an EEG sensor attached to the scalp, ADHD patients can learn to modulate brain waves associated with focusing. Increasing the strength of high-frequency beta waves and decreasing the strength of low-frequency theta waves, for example, creates a more attentive state of mind. With enough training, changes become automatic and lead to improvements in grades, sociability, and organizational skills.

C. Despite its proven success, the technique has not become a mainstream treatment for several good reasons. First, unlike drug therapy, which can have immediate results, a typical course of biofeedback treatment takes a series of about 40 one-hour sessions over a span of several months before benefits become apparent. Second, it is more expensive than drugs. Costs range from \$3,000 to \$4,000 for these treatments, so insurance companies tend to pick the less expensive option. Finally, biofeedback training requires the very kind of prolonged concentration that patients with ADHD struggle to attain.

D. Alan Pope, a behavioural scientist at NASA Langley Research Centre in Hampton, Virginia, came up with a more engaging approach through work with NASA flight simulators. He was determining the degree of interaction with cockpit controls necessary to help pilots stay attentive during routine flights. In an experiment, he linked the level of automation in the cockpit to the pilots' brain-wave signals, so that some controls switched from autopilot to manual when the pilot started to lose focus. He found that with practice the pilots could begin to adjust the controls to the level of automation that felt most comfortable by regulating their own brain waves. Pope applied his findings to help ADHD patients stay focused on rewarding an attentive state of mind. He realized, however, that the simple displays that were already part of biofeedback treatment may not be enough to hold the interest of restless youngsters. He then chose several common video games and linked the biofeedback signal from the player's brain waves to the handheld controller that guides the games' actions. "In one auto-racing game, a car's maximum speed increases if the player's ratio of beta to theta waves improves. The same sort of feedback also controls the steering," Pope says.

E. In the test, six Sony PlayStation games were used with 22 boys and girls between the ages of nine and thirteen who had ADHD. Half the group received traditional biofeedback training; the other half played the modified video games. After 40 one-hour sessions, both groups showed substantial improvements in everyday brainwave patterns as well as in tests of measuring attention span, impulsiveness, and hyperactivity. Parents in both groups also reported that their children were doing better in school. The difference between the two groups was motivation. "In the video-game group, there were fewer no-shows and no dropouts," according to Pope. The parents were more satisfied with the results of the training, and the kids seemed to have more fun.

F. Since children are more motivated toward video-game biofeedback and may already be familiar with video games, they will not need one-on-one coaching to master the technique. As a result, the cost of the treatment should be reduced and maybe even permit "do-it-yourself" biofeedback. One North Carolina company markets their system as a fun bike helmet and game-like video exercises that work on almost any computer. The helmet is lined with sensors that monitor the child's brain waves, and the child actually controls the computer video exercises by mind alone. Parents should not expect regular video games to help their children. The wrong kinds of video games might actually hurt children with attention disorders.

G. Parents, however, may be hesitant to switch from traditional treatment programs. One parent whose child currently takes drugs to control ADHD says, "Our son is using drugs to control his attention problems and although we don't like giving him the pills, he is no longer causing problems at school. We try to keep our son away from things that might make him hyperactive. Unless our doctor tells us to do this brain-wave training in a hospital, we are not going to buy a machine to do our own treatment at home." Brain-wave biofeedback alone may not be a substitute for drug therapy. Professor Stephen Hinshaw, an expert in the field of child clinical psychology at UC Berkeley, gives a reserved opinion about biofeedback treatment. "Biofeedback is a promising potential alternative, but unfortunately the kinds of really well-controlled studies that might support its clinical benefits have yet to be performed." The two treatments have complementary aspects that make them effective as adjuncts. A single

dose of Ritalin, for example, acts quickly but only for a few hours, and most patients take it only on school days. Brain-wave regulation takes a long time to learn but has the potential for longer-lasting effects.

H. Researchers and clinicians are realizing that ADHD is not easily outgrown. Most doctors support an approach that combines good nutrition, sleep, exercise, and learning strategies as well as biofeedback and drug therapy. The possibilities for brain-wave biofeedback are very promising since its benefits could last a lifetime. Video-game biofeedback therapy may provide a more tolerable and long lasting form of treatment for children through a medium they are more likely to enjoy.

Questions 1— 4

Complete the sentences below with words taken from the reading passage. Use **NO MORE THAN THREE WORDS** for each answer.

1. Easily distracted and impulsive are words that mean the same as _____.
2. Ritalin _____ the jitters in children.
3. Biofeedback helps children to learn how to control _____.
4. ADHD patients struggle to attain _____.

Questions 5 — 8

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

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

5. Pilots naturally are able to regulate their own brain waves.
6. Pope sought to reward his patients' attentive state of mind.
7. Increased theta waves increase the car's maximum speed Pope's auto-racing game.
8. Modified video games produce more substantial improvements than traditional biofeedback training.

Questions 9 -14

Complete the summary below.

Choose your answers from the box and write them in boxes 9 - 14 on your answer sheet.

NB There are more words than spaces so you will not use them all.

As children find videogame biofeedback more motivating they do not need 9____ training. This results in the 10____ becoming lower. One company has 11____ game-like video exercises that work on almost all computers. Some parents are 12____ to move towards video-game biofeedback. Prof. Hinshaw says that biofeedback is a 13____ alternative but most doctors suggest learning strategies and good 14____ as well as sleep and exercise.

SECTION 2

You should spend about 20 minutes on Questions 15 – 27, which are based on Reading Passage 2 below.

SKYSCRAPERS

A. The word skyscraper was originally a nautical term for a tall mast or sail on a sailing ship. Today the word is used exclusively to refer to a tall habitable building, usually higher than 150 metres (500 feet). Most skyscrapers serve as office buildings or hotels. The term a "high-rise" is also used to describe tall buildings, but it tends to be applied specifically to residential buildings. The modern building of great height, constructed on a steel skeleton originated in the United States.

B. Until the 19th century, buildings of over six stories were rare. It was impractical to have stories were rare. It was impractical to have people walk up so many flights of stairs, and water pressure could only provide running water to about 50 feet (15 m). Many mechanical and structural developments in the last quarter of the 19th cent, contributed to the evolution of the building. With the perfection of the high-speed elevator after 1887, skyscrapers were able to attain. The any desired height, earliest tall buildings were of solid masonry construction, with the thick walls of the lower stories usurping a disproportionate amount of floor space. In order to permit thinner walls through the entire height of the building, architects began to use cast iron in conjunction with masonry. This was followed by cage construction, in which the iron frame supported the floors and the masonry walls bore their own weight.

C. The next step was the invention of a system in which the metal framework would support not only the floors but also the walls. This innovation appeared in the Home

Insurance Building in Chicago, designed in 1883 by William le Baron Jenney — the first building to employ steel skeleton construction and embody the general characteristics of a modern skyscraper. The subsequent erection in Chicago of a number of similar buildings made it the centre of the early skyscraper architecture. In the 1890s the steel frame was formed into a the 1890s the steel frame was formed into a completely riveted skeleton bearing all the structural loads, with the exterior or thin curtain walls serving merely as an enclosing screen.

D. Heating and air conditioning played an important role in the structure of skyscrapers. They are the key units that control the inside atmosphere of all skyscrapers. In the early days, the heat sources in the building came from fireplaces and stoves. Later on the heat in the building supplied by the hot water boiler. The boiler heats up the water and sends it out to the radiators through a system of pipes. This was later replaced by the central heating furnace with ventilation ducts that channel heat to various areas of the building. Air condition originated from refrigeration. The process of refrigeration is to draw heat away from substances to lower their temperature. Today, the skyscrapers use the central heating system with ventilation ducts that can be shared with the heating and air conditioning system. Engineers are working on new ways to make heating and air conditioning more efficient and environmentally friendly.

E. In 1892, the New York Building Law made its first provisions for skeleton constructions. There followed a period of experimentation to devise efficient floor plans and aesthetically satisfying forms. In 1916, New York City adopted the Building Zone Resolution, establishing legal control over the height and plan of buildings and over the factors relating to health, fire hazard, and assurance of adequate light and air to buildings and streets. Regulations regarding the setting back of exterior walls above a determined height, largely intended to allow light to reach the streets, gave rise to buildings whose stepped profiles characterize the American skyscraper of subsequent years.

F. With the complex structural and planning problems solved, architects still seek solutions to the difficulties of integrating skyscrapers with community requirements of

hygiene, transportation, and commercial interest. In New York during the 1950s, public plazas were incorporated into the designs of the Lever House by Gordon Bunshaft and the Seagram Building of Mies van der Rohe. These International style buildings are also examples of the effective use of vast expanses of glass in skyscrapers. More recently, numerous skyscrapers have been constructed in a number of postmodern modes.

G. The cost of building a skyscraper is a hundred million dollars in the current market. The skyscraper is well known for its great height and the social status that comes with it, and has always been associated with wealth and power. To the general public, big is good; in terms of building, the taller the better. In general, a large company or firm would host its head office in these skyscrapers. For example, Chrysler had its head office in the Chrysler Building, owned by Chrysler, which is one of the big three automakers. The Sears Tower, the head office for Sears and owned by Sears. It was known for being the worlds' tallest skyscraper in Chicago. Tenants expect clients to know where they are located when they tell them the Sears Tower as their location. These skyscrapers are owned by wealthy individuals, who are in the upper level of financial social status. There is a sense of prestige for having offices or shops in these skyscrapers.

H. Modern skyscrapers are being redefined by the use of advance technologies. Thanks to the advancement in technology, skyscrapers are able to reach new height easily. It changes the way architects design the structure of these buildings. The new function of the skyscraper is to provide great views, house antennas for communications, tele-broadcasting and for entertainment purpose. The use of computer climate control system made the building a more comfortable environment for everyone. The great height of the skyscraper-like the Sears Tower, it associates itself with the prestige of being the tallest of all. With the rapid advancement of technology and the influence of fame and wealth, the sky will be the only limit for the next generation of skyscrapers.

Questions 15 – 18

Reading Passage 2 has 8 paragraphs A -H From the list of headings below choose the most suitable headings for paragraphs A -D.

Write the appropriate numbers (i -viii).

NB There are more headings than paragraphs so you will not use all of them.

List of Headings:

- i. Hot water boiler and refrigerator
- ii. A period of innovation
- iii. Skyscraper and a tall must
- iv. Advanced technology
- v. Words for tall buildings
- vi. The wall evolution
- vii. Hot and cold
- viii. From stone to iron

- 15. Paragraph A
- 16. Paragraph B
- 17. Paragraph C
- 18. Paragraph D

Questions 19 — 22

Match the following innovations with A, B, C, and D

- A. mid 20th century
- B. late 1880's
- C. 1890's
- D. early 1880's

- 19. the high-speed elevator
- 20. public square
- 21. steel framework
- 22. riveted skeleton

Questions 23 — 27

Do the following statements agree with the information given in Reading Passage 2? In boxes 23 — 27 on your answer sheet write

TRUE, if the statement is true

FALSE, if the statement is false

NOT GIVEN, if the information is not given in the passage.

- 23. A skyscraper is both a tall sailing mast and a tall habitable building.
- 24. A steel frame is able to support both floors and walls.
- 25. The central heating system provides both heating and air conditioning.

26. In the early 20th century, architects solved the problems of mixing skyscrapers with community needs.

27. The higher level the company is situated in a skyscraper, the higher reputation the company holds.

SECTION 3

You should spend about 20 minutes on Questions 28 — 40, which are based on Reading Passage 3 below:

The Gray Worker

A. The 21st century may be known as the era of lifelong learning and lifelong working. Retirement, the end stage of a linear working life, may be replaced with a learning, working, leisure, life cycle. Full-time work may be interspersed with periods of flexible working arrangements such as part-time, seasonal, occasional, and project work. The traditional notion of retirement may be replaced with lifelong working-in various positions and in varying amounts of time throughout adult life. In the future, a declining birthrate may result in a shortage of skilled and knowledgeable employees, making the notion of retirement for older workers a serious drain on organizational productivity. Increasing demands for workforce productivity, a projected shortage of skilled and experienced workers, and older adults who are healthier and living longer than previous generations are powerful societal forces shaping future employment practices.

B. Two decades ago, Sheppard and Rix forecast the changing nature of the workplace and suggested that keeping older persons in the workforce would make sound economic and social policy sense. The trend toward longer periods of employment is beginning to become evident. Forced retirements and early retirement incentives have contributed to the decline of expertise in the workplace. Inflation, increasing health care costs, and inadequate pensions are propelling older adults to remain in or reenter the workforce past the traditional retirement age. Retirement as permanent separation from the workplace is being replaced with the idea of bridge employment. Bridging is a form of partial retirement in which an older worker alternates periods of disengagement from the workplace with periods of temporary, part-time, occasional, or self-employed work. The key aspect of bridging is that it is work in other than a career job. In the US, among

workers age 60, more than 50percent retire from a career job but only one in nine actually disengages from the workplace. Bridging allows older workers to "practice" retirement, to fill labour market shortages, or to try a variety of occupational positions after an initial period of retirement.

C. Bridging is sometimes described as a second career. The American Association of Retired Persons received 36,000 responses to a working life survey, covering 375 job titles from workers age 50 plus, who had returned to the workplace after an initial period of retirement. The three most frequently cited reasons for returning included having financial need, liking to work, and keeping busy. However, a closer examination of the data revealed that "financial need" included money to help the children as well as to meet basic needs. "Liking to work" included feeling successful, enjoying the excitement of the workplace, and making a contribution. "Keeping busy" included working with a spouse, staying healthy, or fulfilling a social need. Reasons cited for remaining or returning to the workplace expressed the social meaning of work. Ginzberg proposed that work provides income, status, and personal achievement; structures time; and provides opportunities for interpersonal relationships. In the study by Stein, Rocco, and Goldenetz in 2000, older workers remaining in or returning to the workplace mentioned not planning wisely, the need to contribute, appreciation from others, and the desire to create something as reasons for not retiring from the workplace. Work is more than earning a living. It is a way to live.

D. To some extent, older workers remain in the workplace because they are healthier, cognitively able and want to remain engaged. In a review of older worker studies, Rix concluded that many ageing workers continue to work at peak efficiency and that there is usually much more variation within age groups than among age groups. Shea summarized the studies on older workers by pointing out that "age-related changes in physical ability, cognitive performance, and personality have little effect on workers' output except in the most physically demanding tasks". Farr, Tesluk, and Klein found that there is no consistent relationship between age and performance across settings. Among faculty in the sciences, age had a slight negative relationship to publishing productivity. Some studies have shown a

stronger negative relationship between age and work performance for nonprofessional and low-level clerical jobs than for higher-level craft, service, and professional jobs. With declining birthrates and an anticipated shortage of new entrants to the workforce, early retirement will become an issue for organizations to explore in more detail. Organizations will need to assess the consequences to profits and productivity of encouraging talented and wise elders to exit the workforce. As a society, we need to recognize all of the costs of supporting a nonworking population capable of productive work and living healthier and longer lives.

E. Organizations need to rethink allocating opportunities to older workers as well as changing the attitudes and expectations of managers and younger employees toward an increasing number of older workers. There is a growing interest among organizations to re-engineer the work environment to account for physiological changes, due to ageing and to reorganize work schedules to account for seasonal or contingent labour pools, composed of older workers. Few positions in our information society remain static and do not require some type of education. Education and job redesign are the means by which the older segment of the community can enter, reenter, and advance in the workplace. Older workers represent a rich source of experience, accumulated knowledge, and wisdom. The quality and sensitivity of an institution's program for counselling, training, retraining, and preparing older workers for life and career transition might be the means by which organizations recruit and retain valued and productive workers.

Questions 28 — 31

Choose the appropriate letters A— D and write them in boxes 28 — 31 on your answer sheet.

28. Organizational productivity will seriously be affected in future by

- A. older adults who are healthier.
- B. the declining birthrate.
- C. lifelong working.
- D. the retirement of older workers.

29. Older adults are returning to the workplace because of

- A. early retirement incentives.
- B. the decline of expertise.
- C. cost of living.
- D. forced retirements.

30. Partial retirement is a key opportunity for older workers to

- A. continue their career.
- B. try a new job.
- C. disengage from the workplace.
- D. remain in their job.

31. One reason not mentioned for returning to the workplace was

- A. appreciation from others.
- B. meeting basic needs.
- C. feeling successful.
- D. keeping fit.

Question 32

Answer the following question, USING NO MORE THAN THREE WORDS from the passage for each blank.

32. Name the three reasons for not retiring from the workplace, according to the study in 2000. ____, ____, and ____.

Questions 33 — 36

Complete the summary below Choose NO MORE THAN THREE WORDS from the passage for each answer

Rix found that many older workers ___33___ at maximum efficiency while Shea found that age-related changes had ___34___ on their productivity unless they had jobs that were ___35___. According to Fan, Tesluk and Klein, there was a ___36___ relationship in higher-level professions.

Questions 37 — 39

Do the following statements agree with the information given in Reading Passage 3? In boxes 37 — 39 on your answer sheet write

TRUE, if the statement is true

FALSE, if the statement is false

NOT GIVEN, if the information is not given in the passage.

37. Organizations need to examine in more detail the reasons for declining birth rates.

38. Profits and productivity of organizations may fall because of early retirement.

39. Older workers will be needed in the education and design fields.

Question 40

40. From the list below choose the most suitable title for the whole of Reading Passage 3.

- A The New Meaning of Retirement
- B Warning, the Society is Aging
- C Reasons for Not Retiring
- D Liking to Work
- E Concern about Future Employment

Reading test 11

SECTION 1

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

THE GEODESIC DOME - THE HOUSE OF THE FUTURE?

A.

R. Buckminster Fuller spent much of the early 20th Century looking for ways to improve human shelter by applying modern technological know-how to shelter construction, making shelter more comfortable and efficient, and more economically available to a greater number of people. After acquiring some experience in the building industry and discovering the traditional practices and perceptions which severely limit changes and improvements in construction practices, Fuller carefully examined, and improved, interior structure equipment, including the toilet, the shower, and the bathroom as a whole. He studied structure shells, and devised a number of alternatives, each less expensive, lighter, and stronger than traditional wood, brick, and stone buildings.

B.

In 1944, the United States suffered a serious housing shortage. Government officials knew that Fuller had developed a prototype of family dwelling which could be produced rapidly, using the same equipment which had previously built war-time airplanes. They could be "installed" anywhere, the way a telephone is installed, and with little additional difficulty. When one official flew to Wichita, Kansas to see this house, which Beech Aircraft and Fuller built, the man reportedly gasped, "My God! This is the house of the

future!" Soon, unsolicited checks poured in from people who wanted to purchase this new kind of house, but Fuller was never able to get it into full production. This was due to many obstacles such as only union contractors were able to hook the houses up to water, power and sewers in many cities.

C.

However, because the houses were already wired and had the plumbing installed by the aircraft company, many construction trade unions made it clear that they would not work on the houses. There were also in-house differences between Fuller and the stockholders. Fuller did not feel the house design was complete; there were problems he wanted to fix. But the stockholders wanted to move ahead. However, the main obstruction was obtaining the financing for the tooling costs, which were purposefully not included in the negotiations with investors. No bank would finance the project with union problems and stockholder battles. After the war, Fuller's efforts focused on the problem of how to build a shelter which is so lightweight, it can be delivered by air. Shelter should be mobile which would require great breakthroughs in the weight-reduction of the materials. Technology would have to follow nature's design as seen by the spider's web which can float in a hurricane because of its high strength-to-weight ratio. New shelter would have to be designed that incorporates these principles and that was Fuller's intent.

D.

One of the ways Buckminster Fuller would describe the differences in strength between a rectangle and a triangle would be to apply pressure to both structures. The rectangle would fold up and be unstable but the triangle withstands the pressure and is much more rigid - in fact the triangle is twice as strong. This principle directed his studies toward creating a new architectural design, the geodesic dome, based also upon his idea of "doing more with less." Fuller discovered that if a spherical structure was created from triangles, it would have unparalleled strength. The sphere uses the "doing more with less" principle in that it encloses the largest volume of interior space with the least amount of surface area thus saving on materials and cost. Fuller

reintroduced the idea that when the sphere's diameter is doubled it will quadruple its square footage and produce eight times the volume.

E.

The spherical structure of a dome is one of the most efficient interior atmospheres for human dwellings because air and energy are allowed to circulate without obstruction. This enables heating and cooling to occur naturally. Geodesic shelters have been built all around the world in different climates and temperatures and still they have proven to be the most efficient human shelter one can find. More specifically, the dome is energy efficient for many reasons: its decreased surface area requires less building materials; exposure to cold in the winter and heat in the summer is decreased because, being spherical, there is the least surface area per unit of volume per structure; the concave interior creates a natural airflow that allows the hot or cool air to flow evenly throughout the dome with the help of return air ducts; extreme wind turbulence is lessened because the winds that contribute to heat loss flow smoothly around the dome; it acts like a type of giant down-pointing headlight reflector and reflects and concentrates interior heat. This helps prevent radiant heat loss.

F.

The net annual energy savings for a dome owner is 30% less than normal rectilinear homes according to the Oregon Dome Co. This is quite an improvement and helps save the environment from wasted energy. Domes have been designed by Fuller and others to withstand high winds and extreme temperatures as seen in the Polar Regions. Many dome manufacturers offer various designs in geodesic dome housing with little assembly time required. Some houses can be assembled in less than a day with others taking up to six months. Many also come in dome kits that buyers can build themselves or with the help of friends. R. Buckminster Fuller's first worldwide acceptance by the architectural community occurred with the 1954 Triennale where his cardboard dome was displayed for the first time. The Milan Triennale was established to stage international exhibitions aimed to present the most innovative accomplishments in the fields of design, crafts, architecture and city planning.

G.

The theme for 1954 was Life Between Artifact and Nature: Design and the Environmental Challenge, which fit in perfectly with Fuller's work. Fuller had begun efforts towards the development of a Comprehensive Anticipatory Design Science, which he defined as, "the effective application of the principles of science to the conscious design of our total environment in order to help make the Earth's finite resources meet the needs of all humanity without disrupting the ecological processes of the planet." The cardboard shelter that was part of his exhibit could be easily shipped and assembled with the directions printed right on the cardboard. The 42-foot paperboard Geodesic was installed in old Sforza garden in Milan and came away with the highest award, the Gran Premio.

Questions 1 - 2

Choose the appropriate letters A – D and write them in boxes 1 – 2 on your answer sheet.

1. In 1944, government officials were interested in Fuller's family dwelling because

- A. they had a housing shortage.
- B. it is the house of the future.
- C. it could be produced rapidly and installed easily.
- D. all of the above.

2. Fuller's family dwelling was not fully produced mainly because

- A. aircraft company installed these houses
- B. there were financing problems
- C. union contractors did not support Fuller
- D. Fuller and the stockholders held different ideas

Questions 3 - 7

Classify the following descriptions as referring to

The sphere S
The rectangle R
The triangle T

Write the appropriate letters in boxes 3 – 7 on your answer sheet.

NB You may use any answer more than once.

3. doing more than less
4. stable
5. allowing natural air circulation
6. rigid
7. flowing

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 is true
FALSE, if the statement is false
NOT GIVEN, if the information is not given in the passage.

8. A geodesic dome is basically a spherical structure created from rectangles.
9. It has been proved that the geodesic dome is the most efficient human shelter.
10. Domes are the environment-friendly building.
11. Some scientists set up domes in the Polar Regions.
12. Domes are much cheaper than traditional houses.
13. Fuller won the Gran Premio in 1954.

SECTION 2

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

Questions 14 - 18

Choose the most suitable headings for paragraphs B - F from the list of headings below.

Write appropriate numbers (i-x) in boxes 14 - 18 on your answer sheet.

NB There are more headings than paragraphs, so you will not use them all.

List of Headings

- i. Clothing symbolising status
- ii. The factors determining the dye's quality
- iii. The invaluable colour
- iv. The importance of plants in ancient times
- v. From family to industry
- vi. The value of colours
- vii. Dyestuff sources in the past
- viii. Availability and durability of a dye
- ix. The competitive and secret industry
- x. Pigments, insoluble colouring materials

14. Paragraph B
15. Paragraph C
16. Paragraph D
17. Paragraph E
18. Paragraph F

DYES AND PIGMENTS

A.

Dyeing is a process of colouring materials, or cloth fibers, whereby the colour becomes part of the fiber. The fastness of the colour, or its permanency, depends upon the dye and the process used. True dyeing is a permanent colour change, and the dye is absorbed by, or chemically combined with, the fiber.

B.

In ancient times all the dyes used were natural; actually, this was true up until mid-1800. The dyestuffs came from a variety of natural sources, some commonly available, others rare or difficult to produce. Some of the common dyes included logwood or quercitron, fustic, woad, and indigo. An example of the rare dyes would be cochineal and Tyrian purple. Collectively, these substances are called dyestuffs, and were occasionally traded as a commodity. The dyestuffs were extracts from plants, mollusks,

insects, woods, or naturally occurring minerals. There are many plants which produce dye suitable in the dyeing process, and many were heavily cultivated. Madder and woad were grown in Europe specifically for their dyeing properties. Saffron was also extensively grown in Anatolia for its yellow dye. Probably one of the most famous dyes was Tyrian purple, from a Mediterranean shellfish. The Phoenicians of Tyre, in Lebanon, produced this very expensive dye long before written history began. Many other areas had special dyes which were famous in antiquity.

C.

The value of a dye is not just its availability, but also its fastness or durability against daily use. It must withstand washing, wearing, sunlight, perspiration, without losing an appreciable amount of its colour. The colour, and its brightness, also helped determine the dye's value. Premium colours were purple, blue, and bright shades of red.

D.

There are two classifications of dyeing, the home craft and the trade, or industrial, dyeing. The manufacturing of clothing, the spinning, weaving and embroidery, tended to stay within the family unit. An exception to this would be the carpets made in Anatolia and Persia, for example, or the very fine, sheer linen woven in Egypt. But the manufacture of dyes and their use in dyeing yarn and cloth soon became an industry, supporting large numbers of people, even entire cities. The art of dyeing was one of the earliest arts known to man after he became civilized. Trade dyeing was, however, a highly competitive business. These were the professionals of the ancient world when it came to dyed cloth. Many of the processes were closely guarded secrets, and many of the special skills were handed down over generations. The ingredients may come from far away; the tools may be specialized and the process often was steeped in superstition.

E.

As far back as man can historically see, rulers have set themselves apart from everyone else by wearing exotic and rare items, and dyed clothing was very early a

part of this status proclamation. Still today the important and the wealthy prefer to wear items not available to all. In Egypt, the pharaohs wore specially made clothing, dyed with colours difficult to obtain. Dyed fabrics from tombs of early Egyptian attest to the antiquity of the dyers art.

F.

In the ancient Greek and Roman world, Tyrian purple became the colour of choice for rulers and emperors. The dye was extremely expensive, therefore, available to only a few. When in later times merchants, considered unimportant, became wealthy enough to buy purple-dyed cloth, laws were passed to prevent their diluting the impressiveness of the colour. Only rulers, or emperors, were allowed to wear purple. Later, however, the law was changed to include the rulers' family; then senators; and so on, eventually losing its status. This is where the phrase "born to the purple" came from.

G.

The word pigment comes from the Latin "pigmentum" meaning coloured material. Pigments are generally distinguished from dyes as colouring materials on the basis of their soluble ability (solubility) characteristics. Pigments are used mainly in the colouration of paints, printing inks and plastics, although they are used to a certain extent in a much wider range of applications including textiles, ceramics, paper, and cosmetics. In contrast to dyes, pigments are highly insoluble colouring materials, which are incorporated into an applications medium by dispersion, and they remain as discrete solid particles held mechanically within a polymeric matrix. Pigments are thus required to resist dissolving in solvents, which they may contact in application to minimize problems such as 'bleeding' and migration. In addition to solvent resistance, pigments are required to be fast to light, weathering, heat and chemicals such as acids and alkalis to a degree dependent on the demands of particular application.

Natural inorganic pigments, derived mainly from mineral sources, have been used as colourants since pre-historic times and a few, notably iron oxides, remain of some significance today. The origins of the synthetic inorganic pigment industry may be traced to the introduction of Prussian blue in the early 18th century, pre-dating the

synthetic organic colourant industry by some 150 years. The organic pigments are the oxides, sulfides, hydroxides, silicates, sulfates and carbonates of metals. The colour of a pigment is due to its interactions with light by scattering and absorption.

H.

The synthetic organic pigment industry emerged towards the end of the 19th century out of the established synthetic textile dyestuffs industry. Many of the earliest organic pigments were known as 'lakes'. These products were prepared from established water soluble dyes by precipitation on to an insoluble inorganic substrate. A further significant early development in organic pigments was the introduction of a range of azo pigments. One of the most critical events in the development of the organic pigment industry was the discovery, in 1928, of copper phthalocyanine blue. This was the first pigment to offer the outstanding intensity and brightness of colour typical of organic pigments, combined with an excellent range of fastness properties, comparable with many inorganic pigments. Organic pigments generally provide higher intensity and brightness of colour than inorganic pigments. However, organic pigments are unable to provide the degree of opacity offered by most inorganic pigments which have the lower reflectance.

Questions 19 - 21

Choose the appropriate letters A – D and write them in boxes 19 – 21 on your answer sheet.

19. Among the following dye colours, which one had superior value in the past?

- A. yellow
- B. red
- C. blue
- D. white

20. The pharaohs wore specially dyed clothing, because

- A. it was difficult to obtain.
- B. it was exotic and rare.

- C. it distinguished them.
- D. it attested to the antiquity of the dyers art.

21. According to the passage, the phrase “born to the purple” describes someone who

- A. has a royal birth
- B. is very wealthy
- C. extremely favors the purple colour.
- D. was born with silver spoon.

Questions 22 - 26

Complete the summary below.

Choose no more than three words from the passage for each answer. Write your answers in boxes 22 – 27 on your answer sheet.

As colouring materials, the distinguished characteristic of pigments is that they are more ___22___ than dyes, and in the colouring process, dyes are ___23___ by the materials, while pigments work by ___24___. Compared with inorganic pigments, organic pigments give colour higher ___25___, but lower ___26___.

SECTION 3

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

SPIDER SILK

A.

Spider silk is not a single, unique material - different species produce various kinds of silk. Some possess as many as seven distinct kinds of glands, each of which produces a different silk. Why so many kinds of silk? Each kind plays particular roles. All spiders make so-called dragline silk that functions in part as a lifeline, enabling the creatures to hang from ceilings. And it serves as a constant connection to the web, facilitating quick escapes from danger. Dragline silk also forms the radial spokes of the web; bridge line

silk is the first strand, by which the web hangs from its support; yet another silk forms the great spiral.

B.

The different silks have unique physical properties such as strength and elasticity, but all are very strong compared to other natural and synthetic materials. Dragline silk combines toughness and strength to an extraordinary degree. A dragline strand is several times stronger than steel, on a weight-for-weight basis, but a spider's dragline is only about one tenth the diameter of a human hair. The movie Spider-Man drastically underestimates the strength of silk - real dragline silk would not need to be nearly as thick as the strands deployed by the web-swinging hero in the movie. Dragline silk is a composite material comprised of two different proteins, each containing three types of regions with distinct properties. One of these forms an amorphous (non-crystalline) matrix that is stretchable, giving the silk elasticity.

C.

When an insect strikes the web, the stretching of the matrix enables the web to absorb the kinetic energy of the insect's flight. Embedded in the amorphous portions of both proteins are two kinds of crystalline regions that toughen the silk. Although both kinds of crystalline regions are tightly pleated and resist stretching, one of them is rigid. It is thought that the pleats of the less rigid crystals not only fit into the pleats in the rigid crystals but that they also interact with the amorphous areas in the proteins, thus anchoring the rigid crystals to the matrix. The resulting composite is strong, tough, and yet elastic. Then, why doesn't a spider get stuck on its own web? Over the years, three explanations for this phenomenon have surfaced.

D.

The first invokes an oil, secreted by the spider, that serves as an anti-stick agent. The problem with this hypothesis is that such an oil has yet to be discovered. The second scenario is based on the diversity of silks. Many webs include strands made of silks that are much less sticky than the others are. The non-sticky strands appear in the hub

of the web, the radial spokes and the threads by which the web hangs from plants or other supports. Some researchers have thus posited that the arachnids use only these strands when navigating their webs. If you watch them in action, however, you will see that although they do seem to prefer the non-sticky strands, the spiders are able to move around freely, touching many of the strands, including the very sticky ones that spiral out from the hub.

E.

The third explanation appears to solve the sticky-strand problem. In short, the legs of at least some spiders feature a disengaging mechanism that enables the arachnid to detach itself instantly from a sticky strand. This mechanism involves a clever anatomical adaptation. Each leg ends in a pair of "walking claws" that grasp vegetation, among other functions, but a third claw collaborates with associated spiny, elastic hairs to detach the leg from a sticky web strand. This third claw grasps the strand, pulls it against the elastic hairs, and pulls them further, cocking the mechanism. When the claw relaxes, the hairs rebound vigorously, throwing the strand away and springing the leg free.

F.

Police, the military, physicians, and other groups are eager to obtain large quantities of dragline silk, which can be woven or compacted to make bulletproof clothing, replacement ligaments, medical sutures, fishing line, ropes for rock climbers, tethers to snag planes landing on aircraft carriers and myriad other products. It is impracticable to harvest sufficient quantities of silk from spiders due to their territorial nature, so biotechnologists have turned to other sources. The Canadian company Nexia has demonstrated that goats and cows can be genetically engineered so as to produce dragline silk in their milk. Using a clone of such goats, Nexia aims to produce a modified dragline silk, which they call BioSteel, to meet the many demands.

Questions 27 - 29

Write no more than three words for each answer.

27. Which organ of spiders produces silk?
28. What kind of silk helps spiders to escape from danger?
29. Name three features of dragline silk mentioned by the writer.

Questions 30 - 32

Write no more than three words for each answer.

Name three types of regions of proteins constituting dragline silk.

30. _____
31. _____
32. _____

Questions 33 – 37

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

In boxes 33 – 37 on your answer sheet write.

TRUE, if the statement is true
FALSE, if the statement is false
NOT GIVEN, if the information is not given in the passage

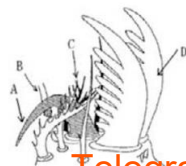
33. The spider discharges an oil to avoid sticking on its own web.
34. The spider use only non-sticky strands when moving on the web.
35. Bridgeline silk belongs to non-sticky strands.
36. BioSteel is a biotechnological name for spiders' dragline silk.
37. According to the writer, the silk Spider-Man used in the movie i s less strong than the real dragline silk.

Questions 38 - 40

Complete the diagram below based on the third explanation in Reading Passage 3.

Write no more than three words for each answer.

Example B: the strand



Telegram - @instalingo

38. A: _____.
39. C: _____.
40. D: _____.

Reading Test 12

SECTION 1

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

Save Salmon

A.

The Columbia River Basin is North America's fourth largest, draining about 250,000 square miles and extending throughout the Pacific Northwest and into Canada. There are over 250 reservoirs and around 150 hydroelectric projects in the basin, including 18 main stem dams on the Columbia and its main tributary, the Snake River. The US Army Corps of Engineers operates nine of ten major federal projects on the Columbia and Snake rivers, and Dworshak Dam on the Clearwater River, Libby Dam on the Kootenai River, and Albeni Falls Dam on the Pend Oreille River. The federal projects are a major source of power in the region, and provide flood control, navigation, recreation, fish and wildlife, municipal and industrial water supply, and irrigation benefits.

B.

The Columbia River Basin provides habitat for five species of salmon (chinook, coho, chum, sockeye and pink), steelhead, shad, smelt and lamprey. Salmon hatch in fresh water rivers and tributaries where they rear for a year or two. They then migrate to and mature in the ocean and return to their place of origin as adults to spawn. Salmon live two to five years in the ocean before returning to spawning areas. A number of factors have contributed to the decline of salmon stocks in the Columbia and Snake River Basin. Overharvesting in the late 1800s into the early 1900s, effects on habitat from farming, cattle grazing, mining, logging, road construction, and industrial pollution, and the complex of tributary and main stem dams all have had an impact. A variety of

ocean conditions including currents, pollution, temperature changes, and nutrient base affect salmon survival. Dams clearly have had a significant impact, particularly those that eliminated access to fresh water habitat (preventing adult fish from returning to spawn), and those through which fish passage is provided but at reduced levels from natural conditions.

C.

The dams impede juvenile and adult migrations to and from the ocean by their physical presence and by creating reservoirs. The reservoirs behind the dams slow water velocities, alter river temperatures, and increase predation potential. Reduced water velocity increases the time it takes juveniles to migrate downstream, higher water temperatures may have adverse effects on juvenile and adult behavior, and predators find prey more easily in slower moving water. The Corps operates a series of eight dams on the lower Columbia and Snake rivers that affect the habitat and migration of salmon. These dams are equipped with adult and juvenile fish passage facilities. Adult fish ladders at all eight lower Columbia and Snake dams were integrated into the design of the dams beginning with Bonneville in 1938. These ladders consist of a series of steps and which provide a gradual upward climb over the dams for returning adults. To steer the adults to the ladders, "attraction" flows at the downstream ladder entrances simulate conditions that would be found at the base of natural waterfalls. The concept has proved effective for adult fish passage.

D.

Currently, juvenile fish can migrate past the dams by several routes: through the turbine; through the juvenile fish bypass system; or over the dam spillway. Some fish are transported past the dams by barge and truck under the juvenile fish transportation program. At the Dalles Dam, fish are bypassed through the ice and trash sluiceway. The juvenile fish bypass systems in place at seven of the eight lower Columbia and Snake River dams guide fish away from turbines by means of submerged screens positioned in front of the turbines. The juvenile fish are directed up into a gate well, where they pass through orifices into channels that run the length of the dam. The fish

are then either routed back out to the river below the dam, which is called "bypassing" or, at the four dams with fish transport facilities, fish can be routed to a holding area for loading on specially equipped barges or trucks for transport downriver. The juvenile bypass systems guide 80 to 90 percent of steelhead salmon and 60 to 70 percent of spring/summer chinook salmon away from the turbines and upward through the bypass channel. This percentage measure is called fish guidance efficiency, and the rates vary from dam to dam. The fish guidance efficiency for fall chinook salmon is about 30 percent.

E.

Three of the four Snake River dams, and McNary Dam on the Columbia River, have fish transport facilities. At these four dams, juvenile fish that go through the bypass systems can be routed either directly back into the river below the dam, or to holding and loading facilities for loading into barges or trucks for transport. The transport barges and trucks carry the fish past the remaining projects for release below Bonneville dam. River water circulates through the barges allowing the fish to imprint the chemicals and smells of the water during the trip downriver. The barges have a closed-circuit recirculation system which can shut off water intake in case of contamination in the river. They also have pumping systems which can help de-gas the water in areas where gas super saturation is a problem.

F.

The Corps runs the Juvenile Fish Transportation Program in cooperation with National Marine Fisheries Service, and in accordance with the National Marine Fisheries Service hydropower Biological Opinion for salmon. Fifteen to 20 million salmon and steelhead have typically been transported each year over the past several years. The program has come under criticism in recent years from state and tribal fishery agencies and environmental groups, who believe that rather than putting fish in barges, efforts should concentrate on improving in-river migration conditions. Hydropower operations can be modified to improve in-river migration conditions for fish. During the juvenile fish

migration seasons, from late March until fall, flows in the river are augmented, and water is spilled at the dams, to aid juvenile migration.

Questions 1— 4

Using **NO MORE THAN THREE WORDS** from the passage, answer the following questions.

1. How many rivers are mentioned in the second paragraph?
2. How many different kinds of fish are mentioned in the third paragraph?
3. How old are salmon when they return to their place of origin?
4. Apart from ocean conditions and dams, how many factors have contributed to the decline of salmon stocks?

Questions 5 — 8

Complete the summary below

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

Reservoirs slow down the rate of ___5___ increase ___6___ and encourage predators. Eight dams on the lower Columbia and Snake rivers have ___7___ to cope with these problems. Fish ladders began in ___8___ for the returning adult fish.

Questions 9 — 13

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

In boxes 9 —13 on your answer sheet write

YES, if the statement agrees with the writer

NO, if the statement contradicts the writer

NOT GIVEN, if there is no information about this in the passage.

9. There are now juvenile fish bypass systems at all of the lower Columbia and Snake River dams.
10. Summer is a better time than autumn for returning Chinook salmon.

11. There are more barges than trucks for juvenile fish.
12. The Juvenile Fish Transport Program has been criticized by three distinct groups lately.
13. Enlarged river flows from late March to fall can help juvenile migration.

SECTION 2

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

On the wings of a Kite

How were the pyramids built? How were obelisks erected? A new theory from a group of American amateur kite enthusiasts has provided new inroads in trying to answer this mystery.

A.

Millions of words have been written on how the pyramids and obelisks of ancient Egypt were erected. Theories put forward include a massive slave labour force, a theory which some Egyptologists still adhere to. However, most engineers know that a skilled labour force was much more advantageous, rather than a mass presence of unskilled labourers. As to the mechanism by which this skilled labour force built the pyramids and erected the obelisks? For the pyramids, a "ramp method" is proposed, even though this would mean that for the Great Pyramid, the ramp would be a mile long, and would require more material and construction effort than the building of the pyramid itself. As to the erection of obelisks, the "sandpit method" is the most adhered to theory, in which a sand hill was constructed around the site of the obelisk, with the obelisk then lowered into position.

B.

Dr Maureen Clemmons' interest in Egyptian building techniques started when she read an article in the January 1997 Smithsonian about the attempt to raise a 40-ton obelisk

resting in an ancient quarry in Aswan, Egypt The granite of Aswan was the favoured stone from which obelisks were carved. These were then transported mostly via the river Nile — further north, mostly in the region of Thebes/Luxor, which at that time formed the capital of the Egyptian Empire. Even though the obelisk was relatively light in monument terms (40 tons compared to other obelisks weighing 100-300 tons), the crew was unable to produce the lift needed to raise the obelisk. Dr. Maureen Clemmons pondered the problem and has since offered a new possibility as to how the ancient Egyptians may have erected their obelisks: wind power, using kites. For seven years leading up to January 2004, Clemmons was the main motivator of a team of amateurs whom received little to no funding, all of them trying to show practically that obelisks could be erected by harbouring the power of the wind.

C.

It is well known that the ancient Egyptians had been successful in controlling and harvesting the power of the wind: they sailed along the Nile, which formed the artery of ancient Egypt. Furthermore, Egypt was blessed with a rather steady wind direction, coming mainly from the North West. Even though we know that the Egyptians sailed the Nile from very early times, there are few references or written records of this enterprise. Like the building of the pyramids or the obelisks, the Egyptians seemed to show no interest in committing to writing how these things were done... Clemmons wondered whether the ancient Egyptians applied their acquired knowledge of the wind on the Nile also on land. The inspiration came when Clemmons saw a building frieze in a Cairo museum, showing a wing pattern in bas-relief that did not resemble any living bird, directly below which were several men standing near vertical objects that could be ropes. Was this carving showing how the ancient Egyptians had built their monuments? Kites are known to provide pull and lift, two great forces that, if harboured, could be great allies in their construction efforts. In the 20th century, Egyptologists have also uncovered that the ancient Egyptians were indeed aware of pulleys, a required ingredient in harvesting wind power as performed by Clemmons' team.

D.

After years of initially small tests, the first "real" test involved the erection of a 3.5 ton obelisk. The test site was at Quartz Hill in the California desert, hoping to mimic some of the Egyptian desert conditions. Tests showed that twisted hemp rope when wet could stand the comparison with modern nylon ropes. The team relied on the work of Dr Elizabeth Barber, a linen expert, and Rod Thrall, a kite builder from Oregon to transform the test site into a working Egyptian model. The first successful test occurred on April 14, 2001. In wind speed of approximately 15 mph, the obelisk was raised in approximately one hour. On June 23, 2001, the team raised the 3 m-tall obelisk into vertical position in 22 mph winds in under 25 seconds. At the end, the obelisk was seen to be swinging from the top of its lifting frame, like a giant pendulum. It seemed to be that easy...The team now knew that the best operating conditions were steady winds, between 20-25 mph. In January 2004, working in optimal wind conditions, the obelisk raised itself to ten feet after 27 minutes. An angle of 80 to 85 degrees was reached after 57 minutes. The test proved a success as it showed that a single kite was able to provide sufficient lift to raise an obelisk. Though the team focused on the erection of obelisks, the "pyramid building" scheme was not neglected. In 2003, the team showed how two ton stones easily moved on rollers, propelled by the powers of the wind via a kite. The system also allowed stones to be lifted up a ramp.

E.

With initial success of showing that wind power can be harnessed and used in the building industry, Egyptologists have nevertheless pointed out that Clemmons has only shown a possible technique — but that this does not mean that the ancient Egyptians followed this technique. This in itself is true, but what Egyptologists fail to add is that their preferred explanations equally fall short of that criterion. What makes Clemmons' approach specifically of interest over the cherished explanations — is the speed in which these complex tasks are performed. Mass labour and massive ramps could indeed — possibly — build the Great Pyramid. But if this pyramid was built in approximately twenty years, as Egyptologists argue, then it means that one stone was lifted into place approximately every two seconds (under normal working conditions). In the ramp theory, this seems hardly plausible. However, in the wind power theory, we see how fast this process can be. Furthermore, the "wind method" requires far less

ancillary work to be carried out than the "ramp method". In the "sandpit method; weeks would be spent constructing the sand hill and lowering the obelisk in place. In the "wind method" , a mobile if not reusable lifting frame might require a few hours or days to be put into place, with the obelisk lifted in a matter of hours.

F.

Clemmons' method has one final advantage; the bodies of the slave labour force have not been found; the remains of the giant ramps around the pyramids has equally not been found. There are, in short, no archaeological traces of a method that should have left traces. But the "wind method" would not leave such traces — and would also be a quick to clean up method once the work is completed.

Questions 14 —18

Reading Passage 2 has 6 paragraphs A— F.

From the list of headings below choose the most suitable headings for paragraphs A— E.

Write the appropriate numbers (i — x).

NB There are more headings than paragraphs so you will not use all of them.

List of Headings

- i. Wind is stronger than man
- ii. Aswan granite and obelisk
- iii. Early theories of how to build pyramids
- iv. An amateur group and a novel idea
- v. Popular but not perfect explanations
- vi. Favourable conditions of harvesting the wind
- vii. The inspiration came from museum
- viii. Small tests of wind power
- ix. The feasibility of the theories was proved
- x. More advanced theories

14. Paragraph A

- 15. Paragraph B
- 16. Paragraph C
- 17. Paragraph D
- 18. Paragraph E

Questions 19 — 26

Do the following statements agree with the information given in Reading Passage 2?

In boxes 19 — 26 on your answer sheet write

YES, if the statement agrees with the writer
NO, if the statement contradicts the writer
NOT GIVEN, if there is no information about this in the passage.

- 19. Unlike scientists most Egyptian experts believe that the pyramids were built by a massive force of unskilled labour.
- 20. The Smithsonian attempt in 1997 failed to erect an obelisk.
- 21. Unfortunately all early written records of pyramids and obelisks were lost in the Nile.
- 22. In January 2004 Clemmons saw a carving in Cairo which gave her the clue she needed.
- 23. The first real test on April 14, 2001 was successful using a team of three.
- 24. After proving that a single kite could lift an obelisk the team switched its attention to pyramid building.
- 25. Clemmons theory ultimately failed compared to the other theories because it could not be proved that the Egyptians used wind power.
- 26. If the three methods mentioned only the ramp method would leave no traces.

SECTION 3

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

A Weighty Issue

A.

According to a report produced by the British Medical Association (BMA), the state of adolescent health in the UK is in a poor condition. A key problem is obesity, which is thought to be caused by a poor diet with too many high-fat, high-calorie foods, along

with a lack of exercise. In fact, the report claims that excess body weight is now the most common childhood disorder in Europe, and a staggering one in five youngsters aged 13 to 16 are overweight and nearly one in five 15-year-olds are obese. 'The figures are worrying as being obese can cause both immediate and future serious health problems. These include the risk of high blood pressure, heart disease and type 2 diabetes. It's also the most important dietary factor in cancer', said a spokesperson for the British Nutrition Foundation (BNF), and can cause complications during and after pregnancy.

B.

Type 2 diabetes used to only affect middle-aged but in recent years have been detected in teens as young as 13-years-old for the first time. This, in itself, is believed to be another direct factor linked to the rising levels of obesity. And children affected by obesity are likely to have a shorter lifespan than their parents. As well as physical illness and disease, being obese or overweight can cause a range of psychological problems too. The BMA report highlighted that it can significantly affect wellbeing, with many adolescents developing a negative self image and experiencing low self-'esteem'. It can also lead to eating diseases, bullying, depression, and feelings of loneliness and nervousness.

C.

Doctors use a measurement system called the body mass index (BMI) to assess whether people are a healthy weight, overweight or obese. It's worked out by dividing a person's weight in kilograms by their height in metres squared. For example, if you are 1.7 metres tall and weigh 68 kilos, your BMI would be 23.5 (68 divided by 1.7 x 1.7), which falls into the desirable or healthy range. According to the BMI chart, adults (over 18s) are overweight if they have a BMI of between 25 and 30, and they're obese if it's 30 or over.

Body Mass Index (BMI) guide for people aged 18 and over

BMI (kg/m²)	
Less than 20	Underweight
Over 20 to 25	Desirable or healthy range
Over 25 to 30	Overweight
Over 30 to 35	Obese (class I)
Over 35 to 40	Obese (class II)
Over 40	Severely obese (class III)

D.

A similar method is used for children, but instead it has a sliding scale linked to age. As well as BMI levels, the areas where the fat is deposited in the body is important, too, explained a spokesperson for the BNF. 'People who have extra fat around their middle, a body we call apple shaped, are at a greater risk of some diseases than those who have most of the extra weight around their hips and thighs, or are pear shaped.' When it comes to preventing and treating excess weight and obesity, experts believe a healthy balanced diet and regular exercise are crucial. The key to maintaining a good

weight is to balance your energy intake and output, as weight is gained if you regularly eat more than you burn off.

E.

Obese children may require a specially developed programme, which is likely to focus on healthy eating, exercise and social support. In the case of children, it's beneficial for the whole family to adopt healthier behaviours and it's important not to single out a child. Likewise, the Royal College of Paediatrics suggests parents should be actively involved in helping children manage their weight, and says obesity problems should be dealt with slowly, by making gradual changes to eating habits and physical activity. Increasingly inactive lifestyles and couch-potato tendencies, for example watching television and playing computer games, are thought to be contributors to obesity, so being more active is very helpful. The minimum recommended level of activity is at least 30 minutes of moderate-intensity activity, five days a week. Moderate intensity means a state in which your breathing and heart rate are faster than normal.

F.

Siobhan Weir, physical activity programme manager at the Health Protection Agency said, 'Getting people to take some moderate activity as opposed to being sedentary is likely to have the greatest beneficial effect on their health.' A good form of exercise for those who have been leading fairly inactive lives — and one that's free — is walking, she says. 'Research shows that walking a mile briskly uses the same energy as running a mile and regular physical activity can reduce weight by as much as one stone in three months. To really reap the benefits, aim to walk briskly so that you are feeling warmer and slightly out of breath.' If walking isn't for you, there's a whole range of other activities available, from team sports such as football, hockey or basketball, classes such as aerobics or sessions at the gym, to alternatives such as martial arts, yoga or tai chi. The key is to find something you enjoy and stick to it. It's easy to put off healthy eating habits and exercise, but the sooner we start, the better the outcome for our health. By starting at a young age, the chances are good habits will continue into the future too.

Questions 27 — 30

Choose the appropriate letters A —D and write them in boxes 27 — 30 on your answer sheet.

27. A report by the BMA states that nearly 40% of 15-year-olds are

- A. overweight.
- B. obese.
- C. overweight or obese.
- D. none of the above.

28. According to the BMA and BNF being obese can lead to at least different kinds of health

problems

- A. 4
- B. 5
- C. 6
- D. 7

29. According to paragraphs 2 and 3 type 2 diabetes

- A. is only a cause of obesity.
- B. is both a cause and effect of obesity.
- C. is only an effect of obesity.
- D. is none of the above

30. The BMA report mentions psychological problems.

- A. 2
- B. 3
- C. 7
- D. 8

Questions 31 — 35

Complete the summary below Choose NO MORE THAN THREE WORDS from the passage for each answer.

Body Mass Index (BMI) assesses whether adults are below, within or above a ___31___ using weight and height as measurements. For children a ___32___ related to age is included. People who are ___33___ shaped are less at risk than those who are ___34___ shaped. It is believed that a ___35___ energy intake and output is the key to maintaining a good weight.

Questions 36— 40

Complete the sentence below (Questions 36 — 40) with word taken from Reading Passage 3.

Use **NO MORE THAN THREE WORDS** for each answer.

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

36. Obese children need social support which usually comes from _____.
37. At least _____ of exercise is recommended every week.
38. If a person is said to be sedentary they have _____.
39. Research shows that _____ can lose weight over a short period of time.
40. Adults are _____ if they have a BMI of 30.

Reading Test 13

SECTION 1

You should spend about 20 minutes on Questions 1 -11 which are based on Reading Passage 1

THE SPECTACULAR ERUPTION OF MOUNT ST. HELENS

A. The eruption in May 1980 of Mount St. Helens, Washington State, astounded the world with its violence. A gigantic explosion tore much of the volcano's summit to fragments; the energy released was equal to that of 500 of the nuclear bombs that destroyed Hiroshima in 1945.

B. The event occurred along the boundary of two of the moving plates that make up the Earth's crust. They meet at the junction of the North American continent and the Pacific Ocean. One edge of the continental North American plate overrides the oceanic Juan

de Fuca microplate, producing the volcanic Cascade range that includes Mounts Baker, Rainier and Hood, and Lassen Peak as well as Mount St. Helens.

C. Until Mount St. Helens began to stir, only Mount Baker and Lassen Peak had shown signs of life during the 20th century. According to geological evidence found by the United States Geological Survey, there had been two major eruptions of Mount St. Helens in the recent (geologically speaking) past: around 1900 B. C., and about A.D. 1500. Since the arrival of Europeans in the region, it had experienced a single period of spasmodic activity, between 1831 and 1857. Then, for more than a century, Mount St. Helens lay dormant.

D. By 1979, the Geological Survey alerted by signs of renewed activity, had been monitoring the volcano for 18 months. It warned the local population against being deceived by the mountain's outward calm and forecast that an eruption would take place before the end of the century. The inhabitants of the area did not have to wait that long. On March 27, 1980, a few clouds of smoke formed above the summit, and slight tremors were felt. On the 28th, larger and darker clouds consisting of gas and ashes emerged and climbed as high as 20,000 feet. In April a slight lull ensued, but the volcanologists remained pessimistic. Then, in early May, the northern flank of the mountain bulged, and the summit rose by 500 feet.

E. Steps were taken to evacuate the population. Most - campers, hikers, timber - cutters - left the slopes of the mountain. Eighty-four-year-old Harry Truman, a holiday lodge owner who had lived there for more than 50 years, refused to be evacuated, in spite of official and private urging. Many members of the public, including an entire class of school children, wrote to him. begging him to leave. He never did.

F. On May 18, at 8. 32 in the morning, Mount St. Helens blew its top, literally. Suddenly, it was 1,300 feet shorter than it had been before its growth had begun. Over half a cubic mile of rock had disintegrated. At the same moment, an earthquake with an intensity of 5 on the Richter scale was recorded. It triggered an avalanche of snow and ice, mixed with hot rock - the entire north face of the mountain had fallen away. A wave

of scorching volcanic gas and rock fragments shot horizontally from the volcano's riven flank, at an inescapable 200 miles per hour. As the sliding ice and snow melted, it touched off devastating torrents of mud and debris, which destroyed all life in their path. Pulverized rock climbed as a dust cloud into the atmosphere. Finally, viscous lava, accompanied by burning clouds of ash and gas, welled out of the volcano's new crater, and from lesser vents and cracks in its flanks.

G. Afterwards, scientists were able to analyse the sequence of events. First, magma - molten rock - at temperatures above 2000 °F, had surged into the volcano from the Earth's mantle. The build-up was accompanied by an accumulation of gas, which increased as the mass of magma grew. It was the pressure inside the mountain that made it swell. Next, the rise in gas pressure caused a violent decompression, which ejected the shattered summit like a cork from a shaken soda bottle. With the summit gone, the molten rock within was released in a jet of gas and fragmented magma, and lava welled from the crater.

H. The effects of Mount St. Helens eruption were catastrophic. Almost all the trees of the surrounding forest, mainly Douglas firs, were flattened, and their branches and bark ripped off by the shock wave of the explosion. Ash and mud spread over nearly 200 square miles of country. All the towns and settlements in the area were smothered in an even coating of ash. Volcanic ash sifted up the Columbia River 35 miles away, reducing the depth of its navigable channel from 40 feet to 14 feet, and trapping sea-going ships. The debris that accumulated at the foot of the volcano reached a depth, in places, of 200 feet.

I. The eruption of Mount St. Helens was one of the most closely observed and analysed in history. Because geologists had been expecting the event, they were able to amass vast amounts of technical data when it happened. Study of atmospheric particles formed as a result of the explosion showed that droplets of sulphuric acid, acting as a screen between the Sun and the Earth's surface, caused a distinct drop in temperature. There is no doubt that the activity of Mount St. Helens and other volcanoes since 1980 has influenced our climate. Even so, it has been calculated that the quantity of dust

ejected by Mount St. Helens - a quarter of a cubic mile - was negligible in comparison with that thrown out by earlier eruptions, such that of Mount Katmai in Alaska in 1912 (three cubic miles). The volcano is still active. Lava domes have formed inside the new crater, and have periodically burst. The threat of Mount St. Helens lives on Helens lives on.

Questions 1 -2

Reading Passage 1 has 9 paragraphs labelled A-I. Answer questions 1 and 2 by writing the appropriate letters A-I in boxes 1 and 2 on your answer sheet.

1. Which paragraph describes the evacuation of the mountain?
2. Which paragraph describes the moment of the explosion of Mount St. Helens?

Questions 3 -4

3. What are the dates of the TWO major eruptions of Mount St. Helens before 1980?

Write TWO dates in box 3 on your answer sheet

4. How do scientists know that the volcano exploded around the two dates above? Using NO MORE THAN THREE WORDS. write your answer in box 4 on your answer sheet.

Questions 5 -8

Complete the summary of events below leading up to the eruption of Mount St. Helens.

Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 5 -8 on your answer sheet.

In 1979 the Geological Survey warned ___5___ to expect a violent eruption before the end of the century. The forecast was soon proved accurate. At the end of March, there were tremors and clouds formed above the mountain. This was followed by a lull, but in early May the mountain rose by ___6___. People were ___7___ from around the mountain. Finally, on May 18th at ___8___, Mount St. Helens exploded.

Questions 9 -10

Complete the table below giving evidence for the power of the Mount St. Helens eruption.

Write your answers in boxes 9 and 10 on your answer sheet.

ITEM	EQUIVALENT TO
Example The energy released by the explosion of Mount St. Helens	Answer 500 nuclear bombs
The area of land covered in mud or ash	9 _____
The quantity of dust ejected	10 _____

Question 11

Choose the appropriate letter A-D and write it in box 11 on your answer sheet.

11. According to the text, the eruption of Mount St. Helens and other volcanoes has influenced our climate by _____

- A. increasing the amount of rainfall.
- B. heating the atmosphere.
- C. cooling the air temperature.
- D. causing atmospheric storms.

SECTION 2

You should spend about 20 minutes on Questions 12 -25 which are based on Reading Passage 2.

PEOPLE AND ORGANIZATIONS: THE SELECTION ISSUE

A. In 1991, according to the Department of Trade and Industry, a record 48,000 British companies went out of business. When businesses fail, the post-mortem analysis is traditionally undertaken by accountants and market strategists. Unarguably organizations do fail because of undercapitalization, poor financial management, adverse market conditions etc. Yet, conversely, organizations with sound financial backing, good product ideas and market acumen often underperform and fail to meet shareholders' expectations. The complexity, degree and sustainment of organizational performance requires an explanation which goes beyond the balance sheet and the "paper conversion" of financial inputs into profit-making outputs. A more complete explanation of "what went wrong" necessarily must consider the essence of what an

organization actually is and that one of the financial inputs, the most important and often the most expensive, is people.

B. An organization is only as good as the people it employs. Selecting the right person for the job involves more than identifying the essential or desirable range of skills, educational and professional qualifications necessary to perform the job and then recruiting the candidate who is most likely to possess these skills or at least is perceived to have the ability and predisposition to acquire them. This is a purely person/skills match approach to selection.

C. Work invariably takes place in the presence and/or under the direction of others, in a particular organizational setting. The individual has to "fit" in with the work environment, with other employees, with the organizational climate, style of work, organization and culture of the organization. Different organizations have different cultures (Cartwright & Cooper, 1991;1992). Working as an engineer at British Aerospace will not necessarily be a similar experience to working in the same capacity at GEC or Plessey.

D. Poor selection decisions are expensive. For example, the costs of training a policeman are about £ 20,000 (approx. US \$30,000). The costs of employing an unsuitable technician on an oil rig or in a nuclear plant could, in an emergency, result in millions of pounds of damage or loss of life. The disharmony of a poor person-environment fit (PE-fit) is likely to result in low job satisfaction, lack of organizational commitment and employee stress, which affect organizational outcomes i. e., productivity, high labour turnover and absenteeism, and individual outcomes i.e, physical, psychological and mental well-being.

E. However, despite the importance of the recruitment decision and the range of sophisticated and more objective selection techniques available, including the use of psychometric tests, assessment centres etc. , many organizations are still prepared to make this decision on the basis of a single 30 to 45-minute unstructured interview. Indeed, research has demonstrated that a selection decision is often made within the first four minutes of the interview. In the remaining time, the interviewer then attends

exclusively to information that reinforces the initial accept or "reject" decision. Research into the validity of selection methods has consistently demonstrated that the unstructured interview, where the interviewer asks any questions he or she likes, is a poor predictor of future job performance and fares little better than more controversial methods like graphology and astrology. In times of high unemployment, recruitment becomes a "buyer's market" and this was the case in Britain during the 1980s.

F. The future, we are told, is likely to be different. Detailed surveys of social and economic trends in the European Community show that Europe's population is falling and getting older. The birth rate in the Community is now only threequarters of the level needed to ensure the replacement of the existing population. By the year 2020, it is predicted that more than one in four Europeans will be aged 60 or more and barely one in five will be under 20. In a five-year period between 1983 and 1988, the Community's female workforce grew by almost six million. As a result, 51 % of all women aged 14 to 64 are now economically active in the labour market compared with 78% of men.

G. The changing demographics will not only affect selection ratios. They will also make it increasingly important for organizations wishing to maintain their competitive edge to be more responsive and accommodating to the changing needs of their workforce if they are to retain and develop their human resources. More flexible working hours, the opportunity to work from home or job share, the provision of childcare facilities etc. , will play a major role in attracting and retaining staff in the future.

Questions 12 -16

Reading Passage 2 has seven paragraphs A-G.

Choose the most suitable headings for paragraphs B-E and G from the list of headings below.

Write the appropriate numbers (i-x) in boxes 12 -16 on your answer sheet.

NB There are more headings than paragraphs so you will not use all of them. You may use any of the headings more than once.

List of Headings

- i The effect of changing demographics on organizations.
- ii Future changes in the European workforce.

- iii The unstructured interview and its validity.
- iv The person-skills match approach to selection.
- v The implications of a poor person-environment fit.
- vi Some poor selection decisions.
- Vii The validity of selection procedures.
- viii The person-environment fit.
- ix Past and future demographic changes in Europe.
- x Adequate and inadequate explanations of organizational failure.

- 12. Paragraph B
- 13. Paragraph C
- 14. Paragraph D
- 15. Paragraph E
- 16. Paragraph G

Questions 17 —22

Do the following statements agree with the views of the writer in Reading Passage 2?
In boxes 17 —22 on your answer sheet write

YES, if the statement agrees with the writer

NO, if the statement does not agree with the writer

NOT GIVEN, if there is no information about this in the passage

- 17. Organizations should recognize that their employees are a significant part of their financial assets.
- 18. Open-structured 45 minute interviews are the best method to identify suitable employees.
- 19. The rise in the female workforce in the European Community is a positive trend.
- 20. Graphology is a good predictor of future job performance.
- 21. In the future, the number of people in employable age groups will decline.
- 22. In 2020, the percentage of the population under 20 will be smaller than now.

Questions 23 -25

Complete the notes below with words taken from Reading Passage 2. Use **NO MORE THAN ONE** or **TWO WORDS** for each answer. Write your answers in boxes 23 —25 on your answer sheet.

Poor person-environment fit	
7. Low job satisfaction 8. Lack of organizational commitment 9. Employee stress ↓	
23	24
a. low production rates b. high rates of staff change c. 25	a. Poor health b. poor psychological health c. poor mental health

SECTION 3

You should spend about 20 minutes on Questions 26 —38 which are based on Reading Passage 3.

THE ROLL-FILM REVOLUTION

A. The introduction of the dry plate process brought with it many advantages. Not only was it much more convenient, so that the photographer no longer needed to prepare his material in advance, but it's much greater sensitivity made possible a new generation of cameras. Instantaneous exposures had been possible before, but only with some difficulty and with special equipment and conditions. Now, exposures short enough to permit the camera to be held in the hand were easily achieved. As well as fitting shutters and viewfinders to their conventional stand cameras, manufacturers began to construct smaller cameras intended specifically for hand use.

B. One of the first designs to be published was Thomas Bolas' s 'Detective' camera of 1881. Externally a plain box, quite unlike the folding bellows camera typical of the period, it could be used unobtrusively. The name caught on, and for the next decade or so almost all hand cameras were called 'Detectives'. Many of the new designs in the 1880s were for magazine cameras, in which a number of dry plates could be pre-loaded and changed one after another following exposure. Although much more convenient than stand cameras, still used by most serious workers, magazine plate cameras were heavy, and required access to a darkroom for loading and processing

the plates. This was all changed by a young American bank clerk turned photographic manufacturer, George Eastman, from Rochester. New York.

C. Eastman had begun to manufacture gelatine dry plates in 1880, being one of the first to do so in America. He soon looked for ways of simplifying photography, believing that many people were put off by the complication and messiness. His first step was to develop, with the camera manufacturer William H. Walker, a holder for a long roll of paper negative 'film'. This could be fitted to a standard plate camera and up to forty-eight exposures made before reloading. The combined weight of the paper roll and the holder was far less than the same number of glass plates in their light-tight wooden holders. Although roll-holders had been made as early as the 1850s, none had been very successful because of the limitations of the photographic materials then available. Eastman's rollable materials then available. Eastman's rollable paper film was sensitive and gave negatives of good quality; the Eastman — Walker roll-holder was a great success.

D. The next step was to combine the roll-holder with a small hand camera: Eastman's first design was patented with an employer. F. M. Cossitt, in 1886. It was not a success. Only fifty Eastman detective cameras were made, and they were sold as a lot to a dealer in 1887; the cost was too high and the design too complicated. Eastman set about developing a new model, which was launched in June 1888. It was a small box, containing a roll of Paper-based stripping box, containing a roll of Paper-based stripping film sufficient for 100 circular exposures 6 cm in diameter. Its operation was simple; set the shutter by pulling a wire string; aim the camera using the V line impression in the camera top; press the release button to activate the exposure, and turn a special key to wind on the film. A hundred exposures had to be made, so it was important to record each picture in the memorandum book provided since there was no exposure counter. Eastman gave his camera the invented name 'Kodak' — which was easily pronounceable in most languages and had two Ks which Eastman felt was a firm, uncompromising kind of letter.

E. The importance of Eastman's new roll-film camera was not that it was the first. There had been several earlier cameras, notably the Stirn 'America', first demonstrated in the spring of 1887 and on sale from early 1888. This also used a roll of negative paper and had such refinements as a reflecting viewfinder and an ingenious exposure marker. The real significance of the first Kodak camera was that it was backed up by a developing and printing service. Hitherto, virtually all photographers developed and printed their own pictures. This required the facilities of a darkroom and the time and inclination to handle the necessary time and inclination to handle the necessary chemicals, make the prints and so on. Eastman recognized that not everyone had the resources or the desire to do this. When a customer had made a hundred exposures in the Kodak camera, he sent it to Eastman's factory in Rochester (or later in Harrow in England) where the film was unloaded, processed and printed, the camera reloaded and returned to the owner.

F. "You Press the Button, We Do the Rest" ran Eastman's classic marketing slogan; photography had been brought to everyone. Everyone, that is, who could afford \$25 or five guineas for the camera and \$10 or two guineas for the developing and printing. A guinea (\$5) was a week's wages for many at the time, so this simple camera cost the equivalent of hundreds of dollars today. In 1889 an improved model with a new shutter design was introduced, and it was called the No. 2 Kodak camera. The paper-based stripping film was complicated to manipulate since the processed negative image had to be stripped from the paper base for printing. At the end of 1889 Eastman launched a new roll film on a celluloid base.

G. Clear, tough, transparent and flexible, the new Clear, tough, transparent and flexible, the new film not only made the roll film camera fully practical but provided the raw material for the introduction of cinematography a few years later. Other, larger models were introduced, including several folding versions, one of which took pictures 21.6 cm x 16.5 cm in size. Other manufacturers in America and Europe introduced cameras to take the Kodak roll-films, and other firms began to offer developing and printing services for the benefit of the new breed of photographers. By September 1889, over 5,000 Kodak cameras had been sold in the USA, and the company was

daily printing 6 -7,000 negatives. Holidays and special events created enormous surges in demand for processing: 900 Kodak users returned their cameras for Kodak users returned their cameras for processing and reloading in the week after the New York centennial celebration.

Questions 26 -29

Do the following statements agree with the views of the writer in Reading Passage 3? In boxes 26 -29 on your answer sheet write,

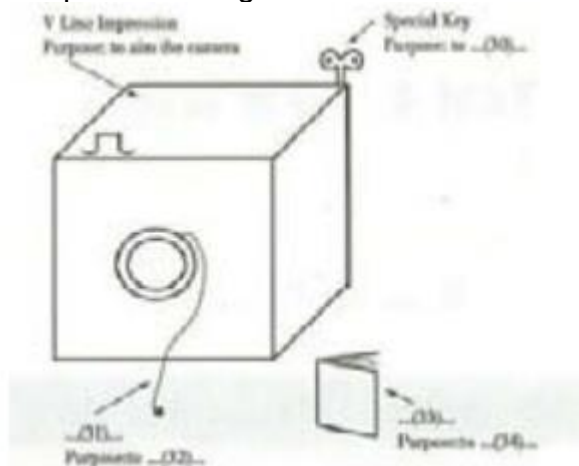
- YES, if the statement agrees with the writer
- NO, if the statement does not agree with the writer
- NOT GIVEN, if there is no information about this in the passage

- 26. Before the dry plate process, short exposures could only be achieved with cameras held in the hand.
- 27. Stirn's 'America' camera lacked Kodak's developing service.
- 28. The first Kodak film cost the equivalent of a week's wages to develop.
- 29. Some of Eastman's 1891 range of cameras could be loaded in daylight.

Questions 30-34

Choose **NO MORE THAN THREE WORDS** from the passage for each answer. Write your answers in boxes 30 -34 on your answer sheet.

Complete the diagram below.



Questions 35 —38

Choose **NO MORE THAN THREE WORDS** from the passage for each answer. Write your answers in boxes 35 -38 on your answer sheet.

Complete the table below.

YEAR	DEVELOPMENTS	NAME OF PERSON / PEOPLE
1880	Manufacture of gelatine dry plates	_____35_____
1881	Release of 'Detective' camera	Thomas Bolas
_____36_____	The roll-holder combined with _____37_____	Eastman and F. M. Cossitt
1889	Introduction of model with _____38_____	Eastman

READING TEST 14

SECTION 1

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

Aswan High Dam

A. Just north of the border between Egypt and Sudan lies the Aswan High Dam, a huge rockfill dam which captures the world's longest river, the Nile, in one of the world's third-largest reservoirs, Lake Nasser. The dam, known as Saad el Aali in Arabic, was completed in 1970 after 18 years of work. Egypt has always depended on the water of the Nile River. The two main tributaries of the Nile River are the White Nile and the Blue Nile. Lake Victoria is the source of the r White Nile and the Blue Nile begins in the Ethiopian Highlands. The two tributaries converge in Khartoum, the capital of Sudan where they form the Nile River. The Nile River has a total length of 4,160 miles (6,695 kilometres) from source to the Mediterranean Sea.

B. Before the building of a dam at Aswan, Egypt experienced annual floods from the Nile River which deposited 4 million tons of nutrient-rich sediment which enabled agricultural production. This process began millions of years valley and continued until the first darn at Aswan was built in 1889. This dam was insufficient to hold back the

water of the Nile and was subsequently raised in 1912 and 1933. In 1946, the true danger was revealed when the water in the reservoir peaked near the top of the dam.

C. In 1952, the interim Revolutionary Council government of Egypt decided to build a High Dam at Aswan, about four miles upstream of the old dam. In 1954, Egypt requested loans from the World Bank to help pay for the cost of the dam (which eventually added up to US \$1 a billion). Initially, the United States agreed to loan Egypt money but then withdrew their offer for unknown reasons. Some speculate that it may have been due to Egyptian and Israeli conflict. The United Kingdom, France, and Israel had invaded Egypt in 1956, soon after Egypt nationalized the Suez Canal to help pay for the dam. The former Soviet Union offered to help and Egypt accepted. The support was not unconditional, however. Along with the money, they also sent military advisers and other workers to help enhance Egyptian-Soviet ties and relations.

D. In order to build the dam, both people and artefacts had to be moved. Over 90,000 Nubians had to be relocated. Those who had been living in Egypt were moved about 28 miles (45 km) away but the Sudanese Nubians were relocated 370 miles (600 km) from their homes. The government was also forced to develop one of the largest Abu Simel temples and dig for artefacts before the future lake would drown the land of the Nubians. After years of construction (the material in the dam is the equivalent to 17 of the great pyramids at Giza), the resulting reservoir was named for the former president of Egypt, Gamal Abdel Nasser, who died in 1970. The lake holds 137 million acre-feet of water (169 billion cubic metres). About 17percent of the lake is in Sudan and the two countries have an agreement for distribution of the water.

E. The dam benefits Egypt by controlling the annual floods on the Nile River and prevents the damage which used to occur along the floodplain. The Aswan High Dam provides about half of Egypt's power supply and has improved navigation along the river by keeping the water flow consistent. There are several problems associated with the dam as well. Seepage and evaporation accounts for a loss of about 12%-14% of the annual input into the reservoir. The sediments of the Nile River, as with all river and dam systems, has been filling the reservoir and thus decreasing its storage capacity. This has also resulted in problems downstream.

F. Farmers have been forced to use about a million tons of artificial fertilizer as a substitute for the nutrients which no longer fill the flood plain. Further downstream, the Nile delta is having problems due to the lack of sediment as well since there is no additional agglomeration of sediment to keep erosion of the delta at bay so it slowly shrinks. Even the shrimp caught in the Mediterranean Sea has decreased due to the change in water flow. Poor drainage of the newly irrigated lands has led to saturation and increased salinity. Over one half of Egypt's farmland is now rated medium to poor soils.

G. The parasitic disease schistosomiasis has been associated with the stagnant water of the fields and the reservoir. Some studies indicate that the number of individuals affected has increased since the opening of the Aswan High Dam. The Nile River and now the Aswan High Dam is Egypt's lifeline. About 95% of Egypt's population lives within twelve miles from the river. Were it not for the river and its sediment, the grand civilization of ancient Egypt probably would have never existed.

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:

YES, if the statement agrees with the writer

NO, if the statement contradicts the writer

NOT GIVEN, if there is no information about this in the passage.

1. The Nile River runs from Khartoum to the Mediterranean Sea.
2. The annual floods devastate agricultural production.
3. The Aswan Dam was rebuilt twice.
4. The former Soviet Union helped Egypt during the 1956 war.

Questions 5 -8

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

Complete the table below.

<u>Number</u>	<u>Name</u>
28 miles	___7___
Length in miles ___5___	Nile River
Relocated in miles ___6___	Sudanese Nubians
17	___8___

Questions 9 -13

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

Complete the summary below.

Benefits of the dam include less flooding and providing about 50% of ___9___. But there are many problems such as water leakage and ___10___. The Nile River has been filling up with ___11___ and so reducing its ___12___. The Nile delta is slowly disappearing because of the lack of ___13___ of sediments.

SECTION 2

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

KOALA

A. Many people love the cute koala bear. This animal has been made into stuffed toys all over the world. But it is rare to see this creature alive and moving because it's gradually becoming extinct. The koala, like the kangaroo, is actually a marsupial. It contains a small pouch for its young. For this reason, the koala is not related to true bears. In appearance, it is a combination of a monkey and a kangaroo. Koalas are native of a monkey and a kangaroo. Koalas are native to Australia, although they are now chiefly found in New South Wales and Queensland. The koala has been hunted since the middle of the 20th century for fur and food. Today, anyone fund harming a koala is severely punished by law.

B. Koalas get their endearing appearance from a covering of grey fur and little tufts of white hair on the sides of their faces. Their eyes are small and black, set in their head. They have large ears and curved noses, but no tail. They use their arms and paws to

climb through the trees. Koalas have interesting living habits. They are nocturnal, which means that they move around chiefly at night. Koalas do not stay on the ground. They move from tree to tree, carefully lowering and raising themselves by their paws. Koalas have a surprisingly long life span, which can range from 9 to 20 years, in rare cases.

C. The Koala is the only mammal, other than the Greater Glider and Ringtail Possum, which can survive on a diet of eucalyptus leaves. Eucalyptus leaves are very fibrous and low in nutrition, and to most animals are extremely poisonous. To cope with such a diet, nature has equipped koalas with specialised adaptations. A very slow metabolic rate allows koalas to retain food within their digestive system for a relatively long period of time, maximising the amount of energy able to be extracted. At the same time, this slow metabolic rate minimises energy requirements. Koalas also sleep somewhere between 18 and 22 hours each day in order to conserve energy. Koalas eat only the leaves of the eucalyptus, which is another reason that they are now becoming extinct. The eucalyptus tree is disappearing from their natural habitats, fighting a battle against extinction all its own.

D. The koala's worst enemy, besides hunters, is fire. When a tree is inflamed, often they cannot run fast enough to save themselves. Baby koalas are in danger around certain kinds of lizards and eagles, although they are protected today by natural habitats set up for them. It is interesting to note that many koalas die from being hit by cars, and some are even attacked by dogs! Their main form of defence is climbing, but they sometimes try to use their paws. Koalas raise their young in a special way. A cub is usually about one inch at birth, where it lays in the mother's pouch. It will stay in the pouch for a little over half a year, during which time the mother carries and feeds the baby. At seven weeks, a tiny koala has a head larger than its body, of about 26 millimetres. By 22 weeks, the baby begins to turn in the pouch and kick, occasionally looking out into the natural world. By 24 weeks, the cub is fully covered with fur and brain development is complete.

E. Teeth are fully formed. At thirty weeks, the cubs climb in and out of the pouch, clinging to the mother's belly in agreeable weather. From 37 weeks onward, the baby is

independent of the mother, although it will rarely move more than a metre away from her in its first few weeks. Baby koalas are strongly protected by their mothers, and the familial bond is very strong in the koala world. One can tell if a baby is separated from its mother by tiny squeaks of panic. Because koala bears are so cute and rare, they are often found in zoos, where their natural environment can be maintained. Although they only wake at night, sometimes it is possible to see them moving around at twilight and early morning. During the day, they mainly sleep in trees, but they are fun to watch, nonetheless. Koalas are in grave danger because of three main threats. Their source of food is depleting, because the eucalyptus is susceptible to loggers, pharmacists and changing weather. The koala's body chemistry is also delicate, and it is extremely susceptible to diseases and bacteria not native to its environment.

F. Finally, a certain strain of venereal disease is killing off many Australian koalas, causing deformity at birth and short life spans. The largest force to contribute to koala extinction has been hunting. Koala furs are luxurious and warm, and at one point they were in demand all over the world. In 1924, at least 2.1 million skins were exported from Australia alone! Forest clearance has also depleted the numbers of the koala, and forest fires killed off thousands, especially in the years between 1950 and 1970. Now their greatest enemy is chlamydia, a disease that can also be found in humans. This disease is transmitted by sexual contact, and it has killed over three thousand koalas in the last year. The war to save koalas has been effective. Their numbers have increased slightly, and actions have been taken to curb contact that will spread venereal deformity. In the next few years, their numbers may rise again, bringing them safely out of the danger zone.

Questions 14 —17

Choose the appropriate letters A — D and write them in boxes 14 —17 on your answer sheet.

14. Animals that have a small pouch included.

- A. koalas and bears.
- B. kangaroos and bears.
- C. monkeys and kangaroos.
- D. kangaroos and koalas.

15. Koalas are often seen actively

- A. climbing trees.
- B. on the ground.
- C. during the day.
- D. at night.

16. Eucalyptus leaves are

- A. extremely poisonous to all mammals.
- B. only eaten by koalas.
- C. getting rarer and rarer.
- D. low in fibre.

17. Koalas can only stay awake for

- A. 18 hours a day.
- B. between 18 and 22 hours a week.
- C. between 2 and 6 hours a week.
- D. between 2 and 6 hours a day.

Questions 18 — 22

Do the following statements agree with the information given in Reading Passage 2? In boxes 18 — 22 on your answer sheet write:

YES, if the statement agrees with the writer

NO, if the statement contradicts the writer

NOT GIVEN, if there is no information about this in the passage this in the passage.

18. Koalas two main foes are fire and cars.

19. After a koala's brain is fully developed it emerges outside its pouch.

20. Koalas were hunted only because their furs are luxurious and warm.

21. To save koala people have to save the eucalyptus.

22. After nine months a baby koala does not need its mother.

Questions 23 — 26

Complete the sentence below (Questions 23 — 26) with the word taken from Reading Passage 2. Use NO MORE THAN THREE WORDS for each answer. Write the answers in boxes 23 — 26 on your answer sheet.

23. It is amusing to watch koalas _____.

24. People who cut down eucalyptus trees are a _____ to koalas.

25. Foreign _____ in its environment are a great problem for koalas.

26. Hunting and forest fires kill off many koalas but now their number one threat is _____.

SECTION 3

You should spend about 20 minutes on Questions 27 — 40 which are based on Reading Passage 3 below:

Economizing of the Poor

A. Walking down the aisles of a supermarket, low-income shoppers must consider a number of factors including quantity, price, quality and nutritional differences when selecting food products. Food-purchase decisions by the poor often entail trade-offs among taste, preference and quality factors — either real or perceived — to meet spending constraints. Within broad product categories such as cereal, cheese, meat and poultry, and fruits and vegetables, shoppers can choose among many substitutable products. Low-income shoppers can stretch their food dollars in a number of ways. They may shop in discount food stores; they may purchase and consume less food than higher-income shoppers; they may purchase low-priced (and possibly lower quality) food products, or they may rely on some combination of all three. A better understanding of how the poor economize in food spending addresses important policy questions raised by researchers, nutrition educators, and food assistance program managers.

B. Whether the poor face significantly different food prices due to where they shop for food remains an unresolved empirical question. Extensive research over the years has tried to answer the question — Do the poor pay less for food? The Economic Research Service (ERS) in 1997 reviewed the results of studies comparing price differences in grocery stores across different income levels and combined these with current census data on the distribution of low-income households by urbanization type. The ERS study concluded that, in general, the poor face higher prices due to their greater representation in urban and rural areas (as opposed to suburban areas), where food prices tend to be higher.

C. Based on results from household surveys, ERS also found that despite facing higher prices, low-income shoppers spend less than higher-income shoppers for food

purchased in food stores. Due to their level of aggregation and lack of in-store sales and promotion information, such surveys shed little light on the economizing practices of households. To learn more about how low-income shoppers spend less on food despite facing higher prices, we obtained food-store purchase data that incorporate per-capita quantity and expenditure-measure equivalents (household measures adjusted for household size) across income levels.

D. The resulting comparisons describe how individuals with different levels of income vary in their food-spending patterns. By using actual transaction data, detailed information about the product purchased (for example, price, product description, package size, and brand name) as well as the condition of purchase (promotion, coupon, or sale item) was obtained. From there, the average unit cost (per ounce, per pound) for each item was calculated. Low-income shoppers may use four primary economizing practices to reduce their food spending. First, they may purchase a greater proportion of discounted products. Second, they may purchase more private-label products (generic or store brand) versus brand products than higher-income shoppers buy. Third, they may take advantage of volume discounts by purchasing larger package sizes. Fourth, they may purchase a less expensive food product within a product class. Although quality differences such as freshness, convenience and taste often contribute to prices differences; differences in nutritional quality also are evident.

E. The use of promotions is measured by comparing the percentage of expenditures and quantities of each product purchased on promotion (manufacturers' coupons, store coupons, store sales, and other promotions). For random-weight cheese, fruit, vegetables and meat in 1998, low-income households (less than \$25,000 per year) spent a greater share of expenditures for products on promotion than other households. (This also is true for quantities purchased on promotion.) For poultry, however, middle-income households spent about the same percentage on promotion as low-income households (36% versus 35%, respectively). For both groups, spending on promoting items was at least five percentage points more than spending by the high-income group.

F. Among fixed-weight products, promotion spending patterns differed. Low-income shoppers purchased the lowest share of total ready-to-eat (RTE) cereal on promotion, This result may be explained by other economizing practices in this product category — such as purchasing a larger percentage of private-label products, which are on promotion less often but have lower non-sale prices than the brand-name alternatives. Low-income households spent 11.5% of their RTE cereal expenditures on private-label cereals, while the higher-income households spent lower shares, with those shares decreasing with increasing income levels. A similar pattern is found for the quantities of private-label RTE cereal purchased.

G. Choice of package size also enables those in low-income households to economize by purchasing larger packages, which often have lower per-unit prices than smaller packages. However, data on expenditure shares for RTE cereal and packaged cheese show that low-income households' purchases of large packages of RTE cereal were less than such purchases by other households in 1998. In 1998, households earning \$50,000 or more spent 23.1% of cereal purchases on large packages, compared with 15.8% by the low-income group. A similar pattern was found for fixed-weight cheese products.

H. In fact, low-income households had the lowest proportion of large-package purchase of all income groups. This behaviour has three possible explanations: low-income shoppers do not have access to stores that sell large packages; they cannot afford to "stock up" on staple products, and they perceive that the cost of storing large packages is higher than the savings from the volume discount. A combination of these constraints likely accounts for much of the observed difference in package size quantities purchased and expenditures on those packages by the different income groups.

I. Low-income shoppers may also be economizing by purchasing a less costly combination of fruit and vegetable product types. On average, low-income households paid 11.5% less per pound for vegetables than high-income households, and 9.6% less per pound for fruit. This price measurement is a function of the quality and expenditures that each household type devotes to fruits and vegetables. Overall, low-income households purchased 3.3% less fruits and vegetables (by weight) per person than

high-income households, but they paid 13% less. This implies that these households are choosing less expensive fruits and vegetables.

Questions 27— 31

Choose the most suitable headings for paragraphs A— E from the list of headings below. Write appropriate numbers (i — x) in boxes 27 — 31 on your answer sheet. NB There are more headings than paragraphs, so you will not use them all.

List of Headings:

- i. Information asymmetry of low-income shoppers.
- ii. Promotion usage models.
- iii. More spending on promotional random weight items.
- iv. Various food-spending patterns.
- v. Higher prices but less spending.
- vi. Comprehending economizing of the poor.
- vii. An unresolved empirical question.
- viii. The correlation between the location and price.
- ix. The main economizing practices.
- x. Spending constraints the poor must consider.

27. Paragraph A
28. Paragraph B
29. Paragraph C
30. Paragraph D
31. Paragraph E

Questions 32 — 36

Do the following statements agree with the information given in Reading Passage 2? In boxes 32 — 36 on your answer sheet write

- YES, if the statement agrees with the writer
NO, if the statement contradicts the writer
NOT GIVEN, if there is no information about this in the passage.

32. The surveys of ERS help low-income households develop economizing practices.
33. The nutritional quality of food product varies in accordance with price differences.
34. Promotions are usually used to attract low-income shoppers.
35. Brand-name products are promoted more frequently.
36. Middle-income households purchased less private-label RTE cereal than low-income households.

Questions 37 — 40

Choose your answers from the list below the summary. NB There are more words than spaces, so you will not use them all.
Complete the summary below.

Large-package purchase can benefit low-income households in theory, but it seldom works in reality. There are three possible explanations for this discrepancy: ___37___, ___38___, and ___39___ constraints. Also, low-income shoppers may gain ___40___ on fruit and vegetable products.

List of Words:

measurement, budget, privilege, staple, volume, savings, quality, transportation, type, storage.

Reading Test 15

SECTION 1

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

Ants Could Teach Ants

A The ants are tiny and usually nest between rocks in the south coast of England. Transformed into research subjects at the University of Bristol, they raced along a tabletop foraging for food - and then, remarkably, returned to guide others. Time and again, followers trailed behind leaders, darting this way and that along the route, presumably to memorise landmarks. Once a follower got its bearings, it tapped the leader with its antennae, prompting the lesson to literally proceed to the next step. The ants were only looking for food, but the researchers said the careful way the leaders led followers, thereby turning them into leaders in their own right, marked the *Temnothorax alpeius* ant as the very first example of a non-human animal exhibiting teaching behaviour.

B "Tandem running is an example of teaching, to our knowledge the first in a non-human animal, that involves bidirectional feedback between teacher and pupil" remarks Nigel Franks, professor of animal behaviour and ecology, whose paper on the ant educators was published last week in the journal *Nature*.

C No sooner was the paper published, of course, than another educator questioned it.

Marc Hauser, a psychologist and biologist and one of the scientists who came up with the definition of teaching, said it was unclear whether the ants had learned a new skill or merely acquired new information.

D Later, Franks took a further study and found that there were even races between leaders. With the guidance of leaders, ants could find food faster. But the help comes at

a cost for the leader, who normally would have reached the food about four times faster if not hampered by a follower. This means the hypothesis that the leaders deliberately slowed down in order to pass the skills on to the followers seems potentially valid. His ideas were advocated by the students who carried out the video project with him.

E Opposing views still arose, however. Hauser noted that mere communication of information is commonplace in the animal world. Consider a species, for example, that uses alarm calls to warn fellow members about the presence. Sounding the alarm can be costly, because the animal may draw the attention of the predator to itself. But it allows others flee to safety. “Would you call this teaching?” wrote Hauser. “The caller incurs a cost. The naive animals gain a benefit and new knowledge that better enables them to learn about the predator’s location than if the caller had not called. This happens throughout the animal kingdom, but we don’t call it teaching, even though it is clearly transfer of information.”

F Tim Caro, a zoologist, presented two cases of animal communication. He found that cheetah mothers that take their cubs along on hunts gradually allow their cubs to do more of the hunting —going, for example, from killing a gazelle and allowing young cubs to eat merely tripping the gazelle and letting the cubs finish it off. At one level, such behaviour might be called teaching — except the mother was not really teaching the cubs to hunt but merely facilitating various stages of learning. In another instance, birds watching other birds using a stick to locate food such as insects and so on, are observed to do the same thing themselves while finding food later.

G Psychologists study animal behaviour in part to understand the evolutionary roots of human behaviour, Hauser said. The challenge in understanding whether other animals truly teach one another, he added, is that human teaching involves a “theory of mind” teachers are aware that students don’t know something. He questioned whether Franks’ leader ants really knew that the follower ants were ignorant. Could they simply have been following an instinctive rule to proceed when the followers tapped them on the legs or abdomen? And did leaders that led the way to food — only to find that it had been removed by the experimenter - incur the wrath of followers? That, Hauser said, would suggest that the follower ant actually knew the leader was more

knowledgeable and not merely following an instinctive routine itself.

H The controversy went on, and for a good reason. The occurrence of teaching in ants, if proven to be true, indicates that teaching can evolve in animals with tiny brains. It is probably the value of information in social animals that determines when teaching will evolve, rather than the constraints of brain size.

I Bennett Galef Jr., a psychologist who studies animal behaviour and social learning at McMaster University in Canada, maintained that ants were unlikely to have a "theory of mind" — meaning that leaders and followers may well have been following instinctive routines that were not based on an understanding of what was happening in another ant's brain. He warned that scientists may be barking up the wrong tree when they look not only for examples of humanlike behaviour among other animals but humanlike thinking that underlies such behaviour. Animals may behave in ways similar to humans without a similar cognitive system, he said, so the behaviour is not necessarily a good guide into how humans came to think the way they do.

Questions 1-5

Look at the following statements (Questions 1-5) and the list of people in the box below. Match each statement with the correct person, A, B C or D.

Write the correct letter, A, B, C or D, in boxes 1-5 on your answer sheet NB You may use any letter more than once.

1. Animals could use objects to locate food.
2. Ants show two-way, interactive teaching behaviours.
3. It is risky to say ants can teach other ants like human beings do,
4. Ant leadership makes finding food faster.

5. Communication between ants is not entirely teaching.

List of people

- A Nigel Granks
- B Marc Hauser
- C Tim Caro
- D Bennet Galef Jr

Questions 6-9

Choose FOUR letters, A-H.

Write your answers in boxes 6-9 on your answer sheet.

Which FOUR of the following behaviours of animals are mentioned in the passage?

- A. touch each other with antenna
- B. alert others when there is danger
- C. escape from predators
- D. protect the young
- E. hunt food for the young
- F. fight with each other
- G. use tools like twigs
- H. feed on a variety of foods

Questions 10-13

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

In boxes 10-13 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

10. Ants' tandem running involves only one-way communication.

11. Franks's theory got many supporters immediately after publicity.
12. Ants' teaching behaviour is the same as that of human.
13. Cheetah share hunting gains to younger ones

SECTION 2

Wealth in a cold climate

A Dr William Masters was reading a book about mosquitoes when inspiration struck. "There was this anecdote about the great yellow fever epidemic that hit Philadelphia in 1793," Masters recalls. "This epidemic decimated the city until the first frost came." The inclement weather froze out the insects, allowing Philadelphia to recover

B If weather could be the key to a city's fortunes, Masters thought, then why not to the historical fortunes of nations? And could frost lie at the heart of one of the most enduring economic mysteries of all — why are almost all the wealthy, industrialised nations to be found at latitudes above 40 degrees? After two years of research, he thinks that he has found a piece of the puzzle. Masters, an agricultural economist from Purdue University in Indiana, and Margaret McMillan at Tufts University, Boston, show that annual frosts are among the factors that distinguish rich nations from poor ones. Their study is published this month in the Journal of Economic Growth. The pair speculates that cold snaps have two main benefits — they freeze pests that would otherwise destroy crops, and also freeze organisms, such as mosquitoes, that carry disease. The result is agricultural abundance a big workforce

C The academics took two sets of information. The first was average income for countries, the second climate data from the University of East Anglia. They found a curious tally between the sets. Countries having five or more frosty days a month are uniformly rich; those with fewer than five are impoverished. The authors speculate that the five-day figure is important; it could be the minimum time needed to kill pests in the soil. Masters says: "For example, Finland is a small country that is growing quickly, but Bolivia is a small country that isn't growing at all. Perhaps climate has something to do with that." In fact, limited frosts bring huge benefits to farmers. The chills kill insects or render them inactive; cold weather slows the break-up of plant and animal material in

the soil, allowing it to become richer; and frosts ensure a build-up of moisture in the ground for spring, reducing dependence on seasonal rains. There are exceptions to the "cold equals rich" argument. There are well-heeled tropical countries such as Hong Kong and Singapore (both city-states, Masters notes), a result of their superior trading positions. Likewise, not all European countries are moneyed — in the former communist colonies, economic potential was crushed by politics.

D Masters stresses that climate will never be the overriding factor —the wealth of nations is too complicated to be attributable to just one factor. Climate, he feels, somehow combines with other factors — such as the presence of institutions, including governments, and access to trading routes — to determine whether a country will do well. Traditionally, Masters says, economists thought that institutions had the biggest effect on the economy, because they brought order to a country in the form of, for example, laws and property rights. With order, so the thinking went, came affluence. "But there are some problems that even countries with institutions have not been able to get around," he says. "My feeling is that, as countries get richer, they get better institutions. And the accumulation of wealth and improvement in governing institutions are both helped by a favourable environment, including climate.

E This does not mean, he insists, that tropical countries are beyond economic help and destined to remain penniless. Instead, richer countries should change the way in which foreign aid is given. Instead of aid being geared towards improving governance, it should be spent on technology to improve agriculture and to combat disease. Masters cites one example: "There are regions in India that have been provided with irrigation — agricultural productivity has gone up and there has been an improvement in health." Supplying vaccines against tropical diseases and developing crop varieties that can grow in the tropics would break the poverty cycle.

F Other minds have applied themselves to the split between poor and rich nations, citing anthropological, climatic and zoological reasons for why temperate nations are the most affluent. In 350BC, Aristotle observed that "those who live in a cold climate . . . are full of spirit". Jared Diamond, from the University of California at Los Angeles, pointed out in his book *Guns, Germs and Steel* that Eurasia is broadly aligned east-

west, while Africa and the Americas are aligned north-south. So, in Europe, crops can spread quickly across latitudes because climates are similar. One of the first domesticated crops, einkorn wheat, spread quickly from the Middle East into Europe; it took twice as long for corn to spread from Mexico to what is now the eastern United States. This easy movement along similar latitudes in Eurasia would also have meant a faster dissemination of other technologies such as the wheel and writing, Diamond speculates. The region also boasted domesticated livestock, which could provide meat, wool and motive power in the fields. Blessed with such natural advantages, Eurasia was bound to take off economically.

G John Gallup and Jeffrey Sachs, two US economists, have also pointed out striking correlations between the geographical location of countries and their wealth. They note that tropical countries between 23.45 degrees north and south of the equator are nearly all poor. In an article for the Harvard International Review, they concluded that "development surely seems to favour the temperate-zone economies, especially those in the northern hemisphere, and those that have managed to avoid both socialism and the ravages of war". But Masters cautions against geographical determinism, the idea that tropical countries are beyond hope: "Human health and agriculture can be made better through scientific and technological research," he says, "so we shouldn't be writing off these countries. Take Singapore: without air conditioning, it wouldn't be rich."

Questions 14-20

The reading passage has seven paragraphs, A-G
Choose the correct heading for paragraphs A-G from the list below.
Write the correct number, i-x, in boxes 14-20 on your answer sheet.

List of Headings

- i. The positive correlation between climate and wealth
- ii. Other factors besides climate that influence wealth
- iii. Inspiration from reading a book
- iv. Other researchers' results do not rule out exceptional cases
- v. different attributes between Eurasia and Africa
- vi. Low temperature benefits people and crops
- vii. The importance of institution in traditional views.

- viii. The spread of crops in Europe, Asia and other places
- ix. The best way to use aid
- x. Confusions and exceptional

- 14. Paragraph A
- 15. Paragraph B
- 16. Paragraph C
- 17. Paragraph D
- 18. Paragraph E
- 19. Paragraph F
- 20. Paragraph G

Questions 21-26

Complete the following summary of the paragraphs of Reading Passage, using no more than two words from the Reading Passage for each answer. Write your answers in boxes 21-26 on your answer sheet.

Dr William Master read a book saying that a(an) 21 which struck an American city of years ago was terminated by a cold frost. And academics found that there is a connection between climate and country's weathy as in the rich but small country of 22.....; Yet besides excellent surroundings and climate, one country still need to improve both their 23..... to achieve long prosperity,

Thanks to resembling weather condition across latitude in the continent of 24..... 'crops such as 25 is bound to spread faster than from South America to the North. Other researchers also noted that even though geographical factors are important, tropical country such as 26 still became rich due to scientific advancement.

SECTION 3

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

Compliance or Noncompliance for children

A Many Scientists believe that socialization takes a long process, while compliance is the outset of it. Accordingly, compliance for education of children is the priority. Motivationally distinct forms of child compliance, mutually positive affect, and maternal control, observed in 3 control contexts in 103 dyads of mothers and their 26-41-month-old children, were examined as correlates of internalization, assessed using observations of children while alone with prohibited temptations and maternal ratings. One form of compliance (committed compliance), when the child appeared committed wholeheartedly to the maternal agenda and eager to endorse and accept it, was emphasized. Mother-child mutually positive affect was both a predictor and a concomitant of committed compliance. Children who shared positive affect with their mothers showed a high level of committed compliance and were also more internalized. Differences and similarities between children's compliance to requests and prohibitions ("Do " vs. "Don't" demand contexts) were also explored. Maternal "Dos" appeared more challenging to toddlers than the "Don'ts." Some individual coherence of behavior was also found across both demand contexts. The implications of committed compliance for emerging internalized regulators of conduct are discussed.

B A number of parents were not easy to be aware of the compliance, some even overlooked their children's noncompliance. Despite good education, these children did not follow the words from their parents on several occasion 'especially boys in certain ages. Fortunately, this rate was acceptable; some parents could be patient with the noncompliance. .Someone held that noncompliance is probably not a wrong thing. In order to determine the effects of different parental disciplinary techniques on young children's compliance and noncompliance, mothers were trained to observe emotional incidents involving their own toddler-aged children. Reports of disciplinary encounters were analyzed in terms of the types of discipline used (reasoning, verbal prohibition, physical coercion, love withdrawal, and combinations thereof) and children's responses to that discipline (compliance/ noncompliance and avoidance). The relation between compliance/ noncompliance and type of misdeed (harm to persons, harm to property,

and lapses of self-control) was also analyzed. Results indicated that love withdrawal combined with other techniques was most effective in securing children's compliance and that its effectiveness was not a function of the type of technique with which it was combined. Avoidant responses and affective reunification with the parent were more likely to follow love withdrawal than any other technique. Physical coercion was somewhat less effective than love withdrawal, while reasoning and verbal prohibition were not at all effective except when both were combined with physical coercion.

C Noncompliant Children sometimes prefer to say no directly as they were younger, they are easy to deal with the relationship with contemporaries. when they are growing up. During the period that children is getting elder, who may learn to use more advanced approaches for their noncompliance. They are more skillful to negotiate or give reasons for refusal rather than show their opposite idea to parents directly/' Said Henry Porter, scholar working in Psychology Institute of UK. He indicated that noncompliance means growth in some way, may have benefit for children. Many Experts held different viewpoints in recent years, they tried drilling compliance into children. His collaborator Wallace Freisen believed that Organizing child's daily activities so that they occur in the same order each day as much as possible. This first strategy for defiant children is ultimately the most important. Developing a routine helps a child to know what to expect and increases the chances that he or she will comply with things such as chores, homework, and hygiene requests. When undesirable activities occur in the same order at optimal times during the day, they become habits that are not questioned, but done without thought.

Chances are that you have developed some type of routine for yourself in terms of showering, cleaning your house, or doing other types of work. You have an idea in your mind when you will do these things on a regular basis and this helps you to know what to expect. In fact, you have probably already been using most of these compliance strategies for yourself without realizing it. For children, without setting these expectations on a daily basis by making them part of a regular routine, they can become very upset. Just like adults, children think about what they plan to do that day and expect to be able to do what they want. So, when you come along and ask them to do something they weren't already planning to do that day, this can result in automatic

refusals and other undesirable defiant behavior. However, by using this compliance strategy with defiant children, these activities are done almost every day in the same general order and the child expects to already do them.

D Doctor Steven Walson addressed that organizing fun activities to occur after frequently refused activities. This strategy also works as a positive reinforcer when the child complies with your requests. By arranging your day so that things often refused occur right before highly preferred activities, you are able to eliminate defiant behavior and motivate your child's behavior of doing the undesirable activity. This is not to be presented in a way that the preferred activity is only allowed if a defiant child does the non-preferred activity. However, you can word your request in a way so that your child assumes that you have to do the non-preferred activity before moving on to the next preferred activity. For example, you do not want to say something such as, "If you clean your room we can play a game." Instead word your request like this, "As soon as you are done cleaning your room we will be able to play that really fun game you wanted to play."

E Psychologist Paul Edith insisted praise is the best way to make children to comply with. This is probably a common term you are used to hearing by now. If you praise your child's behavior, he or she will be more likely to do that behavior. So, it is essential to use praise when working with defiant children. It also provides your child with positive attention. However, it is important to know how to praise children in a way that encourages future automatic reinforcement for your child when doing a similar behavior.

Questions 27-31

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

Write the correct letter in boxes 27-31 on your answer sheet,

27. The children, especially boys received good education may

A. always comply with their parents, words

- B. be good at math
- C. have a high score at school
- D. disobey their parents' order sometimes

28. to their children's compliance and noncompliance, parents

- A. must be aware of the compliance
- B. ask for help from their teachers
- C. some of them may ignore their noncompliance
- D. pretend not to see

29. According to Henry Porter noncompliance for children

- A. are entirely harmful
- B. may have positive effects
- C. needs medicine assistance
- D. should be treated by expert doctor

30. When children are growing up, they

- A. always try to directly say no
- B. are more skillful to negotiate
- C. learn to cheat instead of noncompliance
- D. tend to keep silent

31. Which is the possible reaction the passage mentioned for elder children and younger ones if they don't want to comply with the order

- A. elder children prefer to refuse directly
- B. elder ones refuse to answer
- C. younger children may reject directly
- D. younger ones may save any words

Questions 32-35

Look at the following people and list of statements below. Match each person with the correct statement.

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

- 32. Henry Porter
- 33. Wallace Freisen
- 34. Steven Walson
- 35. Paul Edith

List of statements

A children of all ages will indirectly show noncompliance

B elder children tend to negotiate rather than show noncompliance C

converse behavior means noncompliance

D organizing fun activities to occur after frequently refused activities

E organizing child's daily activities in the same order as much as possible.

F use praise in order to make children compliant

G take the children to school at a early age

Questions 36-40

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

In boxes 36-40 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

36. Socialization takes a long process, while compliance is the beginning of it.
37. Many parents were difficult to be aware of the compliance or noncompliance.
38. Noncompliant Children are simple to deal with the relationship with the people in the same age when they are growing up.
39. Experts never tried drilling compliance into children.
40. Psychologist Paul Edith negated the importance that knowing how to praise children in an encouraged way.

Reading Test 16

SECTION 1

Plant Scents

A Everyone is familiar with scented flowers, and many people have heard that floral odors help the plant attract pollinators. This common notion is mostly correct, but it is surprising how little scientific proof of it exists. Of course, not all flowers are pollinated by biological agents—for example, many grasses are wind-pollinated—but the flowers of the grasses may still emit volatiles. In fact, plants emit organic molecules all the time, although they may not be obvious to the human nose. As for flower scents that we can detect with our noses, bouquets that attract moths and butterflies generally smell

“sweet,” and those that attract certain flies seem “rotten” to us.

B The release of volatiles from vegetative parts of the plant is familiar, although until recently the physiological functions of these chemicals were less clear and had received much less attention from scientists. When the trunk of a pine tree is injured—for example, when a beetle tries to burrow into it—it exudes a very smelly resin. This resin consists mostly of terpenes—hydrocarbons with a backbone of 10, 15 or 20 carbons that may also contain atoms of oxygen. The heavier C₂₀ terpenes, called diterpenes, are glue-like and can cover and immobilize insects as they plug the hole. This defense mechanism is as ancient as it is effective: Many samples of fossilized resin, or amber, contain the remains of insects trapped inside. Many other plants emit volatiles when injured, and in some cases the emitted signal helps defend the plant. For example, (Z)-3-hexenyl acetate, which is known as a “green leaf volatile” because it is emitted by many plants upon injury, deters females of the moth *Heliothis virescens* from laying eggs on injured tobacco plants. Interestingly, the profile of emitted tobacco volatiles is different at night than during the day, and it is the nocturnal blend, rich in several (Z)-3-hexenyl-olesters, that is most effective in repelling the night-active *H. virescens* moths.

C Herbivore induced volatiles often serve as indirect defenses. These bulwarks exist in a variety of plant species, including corn, beans, and the model plant species *Arabidopsis thaliana*. Plants not only emit volatiles acutely, at the site where caterpillars, mites, aphids or similar insects are eating them, but also generally from non-damaged parts of the plant. These signals attract a variety of predatory insects that prey on the plant-eaters. For example, some parasitic wasps can detect the volatile signature of a damaged plant and will lay their eggs inside the offending caterpillar; eventually the wasp eggs hatch, and the emerging larvae feed on the caterpillar from the inside out. The growth of infected caterpillars is retarded considerably, to the benefit of the plant. Similarly, volatiles released by plants in response to herbivore egg laying can attract parasites of the eggs, thereby preventing them from hatching and avoiding the onslaught of hungry herbivores that would have emerged. Plant volatiles can also be used as a kind of currency in some very indirect defensive schemes. In the rainforest understory tree *Leonardoxa africana*, ants of the species *Petalomyrmex phylax* patrol

young leaves and attack any herbivorous insects that they encounter. The young leaves emit high levels of the volatile compound methyl salicylate, a compound that the ants use either as a pheromone or as an antiseptic in their nests. It appears that methyl salicylate is both an attractant and a reward offered by the tree to get the ants to perform this valuable deterrent role.

D Floral scent has a strong impact on the economic success of many agricultural crops that rely on insect pollinators, including fruit trees such as the bee-pollinated cherry, apple, apricot and peach, as well as vegetables and tropical plants such as papaya. Pollination not only affects crop yield, but also the quality and efficiency of crop production. Many crops require most, if not all, ovules to be fertilized for optimum fruit size and shape. A decrease in fragrance emission reduces the ability of flowers to attract pollinators and results in considerable losses for growers, particularly for introduced species that had a specialized pollinator in their place of origin. This problem has been exacerbated by recent disease epidemics that have killed many honeybees, the major insect pollinators in the United States.

E One means by which plant breeders circumvent the pollination problem is by breeding self-compatible, or apomictic, varieties that do not require fertilization. Although this solution is adequate, its drawbacks include near genetic uniformity and consequent susceptibility to pathogens. Some growers have attempted to enhance honeybee foraging by spraying scent compounds on orchard trees, but this approach was costly, had to be repeated, had potentially toxic effects on the soil or local biota, and, in the end, proved to be inefficient. The poor effectiveness of this strategy probably reflects inherent limitations of the artificial, topically applied compounds, which clearly fail to convey the appropriate message to the bees. For example, general spraying of the volatile mixture cannot tell the insects where exactly the blossoms are. Clearly, a more refined strategy is needed. The ability to enhance existing floral scent, create scent de novo or change the characteristics of the scent, which could all be accomplished by genetic engineering, would allow us to manipulate the types of insect pollinators and the frequency of their visits. Moreover, the metabolic engineering of fragrance could increase crop protection against pathogens and pests.

F Genetic manipulation of scent will also benefit the floriculture industry. Ornamentals, including cut flowers, foliage and potted plants, play an important aesthetic role in human life. Unfortunately, traditional breeding has often produced cultivars with improved vase life, shipping characteristics, color and shape while sacrificing desirable perfumes. The loss of scent among ornamentals, which have a worldwide value of more than \$30 billion, makes them important targets for the genetic manipulation of flower fragrance. Some work has already begun in this area, as several groups have created petunia and carnation plants that express the linalool synthase gene from *C. Breweri*. These experiments are still preliminary: For technical reasons, the gene was expressed everywhere in the plant, and although the transgenic plants did create small amounts of linalool, the level was below the threshold of detection for the human nose. Similar experiments in tobacco used genes for other monoterpene synthases, such as the one that produces limonene, but gave similar results.

G The next generation of experiments, already in progress, includes sophisticated schemes that target the expression of scent genes specifically to flowers or other organs—such as special glands that can store antimicrobial or herbivore-repellent compounds.

Questions 1-4

The reading Passage has seven paragraphs A-G. Which paragraph contains the following information?

Write the correct letter A-G, in boxes 1-4 on your answer sheet.

1. Substance released to help plants themselves.
2. Scent helps plant's pollination.
3. Practice on genetic experiment of fragrance.
4. Plant's scent attracts herbivore's enemy for protection.

Questions 5-8

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

In boxes 5-8 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

5. We have few evidence to support the idea that scent attracts pollinators.
6. *Heliothis virescens* won't eat those tobacco leaves on which they laid eggs.
7. Certain ants are attracted by volatiles to guard plants in rainforest.
8. Pollination only affects fruit trees' production rather than other crop trees.

Questions 9-13

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

Write your answers in boxes 9-13 on your answer sheet.

9. How do wasps protect plants when they are attracted by scents according to the passage?

- A. plants induce wasps to prey herbivore.
- B. wasps lay eggs into caterpillars.
- C. wasps laid eggs on plants to expel herbivore.
- D. offending caterpillars and wasp eggs coexist well.

10. What reason caused number of honeybees decline m the United States.

- A. pollination process
- B. spread illness
- C. crop trees are poisonous
- D. grower's overlook

11. Which of the following drawbacks about artificial fragrance is NOT mentioned in the passage?

- A. it's very expensive
- B. it can't tell correct information to pollinators.
- C. it needs massive manual labour
- D. it poisons local environment

12. The number of \$30 billion quoted in the passage is to illustrate the fact that:

- A favorable perfumes are made from ornamental flowers
- B traditional floriculture industry needs reform.
- C genetic operation on scent can make vast profit.
- D Scent plays a significant role in Ornamental industry.

13. What is weakness of genetic experiments on fragrance?

- A. Linalool level is too low to be smelt by nose
- B. no progress made in linalool emission
- C. experiment on tobacco has a better result
- D. transgenic plants produce intense scent

SECTION 2

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

The Development of Plastics

A When rubber was first commercially produced in Europe during the nineteenth century, it rapidly became a very important commodity, particularly in the fields of transportation and electricity. However, during the twentieth century a number of new synthetic materials, called plastics, superseded natural rubber in all but a few applications.

B Rubber is a polymer — a compound containing large molecules that are formed by the bonding of many smaller, simpler units, repeated over and over again. The same bonding principle — polymerisation — underlies the creation of a huge range of plastics by the chemical industry.

C The first plastic was developed as a result of a competition in the USA. In the 1860s, \$10,000 was offered to anybody who could replace ivory — supplies of which were declining — with something equally good as a material for making billiard balls. The prize was won by John Wesley Hyatt with a material called celluloid. Celluloid was made by dissolving cellulose, a carbohydrate derived from plants, in a solution of camphor dissolved in ethanol. This new material rapidly found uses in the manufacture

of products such as knife handles, detachable collars and cuffs, spectacle frames and photographic film. Without celluloid, the film industry could never have got off the ground at the end of the 19th century.

D Celluloid can be repeatedly softened and reshaped by heat, and is known as a thermoplastic. In 1907 Leo Baekeland, a Belgian chemist working in the USA, invented a different kind of plastic by causing phenol and formaldehyde to react together. Baekeland called the material Bakelite, and it was the first of the thermosets' plastics that can be cast and moulded while hot, but cannot be softened by heat and reshaped once they have set. Bakelite was a good insulator, and was resistant to water, acids and moderate heat. With these properties it was soon being used in the manufacture of switches, household items, such as knife handles, and electrical components for cars.

E Soon chemists began looking for other small molecules that could be strung together to make polymers. In the 1930s, British chemists discovered that the gas ethylene would polymerise under heat and pressure to form a thermoplastic they called polythene. Polypropylene followed in the 1950s. Both were used to make bottles, pipes and plastic bags. A small change in the starting material — replacing a hydrogen atom in ethylene with a chlorine atom — produced PVC (polyvinyl chloride) , a hard, fireproof plastic suitable for drains and gutters. And by adding certain chemicals, a soft form of PVC could be produced, suitable as a substitute for rubber in items such as waterproof clothing. A closely related plastic was Teflon, or PTFE (polytetrafluoroethylene). This had a very low coefficient of friction, making it ideal for bearings, rollers, and non-stick frying pans. Polystyrene, developed during the 1930s in Germany, was a clear, glass-like material, used in food containers, domestic appliances and toys. Expanded polystyrene — a white, rigid foam — was widely used in packaging and insulation. Polyurethanes, also developed in Germany, found uses as adhesives, coatings, and — in the form of rigid foams — as insulation materials. They are all produced from chemicals derived from crude oil, which contains exactly the same elements — carbon and hydrogen — as many plastics.

F The first of the man-made fibres, nylon, was also created in the 1930s. Its inventor was a chemist called Wallace Carothers, who worked for the Du Pont Company in the USA. He found that under the right conditions, two chemicals — hexamethylenediamine and adipic acid would form a polymer that could be pumped out through holes and then stretched to form long glossy threads that could be woven like silk. Its first use was to make parachutes for the US armed forces in World War II. In the post-war years nylon completely replaced silk in the manufacture of stockings. Subsequently many other synthetic fibres joined nylon, including Orion, Acrilan and Terylene. Today most garments are made of a blend of natural fibres, such as cotton and wool, and man-made fibres that make fabrics easier to look after.

G The great strength of plastic is its indestructibility. However, this quality is also something of a drawback: beaches all over the world, even on the remotest islands, are littered with plastic bottles that nothing can destroy. Nor is it very easy to recycle plastics, as different types of plastic are often used in the same items and call for different treatments. Plastics can be made biodegradable by incorporating into their structure a material such as starch, which is attacked by bacteria and causes the plastic to fall apart. Other materials can be incorporated that gradually decay in sunlight — although bottles made of such materials have to be stored in the dark, to ensure that they do not disintegrate before they have been used.

Questions 14-20

Complete the table below.

Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 14-20 on your answer sheet.

Name of plastic	Date of invention	Original region	Property	Common use
Celluloid	1860s	US		Clothing and 14 _____
15 _____	1907	US	can be cast and moulded but cannot be softened by heat	16 _____ 'household items and car parts
Polythene	1930s	17 _____		bottles
Rigid PVC			18 _____	drains and gutters
Polystyrene	1930s	Germany	transparent and resembled to 19 _____	Food container domestic
Polyurethanes		Germany	formation like 20 _____	adhesives, coatings and insulation

Questions 21-26

Do the following statements agree with the information given in Reading Passage 2? In boxes 21-26 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false

NOT GIVEN	if the information is not given in the passage
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21. The chemical structure of plastic is very different from that of rubber.
22. John Wesley was a famous chemist.
23. Celluloid and Bakelite react to heat in the same way.
24. The mix of different varieties of plastic can make them less recyclable.
25. Adding starch into plastic does not necessarily make plastic more durable.
26. Some plastic containers have to be preserved in special conditions.

SECTION 3

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

Global Warming in New Zealand

A For many environmentalists, the world seems to be getting warmer. As the nearest country of South Polar Region, New Zealand has maintained an upward trend in its average temperature in the past few years. However, the temperature in New Zealand will go up 4°C in the next century while the polar region will go up more than 6°C. The different pictures of temperature stem from its surrounding ocean which acts like the air conditioner. Thus New Zealand is comparatively fortunate.

B Scientifically speaking, this temperature phenomenon in New Zealand originated from what researchers call "SAM (Southern Annular Mode), which refers to the wind belt that circles the Southern Oceans including New Zealand and Antarctica. Yet recent work has revealed that changes in SAM in New Zealand have resulted in a weakening of moisture during the summer, and more rainfall in other seasons. A bigger problem may turn out to be heavier droughts for agricultural activities because of more water loss from soil, resulting in poorer harvest before winter when the rainfall arrive too late to rescue.

C Among all the calamities posed by drought, moisture deficit ranks the first. Moisture deficit is the gap between the water plants need during the growing season and the water the earth can offer. Measures of moisture deficit were at their highest since the 1970s in New Zealand. Meanwhile, ecological analyses clearly show moisture deficit is

imposed at different growth stage of crops. If moisture deficit occurs around a crucial growth stage, it will cause about 22% reduction in grain yield as opposed to moisture deficit at vegetative phase.

D Global warming is not only affecting agriculture production. When scientists say the country's snow pack and glaciers are melting at an alarming rate due to global warming, the climate is putting another strain on the local places. For example, when the development of global warming is accompanied by the falling snow line, the local skiing industry comes into a crisis. The snow line may move up as the temperature goes up, and then the snow at the bottom will melt earlier. Fortunately, it is going to be favourable for the local skiing industry to tide over tough periods since the quantities of snowfall in some areas are more likely to increase.

E What is the reaction of glacier region? The climate change can be reflected in the glacier region in southern New Zealand or land covered by ice and snow. The reaction of a glacier to a climatic change involves a complex chain of processes, Over time periods of years to several decades, cumulative changes in mass balance cause volume and thickness changes, which will affect the flow of ice via altered internal deformation and basal sliding. This dynamic reaction finally leads to glacier length changes, the advance or retreat of glacier tongues. Undoubtedly, glacier mass balance is a more direct signal of annual atmospheric conditions.

F The latest research result of National Institute of Water and Atmospheric (NIWA) Research shows that glaciers line keeps moving up because of the impacts of global warning. Further losses of ice can be reflected in Mt. Cook Region. By 1996, a 14 km long sector of the glacier had melted down forming a melt lake (Hooker Lake) with a volume. Melting of the glacier front at a rate of 40 m/yr will cause the glacier to retreat at a rather uniform rate. Therefore, the lake will continue to grow until it reaches the glacier bed.

G A direct result of the melting glaciers is the change of high tides that serves the main factor for sea level rise. The trend of sea level rise will bring a threat to the groundwater system for its hyper-saline groundwater and then pose a possibility to decrease the

agricultural production. Many experts believe that the best way to counter this trend is to give a longer-term view of sea level change in New Zealand. Indeed, the coastal boundaries need to be upgraded and redefined.

H There is no doubt that global warming has affected New Zealand in many aspects. The emphasis on the global warming should be based on the joints efforts of local people and experts who conquer the tough period. For instance, farmers are taking a long term, multi- generational approach to adjust the breeds and species according to the temperature. Agriculturists also find ways to tackle the problems that may bring to the soil. In broad terms, going forward, the systemic resilience that's been going on a long time in the ecosystem will continue.

I How about animals' reaction? Experts have surprisingly realised that animals have unconventional adaptation to global warming. A study has looked at sea turtles on a few northern beaches in New Zealand and it is very interesting to find that sea turtles can become male of female according to the temperature. Further researches will try to find out how rising temperatures would affect the ratio of sex reversal in their growth. Clearly, the temperature of the nest plays a vital role in the sexes of the baby turtles.

J Tackling the problems of global warming is never easy in New Zealand, because records show the slow process of global warming may have a different impact on various regions. For New Zealand, the emission of carbon dioxide only accounts for 0.5% of the world's total, which has met the governmental standard. However, New Zealand's effort counts only a tip of the iceberg. So far, global warming has been a world issue that still hangs in an ambiguous future.

Questions 27-32

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

Write the correct letter in boxes 27-32 on your answer sheet.

27. What is the main idea of the first paragraph?

A. The temperature in the polar region will increase less than that in New Zealand in

the next century.

B. The weather and climate of New Zealand is very important to its people because of its close location to the polar region.

C. The air condition in New Zealand will maintain a high quality because of the ocean.

D. The temperature of New Zealand will increase less than that of other regions in the next 100 years because it is surrounded by sea.

28. What is one effect of the wind belt that circles the Southern Oceans?

A. New Zealand will have more moisture in winds in summer.

B. New Zealand needs to face droughts more often in hotter months in a year.

C. Soil water will increase as a result of weakening moisture in the winds.

D. Agricultural production will be reduced as a result of more rainfall in other seasons.

29. What does "moisture deficit" mean to the grain and crops?

A. The growing condition will be very tough for crops.

B. The growing season of some plants can hardly be determined.

C. There will be a huge gap between the water plants needed and the water the earth can offer.

D. The soil of grain and crops in New Zealand reached its lowest production since 1970s.

30. What changes will happen to skiing industry due to the global warming phenomenon?

A. The skiing station may lower the altitude of skiing.

B. Part of the skiing station needs to move to the north.

C. The snowfall may increase in part of the skiing station.

D. The local skiing station may likely to make a profit because of the snowfall increase.

31. Cumulative changes over a long period of time in mass balance will lead to

A. alterations in the volume and thickness of glaciers.

B. faster changes in internal deformation and basal sliding.

C. bigger length of glaciers.

D. retreat of glacier tongues as a result of change in annual atmospheric conditions.

32. Why does the writer mention NIWA in the sixth paragraph?

A. To use a particular example to explain the effects brought by glacier melting.

B. To emphasize the severance of the further loss of ice in Mt. Cook Region.

C. To alarm the reader of melting speed of glaciers at a uniform rate.

D. To note the lake in the region will disappear when it reach the glacier bed.

Questions 33-35

Complete the summary below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer. Write your answers in boxes 33-35 on your answer sheet

Research data shows that sea level has a closely relation with the change of climate. The major reason for the increase in sea level is connected with 33_____, The increase in sea level is also said to have a threat to the underground water system, the destruction of which caused by rise of sea level will lead to a high probability of reduction in 34_____. In the long run, New Zealanders may have to improve the 35_____if they want to diminish the effect change in sea levels.

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. Farmers are less responsive to climate change than agriculturists.

37. Agricultural sector is too conservative and deal with climate change.

38. Turtle is vulnerable to climate change.

39. The global warming is going slowly, and it may have different effects on different areas in New Zealand

40. New Zealand must cut carbon dioxide emission if they want to solve the problem of global warming.

Reading Test 17

SECTION 1

Grey Workers

A Given the speed at which their workers are growing greyer, employers know surprisingly little about how productive they are. The general assumption is that the old are paid more in spite of, rather than because of, their extra productivity. That might partly explain why, when employers are under pressure to cut costs, they persuade the 55-year-olds to take early retirement. Earlier this year, Sun Life of Canada, an insurance company, announced that it was offering redundancy to all its British employees aged 50 or over “to bring in new blood”.

B In Japan, says Mariko Fujiwara, an industrial anthropologist who runs a think-tank for Hakuhodo, Japan’s second-largest advertising agency, most companies are bringing down the retirement age from the traditional 57 to 50 or thereabouts - and in some cases, such as Nissan, to 45. More than perhaps anywhere else, pay in Japan is linked to seniority. Given that the percentage of workers who have spent more than 32 years with the same employer rose from 11% in 1980 to 42% by 1994, it is hardly surprising that seniority-based wage costs have become the most intractable item on corporate profit- and-loss accounts.

C In Germany, Patrick Pohl, spokesman for Hoechst, expresses a widely held view: “The company is trying to lower the average age of the workforce. Perhaps the main reason for replacing older workers is that it makes it easier to ‘defrost’ the corporate culture. Older workers are less willing to try a new way of thinking. Younger workers are cheaper and more flexible.” Some German firms are hampered from getting rid of older workers as quickly as they would like. At SGL Carbon, a graphite producer, the average age of workers has been going up not down. The reason, says the company’s Ivo Lingnau, is not that SGL values older workers more. It is collective bargaining: the union agreement puts strict limits on the proportion of workers that may retire early.

D Clearly, when older people do heavy physical work, their age may affect their productivity. But other skills may increase with age, including many that are crucial for good management, such as an ability to handle people diplomatically, to run a meeting or to spot a problem before it blows up. Peter Hicks, who co-ordinates OECD work on the policy implications of ageing, says that plenty of research suggests older people are paid more because they are worth more.

E And the virtues of the young may be exaggerated. “The few companies that have kept on older workers find they have good judgment and their productivity is good, ” says Mr Peterson. “Besides, their education standards are much better than those of today’s young high-school graduates.” Companies may say that older workers are not worth training, because they are reaching the end of their working lives: in fact, young people tend to switch jobs so frequently that they offer the worst returns on training. “The median age for employer-driven training is the late 40s and early 50s, ” says Mr Hicks. “It goes mainly to managers.”

F Take away those seniority-based pay scales, and older workers may become a much more attractive employment proposition. But most companies (and many workers) are uncomfortable with the idea of reducing someone’s pay in later life - although workers on piece-rates often earn less over time. So retaining the services of older workers may mean employing them in new ways.

G One innovation, described in Mr. Walker’s report on combating age barriers, was devised by IBM Belgium. Faced with the need to cut staff costs, and having decided to concentrate cuts on 55-60-year-olds, IBM set up a separate company called Skill Team, which re-employed any of the early retired who wanted to go on working up to the age of

60. An employee who joined Skill Team at the age of 55 on a five-year contract would work for 58% of his time, over the full period, for 88% of his last IBM salary. The company offered services to IBM, thus allowing it to retain access to some of the intellectual capital it would otherwise have lost.

H The best way to tempt the old to go on working may be to build on such “bridge” jobs: part-time or temporary employment that creates a more gradual transition from full-time work to retirement. Mr Quinn, who has studied the phenomenon, finds that, in the United States, nearly half of all men and women who had been in full-time jobs in middle age moved into such “bridge” jobs at the end of their working lives. In general, it is the best- paid and worst-paid who carry on working: “There are”, he says, “two very different types of bridge job-holders - those who continue working because they have to and those who continue working because they want to, even though they could afford to retire.”

I If the job market grows more flexible, the old may find more jobs that suit them. Often, they will be self-employed. Sometimes, they may start their own businesses: a study by David Storey of Warwick University found that, in Britain, 70% of businesses started by people over 55 survived, compared with an average of only 19%. To coax the old back into the job market, work will not only have to pay. It will need to be more fun than touring the country in an Airstream trailer, or seeing the grandchildren, or playing golf. Only then will there be many more Joe Clarks.

Questions 1-4

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

In boxes 1-4 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

1. Insurance company Sun Life of Canada made decision that it would hire more Canadian employees rather than British ones in order to get fresh staffs.
2. Unlike other places, employees in Japan get paid according to the years they are employed

3. Elder workers are laid off by some German companies which are refreshing corporate culture
4. According to Peter Hicks, companies pay older people more regardless of the contribution of they make.

Questions 5-6

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

Write your answers in boxes 5-6 on your answer sheet.

According to the passage there are several advantages to hire elder people, please choose **TWO** from below :

- A. their productivity are more superior than the young.
- B. paid less compared with younger ones.
- C. run fast when there is a meeting
- D. have better inter-person relationship
- E. identify problems in an advanced time.

Questions 7-8

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

Write your answers in boxes 7-8 on your answer sheet.

According to Mr. Peterson, Compared with elder employees, young graduates have several weaknesses in workplace, please choose **TWO** of them below :

- A. they are not worth training.

- B. their productivity is lower than counterparts.
- C. they change work more often
- D. their academic criteria is some way behind elders'
- E. they are normally high school graduates.

Questions 9-13

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

Write your answers in boxes 9-13 on your answer sheet.

9 . According to paragraph F, the firms and workers still hold the opinion that:

- A. Older workers are more likely to attract other staff
- B. people are not happy if pay gets lower in retiring age.
- C. Older people have more retaining motivation than young people
- D. young people often earn less for their piece-rates salary.

10. SkillTeam that has been founded by IBM conducted which of following movement:

- A. Ask all the old worker to continue their job on former working hours basis
- B. Carry on the action of cutting off the elder's proportion of employment
- C. Ask employees to work more hours in order to get extra pay
- D. Re-hire old employees and kept the salary a bit lower

11. which of the followings is correct according to the research of Mr Quinn:

- A. About 50% of all employees in America switched into 'Bridge' jobs.
- B. Only the worst-paid continue to work.
- C. More men than women fell into the category of 'bridge' work.
- D. Some old people keep working for their motive rather than economic incentive.

12. Which of the followings is correct according to David Storey:

- A. 70% business are successful if hire more older people.
- B. Average success of self-employed business is getting lower.
- C. Self-employed elder people are more likely to survive.
- D. Older people's working hours are more flexible.

13. What is the main purpose of the author in writing this passage?

- A. there must be a successful retiring program for the old
- B. older people should be correctly valued in employment

- C. old people should offer more helping young employees grow.
- D. There are more jobs in the world that only employ older people

SECTION 2

You should spend about 20 minutes on Questions 14-27, which are based on Reading Passage 2 below.

The history of salt

A Salt is so simple and plentiful that we almost take it for granted. In chemical terms, salt is the combination of a sodium ion with a chloride ion, making it one of the most basic molecules on earth. It is also one of the most plentiful: it has been estimated that salt deposits under the state of Kansas alone could supply the entire world's needs for the next 250,000 years.

B But salt is also an essential element. Without it, life itself would be impossible since the human body requires the mineral in order to function properly. The concentration of sodium ions in the blood is directly related to the regulation of safe body fluid levels. And while we are all familiar with its many uses in cooking, we may not be aware that this element is used in some 14,000 commercial applications. From manufacturing pulp and paper to setting dyes in textiles and fabric, from producing soaps and detergents to making our roads safe in winter, salt plays an essential part in our daily lives.

C Salt has a long and influential role in world history. From the dawn of civilization, it has been a key factor in economic, religious, social and political development. In every corner of the world, it has been the subject of superstition, folklore, and warfare, and has even been used as currency.

D As a precious and portable commodity, salt has long been a cornerstone of economies throughout history. In fact, researcher M.R. Bloch conjectured that civilization began along the edges of the desert because of the natural surface deposits of salt found there. Bloch also believed that the first war - likely fought near the ancient city of Essalt on the Jordan River - could have been fought over the city's precious

supplies of the mineral.

E In 2200 BC, the Chinese emperor Hsia Yu levied one of the first known taxes. He taxed salt. In Tibet, Marco Polo noted that tiny cakes of salt were pressed with images of the Grand Khan to be used as coins and to this day among the nomads of Ethiopia's Danakil Plains it is still used as money. Greek slave traders often bartered it for slaves, giving rise to the expression that someone was "not worth his salt." Roman legionnaires were paid in salt - a *salarium*, the Latin origin of the word "salary."

F Merchants in 12th-century Timbuktu-the gateway to the Sahara Desert and the seat of scholars - valued this mineral as highly as books and gold. In France, Charles of Anjou levied the "gabelle, a salt tax, in 1259 to finance his conquest of the Kingdom of Naples. Outrage over the gabelle fueled the French Revolution. Though the revolutionaries eliminated the tax shortly after Louis XVI, the Republic of France re-established the gabelle in the early 19th Century ; only in 1946 was it removed from the books.

G The Erie Canal, an engineering marvel that connected the Great Lakes to New York's Hudson River in 1825, was called "the ditch that salt built." Salt tax revenues paid for half the cost of construction of the canal. The British monarchy supported itself with high salt taxes, leading to a bustling black market for the white crystal. In 1785, the earl of Dundonald wrote that every year in England, 10,000 people were arrested for salt smuggling. And protesting against British rule in 1930, Mahatma Gandhi led a 200-mile march to the Arabian Ocean to collect untaxed salt for India's poor.

H In religion and culture, salt long held an important place with Greek worshippers consecrating it in their rituals. Further, in Buddhist tradition, salt repels evil spirits, which is why it is customary to throw it over your shoulder before entering your house after a funeral: it scares off any evil spirits that may be clinging to your back. Shinto religion also uses it to purify an area. Before sumo wrestlers enter the ring for a match - which is in reality an elaborate Shinto rite - a handful is thrown into the center to drive off malevolent spirits

I In the Southwest of the United States, the Pueblo worship the Salt Mother. Other native tribes had significant restrictions on who was permitted to eat salt. Hopi legend holds that the angry Warrior Twins punished mankind by placing valuable salt deposits far from civilization, requiring hard work and bravery to harvest the precious mineral. Today, a gift of salt endures in India as a potent symbol of good luck and a reference to Mahatma Gandhi's liberation of India.

J The effects of salt deficiency are highlighted in times of war, when human bodies and national economies are strained to their limits. Thousands of Napoleon's troops died during the French retreat from Moscow due to inadequate wound healing and lowered resistance to disease - the results of salt deficiency.

Questions 14-16

Choose THREE letters A-H.

Write your answers in boxes 14-16 on your answer sheet. NB Your answers may be given in any order.

Which THREE statements are true of salt?

- A. A number of cities take their name from the word salt.
- B. Salt contributed to the French Revolution.
- C. The uses of salt are countless.
- D. Salt has been produced in China for less than 2000 years.
- E. There are many commercial applications for salt.
- F. Salt deposits in the state of Kansas are vast.
- G. Salt has few industrial uses nowadays.
- H. Slaves used salt as a currency.

Questions 17-21

Complete the summary.

Choose NO MORE THAN TWO WORDS from the passage for each answer. Write your answers in boxes 17-21 on your answer sheet.

Salt is such an 17 _____ that people would not be able to live without it. As well as its uses in cooking, this basic mineral has thousands of business 18 _____ ranging from making paper to the manufacture of soap.

Being a prized and 19_____it has played a major part in the economies of many countries. As such, salt has not only led to war, but has also been used to raise 20_____by governments in many parts of the world. There are also many instances of its place in religion and culture, being used as a means to get rid of evil 21_____.

Questions 22-27

Do the following statements agree with the information in Reading Passage 2? In boxes 22-27 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 about the statement

- 22. It has been suggested that salt was responsible for the first war.
- 23. The first tax on salt was imposed by a Chinese emperor.
- 24. Salt is no longer used as a form of currency.
- 25. Most of the money for the construction of the Erie Canal came from salt taxes.
- 26. Hopi legend believes that salt deposits were placed far away from civilization to penalize mankind.
- 27. A lack of salt is connected with the deaths of some soldiers.

SECTION 3

Designed to Last

Could better design cure our throwaway culture?

A Jonathan Chapman, a senior lecture at the University of Brighton, UK, is one of a new breed of "sustainable designers". Like many of us, they are concerned about the huge waste associated with Western consumer culture and the damage this does to the environment. Some, like Chapman, aim to create objects we will want to keep rather than discard. Others are working to create more efficient or durable consumer goods, or goods designed with recycling in mind. The waste entailed in our fleeting relationships with consumer durables is colossal

B Domestic power tools, such as electric drills, are a typical example of such waste. However much DIY the purchaser plans to do, the truth is that these things are thrown away having been used, on average, for just ten minutes. Most will serve (conscience time, gathering dust on a shelf in the garage; people are reluctant to admit that they have wasted their money. However, the end is inevitable thousands of years in landfill waste sites. In its design, manufacture, packaging, transportation and disposal, a power tool consumes many times its own weight in resources, all for a shorter active lifespan than that of the average small insect.

C To understand why we have become so wasteful, we should look to the underlying motivation (of consumers. 'People own things to give expression to who they are, and to show what group of people they feel they belong to,' Chapman says. In a world of mass production, however, that symbolism has lost much of its potency. For most of human history, people had an intimate relationship with objects they used or treasured. Often they made the objects themselves, or family members passed them on. For more specialist objects, people relied on expert manufacturers living close by, whom they probably knew personally. Chapman points out that all these factors gave objects a history - a narrative - and an emotional connection that today's mass production cannot match. Without these personal connections, consumerist culture instead idolizes novelty

.We know we can't buy happiness, but the chance to remake ourselves with glossy, box-fresh products seems irresistible. When the novelty fades we simply renew the excitement by buying more new stuff: what John Thackara of Doors of Perception, a network for sharing ideas about the future of design, calls the "schlock of the new".

D As a sustainable designer, Chapman's solution is what he calls "emotionally durable design". Think about your favorite old jeans. They just don't have the right feel until they have been worn and washed a hundred times, do they? It is like they are sharing your life story. You can fake that look, but it isn't the same. Chapman says the gradual unfolding of a relationship like this transforms our interactions with objects into something richer than simple utility. Swiss industrial analyst Walter Stahel, visiting professor at the University of Surrey, calls it the "teddy-bear factor". No matter how ragged and worn a favorite teddy becomes, we don't rush out and buy another one. As adults, our teddy bear connects us to our childhoods, and this protects it from obsolescence Stahel says this is what sustainable design needs to do.

E It is not simply about making durable items that people want to keep. Sustainable design is a matter of properly costing the whole process of production, energy use and disposal. "It is about the design of systems, the design of culture." says Tim Cooper from the Centre for Sustainable Consumption at Sheffield Hallam University in Britain. He thinks sustainable design has been "surprisingly slow to take off" but says looming environmental crises and resource depletion are pushing it to the top of the agenda.

F Thackara agrees. For him, the roots of impending environmental collapse can be summarized in two words: weight and speed. We are making more stuff than the planet can sustain and using vast amounts of energy moving more and more of it around ever faster. The Information Age was supposed to lighten our economies and reduce our impact on the environment, but the reverse seems to be happening. We have simply added information technology to the industrial era and hastened the developed world's metabolism, Thackara argues.

G Once you grasp that, the cure is hardly rocket science: minimize waste and energy use, stop moving stuff around so much and use people more. EZIO MANZINI, PROFESSOR of industrial design at Politecnico di Milano university, Italy, describes the process of moving to a post-throwaway society as like "changing the engine of an aircraft in mid-flight" Even so, he believes it can be done, and he is not alone.

H Manzini says a crucial step would be to redesign our globalized world into what he calls the "multi-local society". His vision is that every resource, from food to electricity generation, should as far as possible be sourced and distributed locally. These local hubs would then be connected to national and global networks to allow the most efficient use and flow of materials.

I So what will post-throwaway consumerism look like? For a start, we will increasingly buy sustainably designed products. This might be as simple as installing energy-saving light bulbs, more efficient washing machines, or choosing locally produced groceries with less packaging.

J We will spend less on material goods and more on services. Instead of buying a second car, for example, we might buy into a car-sharing network. We will also buy less and rent a whole lot more: why own things that you hardly use, especially things that are likely to be updated all the time? Consumer durables will be sold with plans already in place for their disposal. Electronic goods will be designed to be recyclable, with the extra cost added to the retail price as prepayment. As consumers become increasingly concerned about the environment, many big businesses are eagerly adopting sustainable design and brushing up their green credentials to please their customers and stay one step ahead of the competition.

You should spend about 20 minutes on question 28-40, which are based on reading passage 3 on the following pages.

Questions 28-32

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

Write the correct letter in boxes 28-32 on your answer sheet.

28. What does 'conscience time' imply in paragraph 2?

A. People feel guilty when they throw things away easily.

- B. The shelf in the garage needs cleaning.
- C. The consumers are unaware of the waste problem.
- D. The power tool should be placed in the right place after being used.

29. Prior to the mass production, people own things to show

- A. their quality
- B. their status
- C. their character
- D. their history

30. The word 'narrative' in paragraph 3 refers to

- A. the novelty culture pursued by the customers
- B. the motivation of buying new products
- C. object stories that relate personally and meaningfully to the owners
- D. the image created by the manufacturers

31. Without personal connection, people buy new stuff for

- A. sharing
- B. freshness
- C. collection
- D. family members

32. The writer quotes the old jeans and teddy bear to illustrate that

- A. products are used for simple utility.
- B. producers should create more special stuff to attract the consumers.
- C. Chapman led a poor childhood life.
- D. the emotional connections make us to keep the objects for longer.

Questions 33-36

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

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

Tim Cooper claims that although sustainable design proceeds
33.....

, the coming problems are pushing the move. In accordance with Tim Cooper, Thackara

believes that the origins of the looming environmental crises are weight and
 34 The technology which was assumed to have a positive
 effect
 on our society actually accelerates the world's 35.....To cure
 this, Manzini proposes a 'multi-local society' which means every resource should be
 located and redeployed 36.....

A	properly	B	energy	C	locally
D	economy	E	slowly	F	speed
G	quickly	H	metabolism		

Questions 37-40

Do the following statements agree with the claims of the writer in Reading Passage?
 In boxes 37-40 on your answer sheet, write

YES	if the statement is true
NO	if the statement is false
NOT GIVEN	if the information is not given in the passage

- 37. People often buy things that are seldom used and throw them away.
- 38. In a post-throwaway society, we will pay extra money after disposing the electronic goods.
- 39. Some businesses have jumped on the sustainability bandwagon.
- 40. Company will spend less on repairing in the future.

Reading Test 18

SECTION 1

William Gilbert and Magnetism

A 16th and 17th centuries saw two great pioneers of modern science: Galileo and

Gilbert. The impact of their findings is eminent. Gilbert was the first modern scientist, also the accredited father of the science of electricity and magnetism, an Englishman of learning and a physician at the court of Elizabeth. Prior to him, all that was known of electricity and magnetism was what the ancients knew, nothing more than that the : lodestone possessed magnetic properties and that amber and jet, when rubbed, would attract bits of paper or other substances of small specific gravity. However, he is less well-known than he deserves.

B Gilbert's birth predated Galileo. Born in an eminent local family in Colchester county in the UK, on May 24, 1544, he went to grammar school, and then studied medicine at St. John's College, Cambridge, graduating in 1573. Later he traveled in the continent and eventually settled down in London.

C He was a very successful and eminent doctor. All this culminated in his election to the president of the Royal Science Society. He was also appointed the personal physician to the Queen (Elizabeth I) , and later knighted by the Queen. He faithfully served her until her death. However, he didn't outlive the Queen for long and died on December 10, 1603, only a few months after his appointment as personal physician to King James.

D Gilbert was first interested in chemistry but later changed his focus due to the large portion of mysticism of alchemy involved (such as the transmutation of metal). He gradually developed his interest in physics after the great minds of the ancient, particularly about the knowledge the ancient Greeks had about lodestones, strange minerals with the power to attract iron. In the meantime, Britain became a major seafaring nation in 1588 when the Spanish Armada was defeated, opening the way to British settlement of America. British ships depended on the magnetic: compass, yet no one understood why it worked. Did the pole star attract it, as Columbus once speculated; or was there a magnetic mountain at the pole, as described in *Odyssey*' which ships would never approach, because the sailors thought its pull would yank out all their iron nails and fittings? For nearly 20 years William Gilbert conducted ingenious experiments to understand magnetism. His works include *On the Magnet and Magnetic Bodies*, *Great Magnet of the Earth*.

E Gilbert's discovery was so important to modern physics. He investigated the nature of magnetism and electricity. He even coined the word "electric". Though the early beliefs of magnetism were also largely entangled with superstitions such as that rubbing garlic on lodestone can neutralize its magnetism, one example being that sailors even believed the smell of garlic would even interfere with the action of compass, which is why helmsmen were forbidden to eat it near a ship's compass. Gilbert also found that metals can be magnetized by rubbing materials such as fur, plastic or the like on them. He named the ends of a magnet "north pole" and "south pole". The magnetic poles can attract or repel, depending on polarity. In addition, however, ordinary iron is always attracted to a magnet. Though he started to study the relationship between magnetism and electricity, sadly he didn't complete it. His research of static electricity using amber and jet only demonstrated that objects with electrical charges can work like magnets attracting small pieces of paper and stuff. It is a French guy named du Fay that discovered that there are actually two electrical charges, positive and negative.

F He also questioned the traditional astronomical beliefs. Though a Copernican, he didn't express in his quintessential beliefs whether the earth is at the center of the universe or in orbit around the sun. However he believed that stars are not equidistant from the earth, but have their own earth-like planets orbiting around them. The earth is itself like a giant magnet, which is also why compasses always point north. They spin on an axis that is aligned with the earth's polarity. He even likened the polarity of the magnet to the polarity of the earth and built an entire magnetic philosophy on this analogy. In his explanation, magnetism was the soul of the earth. Thus a perfectly spherical lodestone, when aligned with the earth's poles, would wobble all by itself in 24 hours. Further, he also believed that suns and other stars wobble just like the earth does around a crystal core, and speculated that the moon might also be a magnet caused to orbit by its magnetic attraction to the earth. This was perhaps the first proposal that a force might cause a heavenly orbit.

G His research method was revolutionary in that he used experiments rather than pure logic and reasoning like the ancient Greek philosophers did. It was a new attitude toward scientific investigation. Until then, scientific experiments were not in fashion. It

was because of this scientific attitude, together with his contribution to our knowledge of magnetism, that a unit of magneto motive force, also known as magnetic potential, was named Gilbert in his honor. His approach of careful observation and experimentation rather than the authoritative opinion or deductive philosophy of others had laid the very foundation for modern science.

Questions 1-7

Reading passage 1 has seven paragraphs A-G

Choose the correct heading for each paragraph from the list of headings below. Write the correct number i-x in boxes 1-7 on your answer sheet.

List of Headings
i. Early years of Gilbert
ii. What was new about his scientific research method
iii. The development of chemistry
iv. Questioning traditional astronomy
v. Pioneers of the early science
vi. Professional and social recognition
vii. Becoming the president of the Royal Science Society
The great works of Gilbert
His discovery about magnetism
His change of focus

1. Paragraph A
2. Paragraph B
3. Paragraph C
4. Paragraph D
5. Paragraph E
6. Paragraph F
7. Paragraph G

Questions 8-10

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

In boxes 8-10 on your answer sheet write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

8. He is less famous than he should be.
9. He was famous as a doctor before he was employed by the Queen
10. He lost faith in the medical theories of his time.

Questions 11-13

Choose THREE letters A-F.

Write your answers in boxes 11-13 on your answer sheet. Which THREE of the

following are parts of Gilbert's discovery?

- A. Metal can be transformed into another.
- B. Garlic can remove magnetism.
- C. Metals can be magnetized.
- D. Stars are at different distances from the earth.
- E. The earth wobbles on its axis.
- F. There are two charges of electricity.

SECTION 2

Seed Hunting

A With quarter of the world's plants set to vanish within the next 50 years, Dough Alexander reports on the scientists working against the clock to preserve the Earth's botanical heritage. They travel the four corners of the globe, scouring jungles, forests and savannas. But they're not looking for ancient artefacts, lost treasure or undiscovered tombs. Just pods. It may lack the romantic allure of archaeology, or the

whiff of danger that accompanies going after big game, but seed hunting is an increasingly serious business. Some seek seeds for profit—hunters in the employ of biotechnology firms, pharmaceutical companies and private corporations on the lookout for species that will yield the drugs or crops of the future. Others collect to conserve, working to halt the sad slide into extinction facing so many plant species.

B Among the pioneers of this botanical treasure hunt was John Tradescant, an English royal gardener who brought back plants and seeds from his journeys abroad in the early 1600s. Later, the English botanist Sir Joseph Banks who was the first director of the Royal Botanic Gardens at Kew and travelled with Captain James Cook on his voyages near the end of the 18th century—was so driven to expand his collections that he sent botanists around the world at his own expense.

C Those heady days of exploration and discovery may be over, but they have been replaced by a pressing need to preserve our natural history for the future. This modern mission drives hunters such as Dr Michiel van Slageren, a good-natured Dutchman who often sports a wide-brimmed hat in the field—he could easily be mistaken for the cinematic hero Indiana Jones. He and three other seed hunters work at the Millennium Seed Bank, an 80 million [pounds sterling] international conservation project that aims to protect the world's most endangered wild plant species

D The group's headquarters are in a modern glass-and-concrete structure on a 200-hectare Estate at Wakehurst Place in the West Sussex countryside. Within its underground vaults are 260 million dried seeds from 122 countries, all stored at -20 Celsius to survive for centuries. Among the 5, 100 species represented are virtually all of Britain's 1,400 native seed-bearing plants, the most complete such collection of any country's flora.

E Overseen by the Royal botanic gardens, the Millennium Seed Bank is the world's largest wild-plant depository. It aims to collect 24,000 species by 2010. The reason is simple: thanks to humanity's efforts, an estimated 25 per cent of the world's plants are on the verge of extinction and may vanish within 50 years. We're currently responsible for habitat destruction on an unprecedented scale, and during the past 400 years, plant

species extinction rates have been about 70 times greater than those indicated by the geological record as being 'normal'. Experts predict that during the next 50 years a further one billion hectares of wilderness will be converted to farmland in developing countries alone.

F The implications of this loss are enormous. Besides providing staple food crops, plants are a source of many medicines and the principal supply of fuel and building materials in many parts of the world. They also protect soil and help regulate the climate. Yet, across the globe, plant species are being driven to extinction before their potential benefits are discovered.

G The world Conservation Union has listed 5,714 threatened species is sure to be much higher. In the UK alone, 300 wild plant species are classified as endangered. The Millennium Seed Bank aims to ensure that even if a plant becomes extinct in the wild, it won't be lost forever.

Stored seeds can be used to help restore damaged or destroyed environment or in scientific research to find new benefits for society in medicine, agriculture or local industry that would otherwise be lost.

H Seed banks are an insurance policy to protect the world's plant heritage for the future, explains Dr Paul Smith, another Kew seed hunter. "Seed conservation techniques were originally developed by farmers," he says. "Storage is the basis what we do, conserving seeds until you can use them just as in farming." Smith says there's no reason why any plant species should become extinct, given today's technology. But he admits that the biggest challenge is finding, naming and categorising all the world's plants. And someone has to gather these seeds before it's too late. "There aren't a lot of people out there doing this," he says. "The key is to know the flora from a particular area, and that knowledge takes years to acquire."

I There are about 1,470 seed banks scattered around the globe, with a combined total of 5.4 million samples, of which perhaps two million are distinct non-duplicates. Most preserve genetic material for agriculture use in order to ensure crop diversity; others aim to conserve wild species, although only 15 per cent of all banked plants are wild.

J Imperial College, London, examined crop collections from 151 countries and found that while the number of plant samples had increased in two thirds of the countries, budget had been cut in a quarter and remained static in another 35 per cent. The UN's Food and Agriculture Organization and the Consultative Group on International Agricultural Research has since set up the Global Conservation Trust, which aims to raise US \$260 million to protect seed banks in perpetuity.

Questions 14-19

Do the following statements agree with the information given in Reading Passage 2? In boxes 14-19 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

- 14. The purpose of collecting seeds now is different from the past
- 15. The millennium seed bank is the earliest seed bank.
- 16. One of major threats for plant species extinction is farmland expansion into wildness.
- 17. The approach that scientists apply to store seeds is similar to that used by farmers.
- 18. technological development is the only hope to save plant species.
- 19. The works of seed conservation are often limited by financial problems.

Questions 20-24 Summary

Complete the following summary of the paragraphs of Reading Passage 2, using no more than three words from the Reading Passage for each answer. Write your answers in boxes 20-24 on your answer sheet.

Some people collect seeds for the purpose of protecting certain species from _____ 20 _____; others collect seeds for their ability to produce _____ 21 _____. They are called seed hunters.

The _____ 22 _____ of them included both gardeners and botanists
, such as _____ 23 _____, who financially supported collectors out of his own pocket. The seeds collected are usually stored in seed banks, one of which is the famous millennium seed bank, where seeds are all stored in the _____ 24 _____ at a low temperature.

Questions 25-26

Choose the correct letter, A-E.

Write your answers in boxes 25, 26 on your answer sheet.

Which TWO of the followings are provided by plants to the human ?

- A. food
- B. fuels
- C. clothes
- D. energy
- E. commercial products

SECTION 3

The Power of Nothing

Geoff Watts, New Scientist (May 26th, 2001)

A Want to devise a new form of alternative medicine? No problem. Here is the recipe. Be warm, sympathetic, reassuring and enthusiastic. Your treatment should involve physical contact, and each session with your patients should last at least half an hour, treatment and understand how their disorders relate to the rest of their lives. Tell them that their

own bodies possess the true power to heal. Make them pay you out of their own pockets. Describe your treatment in familiar words, but embroidered with a hint of mysticism: energy fields, energy flows, energy blocks, meridians, forces, auras, rhythms and the like. Refer to the K J knowledge of an earlier age: wisdom carelessly swept aside by the rise and rise of blind, mechanistic science. Oh, come off it, you are saying. Something invented off the top of your head could not possibly work, could it?

B Well yes, it could - and often well enough to earn you living. A good living if you are sufficiently convincing, or better still, really believe in your therapy. Many illnesses get better on their own, so if you are lucky and administer your treatment at just the right time you will get the credit. But that's only part of it. Some of the improvement really would be down to you. Your healing power would be the outcome of a paradoxical force that conventional medicine recognizes but remains oddly ambivalent about: the placebo effect.

C Placebos are treatments that have no direct effect on the body, yet still work because the patient has faith in their power to heal. Most often the term refers to a dummy pill, but it applies just as much to any device or procedure, from a sticking plaster to a crystal to an operation. The existence of the placebo effect implies that even quackery may confer real benefits, which is why any mention of placebo is a touchy subject for many practitioners of complementary and alternative medicine, who are likely to regard it as tantamount to a charge of charlatanism. In fact, the placebo effect is a powerful part of all medical care, orthodox or otherwise, though its role is often neglected or misunderstood.

D One of the great strengths of CAM may be its practitioners' skill in deploying the placebo effect to accomplish real healing. "Complementary practitioners are miles better at producing non-specific effects and good therapeutic relationships," says Edzard Ernst, professor of CAM at Exeter University. The question is whether CAM could be integrated into conventional medicine, as some would like, without losing much of this power.

E At one level, it should come as no surprise that our state of mind can influence our

physiology: anger opens the superficial blood vessels of the face; sadness pumps the tear glands. But exactly how placebos work their medical magic is still largely unknown. Most of the scant research done so far has focused on the control of pain, because it's one of the commonest complaints and lends itself to experimental study. Here, attention has turned to the endorphins, morphine-like neurochemicals known to help control pain.

F But exactly how placebos work their medical magic is still largely unknown. Most of the scant research to date has focused on the control of pain, because it's one of the commonest complaints and lends itself to experimental study. Here, attention has turned to the endorphins, natural counterparts of morphine that are known to help control pain. "Any of the neurochemicals involved in transmitting pain impulses or modulating them might also be involved in generating the placebo response," says Don Price, an oral surgeon at the University of Florida who studies the placebo effect in dental pain.

G "But endorphins are still out in front." That case has been strengthened by the recent work of Fabrizio Benedetti of the University of Turin, who showed that the placebo effect can be abolished by a drug, naloxone, which blocks the effects of endorphins. Benedetti induced pain in human volunteers by inflating a blood-pressure cuff on the forearm. He did this several times a day for several days, using morphine each time to control the pain. On the final day, without saying anything, he replaced the morphine with a saline solution. This still relieved the subjects' pain: a placebo effect. But when he added naloxone to the saline the pain relief disappeared. Here was direct proof that placebo analgesia is mediated, at least in part, by these natural opiates

H Still, no one knows how belief triggers endorphin release, or why most people can't achieve placebo pain relief simply by willing it. Though scientists don't know exactly how placebos work, they have accumulated a fair bit of knowledge about how to trigger the effect. A London rheumatologist found, for example, that red dummy capsules made more effective painkillers than blue, green or yellow ones. Research on American students revealed that blue pills make better sedatives than pink, a colour more suitable for stimulants. Even branding can make a difference: if Aspro or Tylenol are what you like to take for a headache, their chemically identical generic equivalents may be less

effective.

I It matters, too, how the treatment is delivered. Decades ago, when the major tranquilliser chlorpromazine was being introduced, a doctor in Kansas categorised his colleagues according to whether they were keen on it, openly sceptical of its benefits, or took a "let's try and see, ' attitude. His conclusion: the more enthusiastic the doctor, the better the drug performed. And this, year Ernst surveyed published studies that compared doctors' bedside manners. The studies turned up one consistent finding: "Physicians who adopt a warm, friendly and reassuring manner," he reported, "are more effective than those whose consultations are formal and do not offer reassurance"

J Warm, friendly and reassuring are precisely CAM, s strong suits, of course. Many of the ingredients of that opening recipe — the physical contact, the generous swathes of time, the strong hints of supernormal healing power — are just the kind of thing likely to impress patients. It's hardly surprising, then, that complementary practitioners are generally best at mobilising the placebo effect, says Arthur Kleinman, professor of social anthropology at Harvard University.

Questions 27-32

Use the information in the passage to match the deed (listed A-H) with people below. Write the appropriate letters A-H in boxes 27-32 on your answer sheet.

NB you may use any letter more than once

- A. Should easily be understood
- B. should improve by itself
- C. Should not involve any mysticism
- D. Ought to last a minimum length of time.
- E. Needs to be treated at the right time.
- F. Should give more recognition.

- G. Can earn valuable money.
- H. Do not rely on any specific treatment

- 27. Appointments with alternative practitioner
- 28. An alternative practitioners description of treatment
- 29. An alternative practitioner who has faith in what he does
- 30. The illness of patients convinced of alternative practice
- 31. Improvements of patients receiving alternative practice
- 32. Conventional medical doctors (who is aware of placebo)

Questions 33-35

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

Write your answers in boxes 33-35 on your answer sheet.,

33. In the fifth paragraph, the writer uses the example of anger and sadness to illustrate that:

- A. People's feeling could affect their physical behaviour
- B. Scientists don't understand how the mind influences the body.
- C. Research on the placebo effect is very limited
- D How placebo achieves its effect is yet to be understood.

34. Research on pain control attracts most of the attention because

- A. Scientists have discovered that endorphins can help to reduce pain.

- B. Only a limited number of researchers gain relevant experience
- C. Pain reducing agents might also be involved in placebo effect.
- D. Patients often experience pain and like to complain about it

35. Fabrizio Benedetti's research on endorphins indicates that

- A. They are widely used to regulate pain.
- B. They can be produced by willM thoughts
- C. They can be neutralized by introducing naloxone.
- D. Their pain-relieving effects do not last long enough.

Questions 36-40

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

In boxes 36-40 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

- 36. There is enough information for scientists to fully understand the placebo effect.
- 37. A London based researcher discovered that red pills should be taken off the market.
- 38. People's preference on brands would also have effect on their healing.
- 39. Medical doctors have a range of views of the newly introduced drug of
- 40. Alternative practitioners are seldom known for applying placebo effect.

Reading Test 19

SECTION 1

Going Bananas

A The world's favourite fruit could disappear forever in 10 years' time. The banana is among the world's oldest crops. Agricultural scientists believe that the first edible banana was discovered around ten thousand years ago. It has been at an evolutionary standstill ever since it was first propagated in the jungles of South-East Asia at the end of the last ice age. Normally the wild banana, a giant jungle herb called Musa

acuminata, contains a mass of hard seeds that make the fruit virtually inedible. But now and then, hunter-gatherers must have discovered rare mutant plants that produced seed-less, edible fruits. Geneticists now know that the vast majority of these soft-fruited plants resulted from genetic accidents that gave their cells three copies of each chromosome instead of the usual two. This imbalance prevents seeds and pollen from developing normally, rendering the mutant plants sterile. And that is why some scientists believe the world's most popular fruit could be doomed. It lacks the genetic diversity to fight off pests and diseases that are invading the banana plantations of Central America and the small-holdings of Africa and Asia alike.

B In some ways, the banana today resembles the potato before blight brought famine to Ireland a century and a half ago. But "it holds a lesson for other crops, too", says Emile Frison, top banana at the International Network for the Improvement of Banana and Plantain in Montpellier, France. "The state of the banana,, , Frison warns, "can teach a broader lesson the increasing standardisation of food crops round the world is threatening their ability to adapt and survive."

C The first Stone Age plant breeders cultivated these sterile freaks by replanting cuttings from their stems. And the descendants of those original cuttings are the bananas we still eat today. Each is a virtual clone, almost devoid of genetic diversity. And that uniformity makes it ripe for disease like no other crop on Earth. Traditional varieties of sexually reproducing crops have always had a much broader genetic base, and the genes will recombine in new arrangements in each generation. This gives them much greater flexibility in evolving responses to disease - and far more genetic resources to draw on in the face of an attack. But that advantage is fading fast, as growers increasingly plant the same few, high-yielding varieties. Plant breeders work feverishly to maintain resistance in these standardized crops. Should these efforts falter, yields of even the most productive crop could swiftly crash. "When some pest or disease comes along, severe epidemics can occur, " says Geoff Hawtin, director of the Rome-based International Plant Genetic Resources Institute.

D The banana is an excellent case in point. Until the 1950s, one variety, the Gros

Michel, dominated the world's commercial banana business. Found by French botanists in Asia in the 1820s, the Gros Michel was by all accounts a fine banana, richer and sweeter than today's standard banana and without the latter's bitter aftertaste when green. But it was vulnerable to a soil fungus that produced a wilt known as Panama disease. "Once the fungus gets into the soil it remains there for many years. There is nothing farmers can do. Even chemical spraying won't get rid of it," says Rodomiro Ortiz, director of the International Institute for Tropical Agriculture in Ibadan, Nigeria. So plantation owners played a running game, abandoning infested fields and moving to "clean" land _ until they ran out of clean land in the 1950s and had to abandon the Gros Michel. Its successor, and still the reigning commercial king, is the Cavendish banana, a 19th-century British discovery from southern China. The Cavendish is resistant to Panama disease and, as a result, it literally saved the international banana industry. During the 1960s, it replaced the Gros Michel on supermarket shelves. If you buy a banana today, it is almost certainly a Cavendish. But even so, it is a minority in the world's banana crop.

E Half a billion people in Asia and Africa depend on bananas. Bananas provide the largest source of calories and are eaten daily. Its name is synonymous with food. But the day of reckoning may be coming for the Cavendish and its indigenous kin. Another fungal disease, black Sigatoka, has become a global epidemic since its first appearance in Fiji in 1963. Left to itself, black Sigatoka which causes brown wounds on leaves and pre-mature fruit ripening - cuts fruit yields by 50 to 70 per cent and reduces the productive lifetime of banana plants from 30 years to as little as 2 or 3. Commercial growers keep Sigatoka at bay by a massive chemical assault. Forty sprayings of fungicide a year is typical. But despite the fungicides, diseases such as black Sigatoka are getting more and more difficult to control. "As soon as you bring in a new fungicide, they develop resistance", says Frison. "One thing we can be sure of is that the Sigatoka won't lose in this battle." Poor farmers, who cannot afford chemicals, have it even worse. They can do little more than watch their plants die. "Most of the banana fields in Amazonia have already been destroyed by the disease," says Luadir Gasparotto, Brazil's leading banana pathologist with the government research agency EMBRAPA. Production is likely to fall by 70 percent as the disease spreads, he

predicts. The only option will be to find a new variety.

F But how? Almost all edible varieties are susceptible to the diseases, so growers cannot simply change to a different banana. With most crops, such a threat would unleash an army of breeders, scouring the world for resistant relatives whose traits they can breed into commercial varieties. Not so with the banana. Because all edible varieties are sterile, bringing in new genetic traits to help cope with pests and diseases is nearly impossible. Nearly, but not totally. Very rarely, a sterile banana will experience a genetic accident that allows an almost normal seed to develop, giving breeders a tiny window for improvement. Breeders at the Honduran Foundation of Agricultural Research have tried to exploit this to create disease-resistant varieties. Further backcrossing with wild bananas yielded a new seedless banana resistant to both black Sigatoka and Panama disease.

G Neither Western supermarket consumers nor peasant growers like the new hybrid. Some accuse it of tasting more like an apple than a banana. Not surprisingly, the majority of plant breeders have till now turned their backs on the banana and got to work on easier plants. And commercial banana companies are now washing their hands of the whole breeding effort, preferring to fund a search for new fungicides instead. "We supported a breeding programme for 40 years, but it wasn't able to develop an alternative to Cavendish. It was very expensive and we got nothing back," says Ronald Romero, head of research at Chiquita, one of the Big Three companies that dominate the international banana trade.

H Last year, a global consortium of scientists led by Frison announced plans to sequence the banana genome within five years. It would be the first edible fruit to be sequenced. Well, almost edible. The group will actually be sequencing inedible wild bananas from East Asia because many of these are resistant to black Sigatoka. If they can pinpoint the genes that help these wild varieties to resist black Sigatoka, the protective genes could be introduced into laboratory tissue cultures of cells from edible varieties. These could then be propagated into new, resistant plants and passed on to farmers.

It sounds promising, but the big banana companies have, until now, refused to get involved in GM research for fear of alienating their customers. "Biotechnology is extremely expensive and there are serious questions about consumer acceptance,"¹¹ says David McLaughlin, Chiquita's senior director for environmental affairs. With scant funding from the companies, the banana genome researchers are focusing on the other end of the spectrum. Even if they can identify the crucial genes, they will be a long way from developing new varieties that smallholders will find suitable and affordable. But whatever biotechnology's academic interest, it is the only hope for the banana. Without banana production worldwide will head into a tailspin. We may even see the extinction of the banana as both a lifesaver for hungry and impoverished Africans and as the most popular product on the world's supermarket shelves.

Questions 1-3

Complete the sentences below with **NO MORE THAN THREE WORDS** from the passage.

In boxes 1-3 on your answer sheet, write

Write your answers in boxes 1-3 on your answer sheet

1. Banana was first eaten as a fruit by humans years ago.

2. Banana was first planted in.....
3. Wild banana's taste is adversely affected by its.....

Questions 4-10

Look at the following statements (Questions 4-10) and the list of people below Match each statement with the correct person, A-I.

Write the correct letter: A-I, in boxes 4-10 On your answer sheet. NB You may use any letter more than once.

4. Pest invasion may seriously damage banana industry.
5. The effect of fungal infection in soil is often long-lasting.
6. A commercial manufacturer gave up on breeding bananas for disease resistant
7. Banana disease may develop resistance to chemical sprays.
8. A banana disease has destroyed a large number of banana plantations.
9. Consumers would not accept genetically altered crop.
10. Lessons can be learned from bananas for other crops.

List of People

- A. Rodomiro
- B. David Maclaughlin
- C. Emile Frison
- D. Ronald Romero
- E. Luadir Gasparotto
- F. Geoff Hawtin

Questions 11-13

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

In boxes 11-13 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

11. Banana is the oldest known fruit

12. Gros Michel is still being used as a commercial product
13. Banana is a main food in some countries

SECTION 2

Computer Provides More Questions Than Answers

A The island of Antikythera lies 18 miles north of Crete, where the Aegean Sea meets the Mediterranean. Currents there can make shipping treacherous and one ship bound for ancient Rome never made it. The ship that sank there was a giant cargo vessel measuring nearly 500 feet long. It came to rest about 200 feet below the surface, where it stayed for more than 2,000 years until divers looking for sponges discovered the wreck a little more than a century ago.

B Inside the hull were a number of bronze and marble statues. From the look of things, the ship seemed to be carrying luxury items, probably made in various Greek islands and bound for wealthy patrons in the growing Roman Empire. The statues were retrieved, along with a lot of other unimportant stuff, and stored. Nine months later, an enterprising archaeologist cleared off a layer of organic material from one of the pieces of junk and found that it looked like a gearwheel. It had inscriptions in Greek characters and seemed to have something to do with astronomy.

C That piece of “Junk” went on to become the most celebrated find from the shipwreck; it is displayed at the National Archaeological Museum of Athens. Research has shown that the wheel was part of a device so sophisticated that its complexity would not be matched for a thousand years — it was also the world's first known analog computer. The device is so famous that an international conference organized in Athens a couple of weeks ago had only one subject: the Antikythera Mechanism.

D Every discovery about the device has raised new questions. Who built the device, and for what purpose? Why did the technology behind it disappear for the next thousand years? What does the device tell us about ancient Greek culture? And does the marvelous construction, and the precise knowledge of the movement of the sun

and moon and Earth that it implies, tell us how the ancients grappled with ideas about determinism and human destiny?

E "We have gear trains from the 9th century in Baghdad used for simpler displays of the solar and lunar motions relative to one another — they use eight gears,' said Francois Charette, a historian of science in Germany who wrote an editorial accompanying a new study of the mechanism two weeks ago in the journal Nature. "In this case, we have more than 30 gears. To see it on a computer animation makes it mind-boggling. There is no doubt it was a technological masterpiece."

F The device was probably built between 100 and 140 BC, and the understanding of astronomy it displays seems to have been based on knowledge developed by the Babylonians around 300-700 BC, said Mike Edmunds, a professor of astrophysics at Cardiff University in Britain. He led a research team that reconstructed what the gear mechanism would have looked like by using advanced three- dimensional-imaging technology. The group also decoded a number of the inscriptions. The mechanism explores the relationship between lunar months_the time it takes for the moon to cycle through its phases, say, full moon to full moon -and calendar years. The gears had to be cut precisely to reflect this complex relationship; 19 calendar years equal 235 lunar months.

G By turning the gear mechanism, which included what Edmunds called a beautiful system of epicyclic gears that factored in the elliptical orbit of the moon, a person could check what the sky would have looked like on a date in the past, or how it would appear in the future. The mechanism was encased in a box with doors in front and back covered with inscriptions -- a sort of instruction manual. Inside the front door were pointers indicating the date and the position of the sun, moon and zodiac, while opening the back door revealed the relationship between calendar years and lunar months, and a mechanism to predict eclipses.

H "If they needed to know when eclipses would occur, and this related to the rising and setting of stars and related them to dates and religious experiences, the mechanism would directly help, " said Yanis Bitsakis, a physicist at the University of Athens who

co- wrote the Nature paper. "It is a mechanical computer. You turn the handle and you have a date on the front." Building it would have been expensive and required the interaction of astronomer, engineers, intellectuals and craftspeople. Charette said the device overturned conventional ideas that the ancient Greeks were primarily ivory tower thinkers who did not deign to muddy their hands with technical stuff. It is a reminder, he said, that while the study of history often focuses on written texts, they can tell us only a fraction of what went on at a particular time.

I Imagine a future historian encountering philosophy texts written in our time ~ and an aircraft engine. The books would tell that researcher what a few scholars were thinking today, but the engine would give them a far better window into how technology influenced our everyday lives. Charette said it was unlikely that the device was used by practitioners of astrology, then still in its infancy. More likely, he said, it was bound for a mantelpiece in some rich Roman's home. Given that astronomers of the time already knew how to calculate the positions of the sun and the moon and to predict eclipses without the device, it would have been the equivalent of a device built for a planetarium today__something to spur popular interest, or at least claim bragging rights.

J Why was the technology that went into the device lost? "The time this was built, the jackboot of Rome was coming through," Edmunds said. "The Romans were good at town planning and sanitation but were not known for their interest in science." The fact that the device was so complex, and that it was being shipped with a quantity of other luxury items, tells Edmunds that it is very unlikely to have been the one ever made. Its sophistication "is such that it can't have been the only one," Edmunds said. "There must have been a tradition of making them. We're always hopeful a better one will surface." Indeed, he said, he hopes that his study and the renewed interest in the Antikythera Mechanism will prompt second looks by both amateurs and professionals around the world. "The archaeological world may look in their cupboards and maybe say, "That isn't a bit of rusty old metal in the cupboard."

Questions 14-18

The reading Passage has ten paragraphs A- J. Which paragraph contains the

following information?

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

14. Content inside the wreck ship
15. Ancient astronomers and craftsman might involve
16. The location of Antikythera Mechanism
17. Details of how it was found
18. Appearance and structure of the mechanism

Questions 19-22

Summary

Complete the following summary of the paragraphs of Reading Passage, using **no more than two** words from the Reading Passage for each answer. Write your answers in boxes 19-22 on your answer sheet.

An ancient huge sunk _____ 19 _____ was found accidentally by sponges searcher. The ship _____ 20 _____ such as bronze and loaded with _____

sculptures. However, an archaeologist found a junk similar to a _____ 21 _____ which has Greek script on it. This inspiring and elaborated device was found to be the first _____ 22 _____ in the world.

Questions 23-26

Use the information in the passage to match the people (listed A-C) with opinions or deeds below. Write the appropriate letters A-F in boxes 23-27 on your answer sheet.

NB you may use any letter more than once

- A. Yanis Bitsakis
- B. Mike Edmunds
- C. Francois Charette

23. More complicated than previous device

24. Anticipate to find more Antikythera Mechanism in the future
25. Antikythera Mechanism was found related to moon
26. Mechanism assisted ancient people to calculate movement of stars.

SECTION 3

Save Endangered Language

"Obviously we must do some serious rethinking of our priorities, lest linguistics go down in history as the only science that presided obviously over the disappearance of 90 percent of the very field to which it is dedicated." - Michael Krauss, "The World's Languages in Crisis".

A Ten years ago Michael Krauss sent a shudder through the discipline of linguistics with his prediction that half the 6,000 or so languages spoken in the world would cease to be uttered within a century.

Unless scientists and community leaders directed a worldwide effort to stabilize the decline of local languages, he warned, nine tenths of the linguistic diversity of humankind would probably be doomed to extinction. Krauss's prediction was little more than an educated guess, but other respected linguists had been clanging out similar alarms. Keneth L. Hale of the Massachusetts Institute of Technology noted in the same journal issue that eight languages on which he had done fieldwork had since passed into extinction. A 1990 survey in Australia found that 70 of the 90 surviving Aboriginal languages were no longer used regularly by all age groups. The same was true for all but 20 of the 175 Native American languages spoken or remembered in the US, Krauss told a congressional panel in 1992.

B Many experts in the field mourn the loss of rare languages, for several reasons. To start, there is scientific self-interest: some of the most basic questions in linguistics have to do with the limits of human speech, which are far from fully explored. Many researchers would like to know which structural elements of grammar and vocabulary—if any are truly universal and probably therefore hardwired into the human brain. Other scientists try to reconstruct ancient migration patterns by comparing borrowed words that appear in otherwise unrelated languages. In each of these cases, the wider the portfolio of languages you study, the more likely you are to get the right answers.

C Despite the near constant buzz in linguistics about endangered languages over the past 10 years, the field has accomplished depressingly little. “You would think that there would be some organized response to this dire situation”, some attempt to determine which language can be saved and which should be documented before they disappear, says Sarah G. Thomason, a linguist at the University of Michigan at Ann Arbor. “But there isn’t any such effort organized in the profession. It is only recently that it has become fashionable enough to work on endangered languages.⁵⁵ Six years ago, recalls Douglas H. Whalen of Yale University, “when I asked linguists who was raising money to deal with these problems, I mostly got blank stares.” So Whalen and a few other linguists founded the Endangered Languages Fund. In the five years to 2001 they were able to collect only \$80,000 for research grants. A similar foundation in England, directed by Nicholas Ostler, has raised just \$8,000 since 1995.

D But there are encouraging signs that the field has turned a corner. The Volkswagen Foundation, a German charity, just issued its second round of grants totaling more than \$2 million. It has created a multimedia archive at the Max Planck Institute for Psycholinguistics in the Netherlands that can house recordings, grammars, dictionaries and other data on endangered languages. To fill the archive, the foundation has dispatched field linguists to document Aweti (100 or so speakers in Brazil), Ega (about 300 speakers in Ivory Coast), Waimaa (a few hundred speakers in East Timor), and a dozen or so other languages unlikely to survive the century. The Ford Foundation has also edged into the arena. Its contributions helped to reinvigorate a master-apprentice program created in 1992 by Leanne Hinton of Berkeley and Native Americans worried about the imminent demise of about 50 indigenous languages in California. Fluent speakers receive \$3,000 to teach a younger relative (who is also paid) their native tongue through 360 hours of shared activities, spread over six months. So far about 5 teams have completed the program, Hinton says, transmitting at least some knowledge of 25 languages. “It’s too early to call this language revitalization,” Hinton admits. “In California the death rate of elderly speakers will always be greater than the recruitment rate of young speakers. But at least we prolong the survival of the language.” That will give linguists more time to record these tongues before they vanish.

E But the master-apprentice approach hasn't caught on outside the U.S., and Hinton's effort is a drop in the sea. At least 440 languages have been reduced to a mere handful of elders, according to the Ethnologue, a catalogue of languages produced by the Dallas-based group SIL International that comes closest to global coverage. For the vast majority of these languages, there is little or no record of their grammar, vocabulary, pronunciation or use in daily life. Even if a language has been fully documented, all that remains once it vanishes from active use is a fossil skeleton, a scattering of features that the scientist was lucky and astute enough to capture. Linguists may be able to sketch an outline of the forgotten language and fix its place on the evolutionary tree, but little more. "How did people start conversations and talk to babies? How did husbands and wives converse?" Hinton asks. "Those are the first things you want to learn when you want to revitalize the language.

F But there is as yet no discipline of "conservation linguistics" as there is for biology. Almost every strategy tried so far has succeeded in some places but failed in others, and there seems to be no way to predict with certainty what will work where. Twenty years ago in New Zealand, Maori speakers set up "language nests, "in which preschoolers were immersed in the native language. Additional Maori-only classes were added as the children progressed through elementary and secondary school. A similar approach was tried in Hawaii, with some success - the number of native speakers has stabilized at 1,000 or so, reports Joseph E. Grimes of SIL International, who is working on Oahu. Students can now get instruction in Hawaiian all the way through university.

G One factor that always seems to occur in the demise of a language is that the speakers begin to have collective doubts about the usefulness of language loyalty. Once they start regarding their own language as inferior to the majority language, people stop using it for all situations. Kids pick up on the attitude and prefer the dominant language. In many cases, people don't notice until they suddenly realize that their kids never speak the language, even at home. This is how Cornish and some dialects of Scottish Gaelic is still only rarely used for daily home life in Ireland, 80 years after the republic was founded with Irish as its first official language.

H Linguists agree that ultimately, the answer to the problem of language extinction is multilingualism. Even uneducated people can learn several languages, as long as they start as children. Indeed, most people in the world speak more than one tongue, and in places such as Cameroon (279 languages), Papua New Guinea (823) and India (387) it is common to speak three or four distinct languages and a dialect or two as well. Most Americans and Canadians, to the west of Quebec, have a gut reaction that anyone speaking another language in front of them is committing an immoral act. You get the same reaction in Australia and Russia. It is no coincidence that these are the areas where languages are disappearing the fastest. The first step in saving dying languages is to persuade the world's majorities to allow the minorities among them to speak with their own voices.

Questions 27-33

The reading passage has eight paragraphs, A-H

Choose the correct heading for paragraphs A-H from the list below. Write the correct number, i – xi, in boxes 27-33 on your answer sheet.

List of Headings

- i. data consistency needed for language
- ii. consensus on an initiative recommendation for saving dying out languages
- iii. positive gains for protection
- iv. minimum requirement for saving a language
- v. Potential threat to minority language
- vi. a period when there was absent of real effort made.
- vii. native language programs launched
- viii. Lack in confidence in young speakers as a negative factor
- ix. Practise in several developing countries
- x. Value of minority language to linguists.
- xi. government participation in language field

27. Paragraph A
28. Paragraph B
29. Paragraph D
30. Paragraph E

- 31. Paragraph F
- 32. Paragraph G
- 33. Paragraph H

Example: Paragraph C

Questions 34-38

Use the information in the passage to match the people (listed A-F) with opinions or deeds below. Write the appropriate letters A-F in boxes 34-38 on your answer sheet.

- A. Nicholas Ostler
- B. Michael Krauss
- C. Joseph E. Grimes
- D. Sarah
- E. Keneth L. Hale
- F. Douglas
- G. Thomason
- H. Whalen

- 34. Reported language conservation practice in Hawaii
- 35. Predicted that many languages would disappear soon
- 36. Experienced process that languages die out personally
- 37. Raised language fund in England
- 38. Not enough effort on saving until recent work

Questions 39-40

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

Write your answers in boxes 39-40 on your answer sheet.

39. What is real result of master-apprentice program sponsored by The Ford Foundation!

- A. Teach children how to speak
- B. Revive some endangered languages in California
- C. postpone the dying date for some endangered languages
- D Increase communication between students

40. What should majority language speakers do according to the last paragraph?

- A. They should teach their children endangered language in free lessons

- B. They should learn at least four languages
- C. They should show their loyalty to a dying language
- D. They should be more tolerant to minority language speaker

Reading Test 20

SECTION 1

Eco-Resort Management Practices

A

Ecotourism is often regarded as a form of nature-based tourism and has become an important alternative source of tourists. In addition to providing the traditional resort-leisure product, it has been argued that ecotourism resort management should have a particular focus on best-practice environmental management, an educational and interpretive component, and direct and indirect contributions to the conservation of the natural and cultural environment (Ayala, 1996).

B

Couran Cove Island Resort is a large integrated ecotourism-based resort located south of Brisbane on the Gold Coast, Queensland, and Australia. As the world's population becomes increasingly urbanised, the demand for tourist attractions which are environmentally friendly, serene and offer amenities of a unique nature, has grown rapidly. Couran Cove Resort, which is one such tourist attractions, is located on South Stradbroke Island, occupying approximately 150 hectares of the island. South Stradbroke Island is separated from the mainland by the Broadwater, a stretch of sea 3 kilometers wide. More than a century ago, there was only one Stradbroke Island, and there were at least four aboriginal tribes living and hunting on the island. Regrettably, most of the original island dwellers were eventually killed by diseases such as tuberculosis, smallpox and influenza by the end of the 19th century. The second shipwreck on the island in 1894, and the subsequent destruction of the ship (the *Cambus Wallace*) because it contained dynamite, caused a large crater in the sandhills on Stradbroke Island. Eventually, the ocean broke through the weakened land form and

Stradbroke became two islands. Couran Cove Island Resort is built on one of the world's few naturally- occurring sand lands, which is home to a wide range of plant communities and one of the largest remaining remnants of the rare *livistona* Rainforest left on the Gold Coast. Many mangrove and rainforest areas and Malaleuca Wetlands on South Stradbroke Island (and in Queensland), have been cleared, drained or filled for residential, industrial, agricultural or urban development in the first half of the 20th century. Farmers and graziers finally abandoned South Stradbroke Island in 1939 because the vegetation and the soil conditions there were not suitable for agricultural activities.

SUSTAINABLE PRACTICES OF COURAN COVE RESORT

Being located on an offshore island, the resort is only accessible by means of water transportation. The resort provides hourly ferry service from the marina on the mainland to and from the island. Within the resort, transport modes include walking trails, bicycle tracks and the beach train.

The reception area is the counter of the shop which has not changed in 8 years at least. The accommodation is an octagonal "Bure". These are large rooms that are clean but! The equipment is tired and in some cases just working. Our ceiling fan only worked on high speed for example. Beds are hard but clean, there is television, radio, an old air conditioner and a small fridge. These "Bures" are right on top of each other and night noises do carry so be careful what you say and do. The only thing is the mosquitos but if you forget to bring mosquito repellent they sell some on the island.

As an ecotourism-based resort, most of the planning and development of the attraction has been concentrated on the need to co-exist with the fragile natural environment of South Stradbroke Island to achieve sustainable development.

WATER AND ENERGY MANAGEMENT

C

South Stradbroke Island has groundwater at the centre of the island, which has a maximum height of 3 metres above sea level. The water supply is recharged by rainfall

and is commonly known as an unconfined freshwater aquifer (StK/1-) . Couran Cove Island Resort obtains its water supply by tapping into this aquifer and extracting it via a bore system. Some of the problems which have threatened the island's freshwater supply include pollution, contamination and over-consumption. In order to minimise some of these problems, all laundry activities are carried out on the mainland. The resort considers washing machines as onerous to the island's freshwater supply, and that the detergents contain a high level of phosphates which are a major source of water pollution. The resort uses LPG-power generation rather than a diesel-powered plant for its energy supply, supplemented by wind turbine, which has reduced greenhouse emissions by 70% of diesel-equivalent generation methods. Excess heat recovered from the generator is used to heat the swimming pool. Hot water in the eco-cabins and for some of the resort's vehicles are solar-powered. Water efficient fittings are also installed in showers and toilets. However, not all the appliances used by the resort are energy efficient, such as refrigerators. Visitors who stay at the resort are encouraged to monitor their water and energy usage via the in-house television systems, and are rewarded with prizes (such as a free return trip to the resort) accordingly if their usage level is low.

CONCLUDING REMARKS

D

We examined a case study of good management practice and a pro-active sustainable tourism stance of an eco-resort. In three years of operation, Couran Cove Island Resort has won 23 international and national awards, including the 2001 Australian Tourism Award in the 4-Star Accommodation category. The resort has embraced and has effectively implemented contemporary environmental management practices. It has been argued that the successful implementation of the principles of sustainability should promote long-term social, economic and environmental benefits, while ensuring and enhancing the prospects of continued viability for the tourism enterprise. Couran Cove Island Resort does not conform to the characteristics of the Resort Development Spectrum, as proposed by Prideaux (2000). According to Prideaux, the resort should be at least at Phase 3 of the model (the National tourism phase), which

describes an integrated resort providing 3-4 star hotel-type accommodation. The primary tourist market in Phase 3 of the model consists mainly of interstate visitors. However, the number of interstate and international tourists visiting the resort is small, with the principal locals and residents from nearby towns and the Gold Coast region. The carrying capacity of Couran Cove does not seem to be of any concern to the Resort management. Given that it is a private commercial ecotourist enterprise, regulating the number of visitors to the resort to minimize damage done to the natural environment on South Stradbroke Island is not a binding constraint. However, the Resort's growth will eventually be constrained by its carrying capacity, and quantity control should be incorporated in the management strategy of the resort.

Question 1 - 4.

Choose the correct letter, A, B, C or D. Write your answers in boxes 1 -4 on your answer sheet.

1. the Stradbroke became two islands

- A. by an intended destruction of the ship of the Cambus Wallace
- B. by an explosion of dynamite on a ship and following nature erosion
- C. by the movement sandhills on Stradbroke Island
- D. by the volcanic eruption on island

2. Why are laundry activities for the resort carried out on the mainland.

- A. In order to obtain its water supply via a bore system
- B. In order to preserve the water and anti-pollution
- C. In order to save the cost of installing onerous washing machines
- D. In order to reduce the level of phosphates in water around

3. What is the major water supplier in South Stradbroke Island is by

- A. desalining the sea water
- B. collecting the rainfall
- C. transporting from the mainland
- D. boring ground water

4. What is applied for heating water on Couran Cove Island Resort

- A. the LPG-power
- B. a diesel-powered plant
- C. the wind power
- D the solar-power

5. what does, as the managers of resorts believe, the prospective future focus on

- A. more awards of for resort's accommodation
- B. sustainable administration and development in a long run
- C.Economic and environmental benefits for the tourism enterprise
- D successful implementation the Resort Development Spectrum

Questions 6-10

Complete the following summary of the paragraphs of Reading Passage, using no more than two words from the Reading Passage for each answer. Write your answers in boxes 6-10 on your answer sheet.

Being located away from the mainland, tourists can attain the resort only by 6..... in a regular service. Within the resort, transports include trails for walking or tracks for both 7 and the beach train. The on-island equipment is old-fashioned which is barely working such as the 8..... overhead. There is television, radio, an old 9..... and a small fridge. And you can buy the repellent for 10 if you forget to bring some.

Questions 11-13

Choose three correct letters among A-E

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

What is true as to the contemporary situation of Couran Cove Island Resort in the last paragraph?

- A. Couran Cove Island Resort goes for more eco-friendly practices
- B. the accommodation standard only conforms to the Resort Development Spectrum of Phase 3

- C. Couran Cove Island Resort should raise the accommodation build more standard and build more facilities
- D. the principal group visiting the resort is international tourists
- E. its carrying capacity will restrict the future business' expansion

SECTION 2

You should spend about 20 minutes on question 14-26, which are based on reading passage 2 on the following pages.

TV Addiction

A The amount of time people spend watching television is astonishing. On average, individuals in the industrialized world devote three hours a day to the pursuit —fully half of their leisure time, and more than on any single activity save work and sleep. At this rate, someone who lives to 75 would spend nine years in front of the tube. To some commentators, this devotion means simply that people enjoy TV and make a conscious decision to watch it. But if that is the whole story, why do so many people experience misgivings about how much they view? In Gallup polls in 1992 and 1999, two out of five adult respondents and seven out of 10 teenagers said they spent too much time watching TV. Other surveys have consistently shown that roughly 10 percent of adults call themselves TV addicts

B To study people's reactions to TV, researchers have experiments in which they have monitored the brain waves (using an electroencephalograph, or EEG) to track behavior and emotion in the normal course of life, as opposed to the artificial conditions of the lab. Participants carried a beeper, and we signaled them six to eight times a day, at random, over the period of a week; whenever they heard the beep, they wrote down what they were doing and how they were feeling using a standardized scorecard.

C As one might expect, people who were watching TV when we beeped them reported feeling relaxed and passive. The EEG studies similarly show less mental stimulation, as measured by alpha brain-wave production, during viewing than during reading. What is more surprising is that the sense of relaxation ends when the set is turned off, but

the feelings of passivity and lowered alertness continue. Survey participants say they have more difficulty concentrating after viewing than before. In contrast, they rarely indicate such difficulty after reading. After playing sports or engaging in hobbies, people report improvements in mood. After watching TV, people's moods are about the same or worse than before. That may be because viewers' vague learned sense that they will feel less relaxed if they stop viewing. So they tend not to turn the set off. Viewing begets more viewing which is the same as the experience of habit-forming drugs. Thus, the irony of TV: people watch a great deal longer than they plan to, even though prolonged viewing is less rewarding. In our ESM studies the longer people sat in front of the set, the less satisfaction they said they derived from it. For some, a twinge of unease or guilt that they aren't doing something more productive may also accompany and depreciate the enjoyment of prolonged viewing. Researchers in Japan, the U.K. and the U.S. have found that this guilt occurs much more among middle-class viewers than among less affluent ones.

D What is it about TV that has such a hold on us? In part, the attraction seems to spring from our biological 'orienting response/ First described by Ivan Pavlov in 1927, the orienting response is our instinctive visual or auditory reaction to any sudden or novel stimulus. It is part of our evolutionary heritage, a built-in sensitivity to movement and potential predatory threats. In 1986 Byron Reeves of Stanford University, Esther Thorson of the University of Missouri and their colleagues began to study whether the simple formal features of television—cuts, edits, zooms, pans, sudden noises — activate the orienting response, thereby keeping attention on the screen. By watching how brain waves were affected by formal features, the researchers concluded that these stylistic tricks can indeed trigger involuntary responses and 'derive their attentional value through the evolutionary significance of detecting movement. It is the form, not the content, of television that is unique.

E The natural attraction to television's sound and light starts very early in life. Dafna Lemish of Tel Aviv University has described babies at six to eight weeks attending to television. We have observed slightly older infants who, when lying on their backs on the floor, crane their necks around 180 degrees to catch what light through yonder

window breaks. This inclination suggests how deeply rooted the orienting response is.

F The Experience Sampling Method permitted us to look closely at most every domain of everyday life: working, eating, reading, talking to friends, playing a sport, and so on. We found that heavy viewers report feeling significantly more anxious and less happy than light viewers do in unstructured situations, such as doing nothing, daydreaming or waiting in line. The difference widens when the viewer is alone. Subsequently, Robert D. McIlwraith of the University of Manitoba extensively studied those who called themselves TV addicts on surveys. On a measure called the Short Imaginal Processes Inventory (SIPI), he found that the self-described addicts are more easily bored and distracted and have poorer attentional control than the non-addicts. The addicts said they used TV to distract themselves from unpleasant thoughts and to fill time. Other studies over the years have shown that heavy viewers are less likely to participate in community activities and sports and are more likely to be obese than moderate viewers or non-viewers.

G More than 25 years ago psychologist Tannis M. MacBeth Williams of the University of British Columbia studied a mountain community that had no television until cable finally arrived. Over time, both adults and children in the town became less creative in problem solving, less able to persevere at tasks, and less tolerant of unstructured time.

H Nearly 40 years ago Gary A. Steiner of the University of Chicago collected fascinating individual accounts of families whose set had broken. In experiments, families have volunteered or been paid to stop viewing, typically for a week or a month. Some fought, verbally and physically. In a review of these cold-turkey studies, Charles Winick of the City University of New York concluded: 'The first three or four days for most persons were the worst, even in many homes where viewing was minimal and where there were other ongoing activities. In over half of all the households, during these first few days of loss, the regular routines were disrupted, family members had difficulties in dealing with the newly available time, anxiety and aggressions were expressed. By the second week, a move toward adaptation to the situation was common.' Unfortunately, researchers have yet to flesh out these anecdotes; no one has systematically gathered statistics on the prevalence of these withdrawal symptoms.

Even though TV does seem to meet the criteria for substance dependence, not all researchers would go so far as to call TV addictive. McIlwraith said in 1998 that 'displacement of other activities by television may be socially significant but still fall short of the clinical requirement of significant impairment.' He argued that a new category of 'TV addiction' may not be necessary if heavy viewing stems from conditions such as depression and social phobia. Nevertheless, whether or not we formally diagnose someone as TV-dependent, millions of people sense that they cannot readily control the amount of television they watch.

Questions 14-18

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

In boxes 14-18 on your answer sheet, write

TRUE if the statement is true

FALSE if the statement is false

NOT GIVEN if the information is not given in the passage

14. Study shows that males are more likely to be addicted to TV than females.

15. Greater improvements in mood are experienced after watching TV than playing sports.

16. TV addiction works in similar ways as drugs.

17. It is reported that people's satisfaction is in proportion to the time they spend watching TV.

18. Middle-class viewers are more likely to feel guilty about watching TV than the poor.

Questions 19-23

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

Match each researcher with the correct statements.

Write the correct letter A-H in boxes 19-23 on your answer sheets.

19. Byron Reeves and Esther Thorson

20. Dafna Lemish

21. Robert D. McIlwraith

22. Tannis M. MacBeth Williams

23. Charles Winick

List of Statements

- A. Audiences would get hypnotized from viewing too much television.
- B. People have been sensitive to the TV signals since a younger age.
- C. People are less likely to accomplish their work with television.
- D. A handful of studies have attempted to study other types of media addiction.
- E. The addictive power of television could probably minimize the problems.
- F. Various media formal characters stimulate people's reaction on the screen.
- G. People who believe themselves to be TV addicts are less likely to join in the group activities.
- H. It is hard for people to accept the life without TV at the beginning.

Questions 24-26

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

Write the correct letter in boxes 24-26 on your answer sheet. 24 People in the industrialized world

- A. devote ten hours watching TV on average.
- B. spend more time on TV than other entertainment.
- C. call themselves TV addicts.
- D. working best.

25 When compared with light viewers, heavy viewers

- A. like playing sport more than reading.
- B. feel relaxed after watching TV.
- C. spend more time in daydreaming.
- D. are more easily bored while waiting in line.

26 Which of the following statements is true about the family experiment?

- A. Not all the subjects participate in the experiment for free.
- B. There has been a complete gathered data.
- C. People are prevented from other activities during the experiment.
- D. People cannot adapt to the situation until the end

SECTION 3

Music: Language We All Speak

Section A: Music is one of the human specie's relatively few universal abilities. Without formal training, any individual, from Stone Age tribesman to suburban teenager has the ability to recognize music and, in some fashion, to make it. Why this should be so is a mystery. After all, music isn't necessary for getting through the day, and if it aids in reproduction, it does so only in highly indirect ways. Language, by contrast, is also everywhere- but for reasons that are more obvious. With language, you and the members of your tribe can organize a migration across Africa, build reed boats and cross the seas, and communicate at night even when you can't see each other. Modern culture, in all its technological extravagance, springs directly from the human talent for manipulating symbols and syntax. Scientists have always been intrigued by the connection between music and language. Yet over the years, words and melody have acquired a vastly different status in the lab and the seminar room. While language has long been considered essential to unlocking the mechanisms of human intelligence, music is generally treated as an evolutionary frippery- mere "auditory cheesecake," as the Harvard cognitive scientist Steven Pinker puts it.

Section B: But thanks to a decade-long wave of neuroscience research, that tune is changing. A flurry of recent publications suggests that language and music may equally be able to tell us who we are and where we're from - not just emotionally, but biologically. In July, the journal *Nature Neuroscience* devoted a special issue to the topic. And in an article in the August 6 issue of the *Journal of Neuroscience*, David Schwartz, Catherine Howe, and Dale Purves of Duke University argued that the sounds of music and the sounds of language are intricately connected. To grasp the originality of this idea, it's necessary to realize two things about how music has traditionally been understood. First, musicologists have long emphasized that while each culture stamps a special identity onto its music; music itself has some universal qualities. For example, in virtually all cultures sound is divided into some or all of the 12 intervals that make up the chromatic scale - that is, the scale represented by the keys on a piano. For

centuries, observers have attributed this preference for certain combinations of tones to the mathematical properties of sound itself. Some 2,500 years ago, Pythagoras was the first to note a direct relationship between the harmoniousness of a tone combination and the physical dimensions of the object that produced it. For example, a plucked string will always play an octave lower than a similar string half its size, and a fifth lower than a similar string two-thirds its length. This link between simple ratios and harmony has influenced music theory ever since.

Section C: This music-is-moth idea is often accompanied by the notion that music formally speaking at least, exists apart from the world in which it was created. Writing recently in *The New York Review of Books*, pianist and critic Charles Rosen discussed the long-standing notion that while painting and sculpture reproduce at least some aspects of the natural world, and writing describes thoughts and feelings we are all familiar with, music is entirely abstracted from the world in which we live. Neither idea is right, according to David Schwartz and his colleagues. Human musical preferences are fundamentally shaped not by elegant algorithms or ratios but by the messy sounds of real life, and of speech in particular -which in turn is shaped by our evolutionary heritage." The explanation of music, like the explanation of any product of the mind, must be rooted in biology, not in numbers per se," says Schwartz.

Schwartz, Howe, and Purves analyzed a vast selection of speech sounds from a variety of languages to reveal the underlying patterns common to all utterances. In order to focus only on the raw sound, they discarded all theories about speech and meaning and sliced sentences into random bites. Using a database of over 100,000 brief segments of speech, they noted which frequency had the greatest emphasis in each sound. The resulting set of frequencies, they discovered, corresponded closely to the chromatic scale. In short, the building blocks of music are to be found in speech

Far from being abstract, music presents a strange analog to the patterns created by the sounds of speech. "Music, like the visual arts, is rooted in our experience of the natural world," says Schwartz. "It emulates our sound environment in the way that visual arts emulate the visual environment. " In music we hear the echo of our basic sound-

making instrument- the vocal tract. The explanation for human music is simple; still than Pythagoras's mathematical equations. We like the sounds that are familiar to us- specifically, we like sounds that remind us of us.

This brings up some chicken-or-egg evolutionary questions. It may be that music imitates speech directly, the researchers say, in which case it would seem that language evolved first. It's also conceivable that music came first and language is in effect an Imitation of song - that in everyday speech we hit the musical notes we especially like. Alternately, it may be that music imitates the general products of the human sound-making system, which just happens to be mostly speech. "We can't know this," says Schwartz. "What we do know is that they both come from the same system, and it is this that shapes our preferences."

Section D: Schwartz's study also casts light on the long-running question of whether animals understand or appreciate music. Despite the apparent abundance of "music" in the natural world- birdsong, whalesong, wolf howls, synchronized chimpanzee hooting previous studies have found that many laboratory animals don't show a great affinity for the human variety of music making. Marc Hauser and Josh McDermott of Harvard argued in the July issue of Nature Neuroscience that animals don't create or perceive music the way we do. The act that laboratory monkeys can show recognition of human tunes is evidence, they say, of shared general features of the auditory system, not any specific chimpanzee musical ability. As for birds, those most musical beasts, they generally recognize their own tunes - a narrow repertoire - but don't generate novel melodies like we do. There are no avian Mozarts.

But what's been played to the animals, Schwartz notes, is human music. If animals evolve preferences for sound as we do - based upon the soundscape in which they live - then their "music" would be fundamentally different from ours. In the same way our scales derive from human utterances, a cat's idea of a good tune would derive from yowls and meows. To demonstrate that animals don't appreciate sounds the way we do, we'd need evidence that they don't respond to "music" constructed from their own sound environment.

Section E: No matter how the connection between language and music is parsed, what is apparent is that our sense of music, even our love for it, is as deeply rooted in our biology and in our brains as language is. This is most obvious with babies, says Sandra Trehub at the University of Toronto, who also published a paper in the Nature Neuroscience special issue.

For babies, music and speech are on a continuum. Mothers use musical speech to "regulate infants' emotional states." Trehub says. Regardless of what language they speak, the voice all mothers use with babies is the same: "something between speech and song." This kind of communication "puts the baby in a trance-like state, which may proceed to sleep or extended periods of rapture." So if the babies of the world could understand the latest research on language and music, they probably wouldn't be very surprised. The upshot, says Trehub, is that music may be even more of a necessity than we realize.

Question 27 - 31

Reading Passage 3 has five sections A-E.

Choose the correct heading for each section from the list of headings below. Write the correct number i-viii in boxes 27-31 on your answer sheet.

List of Headings

- i. Animal sometimes make music.
- ii. Recent research on music
- iii. Culture embedded in music
- iv. Historical theories review
- v. Communication in music with animals
- vi. Contrast between music and language
- vii. Questions on a biological link with human and music
- viii. Music is good for babies.

27. Section A

28. Section B

- 29. Section C
- 30. Section D
- 31. Section E

Questions 32-38

Look at the following people and list of statements below. Match each person with the correct statement.

Write the correct letter A-G in boxes 32-38 on your answer sheet.

List of statements

- A. Music exists outside of the world in which it is created
- B. Music has a common feature though cultural influences affect
- C. Humans need music
- D. Music priority connects to the disordered sound around
- E. Discovery of mathematical musical foundation
- F. Music is not treat equally well compared with language
- G. Humans and monkeys have similar traits in perceiving sound

- 32. Steven Pinker
- 33. Musicologists
- 34. Greek philosopher Pythagoras
- 35. Schwartz, Howe, and Purves
- 36. Marc Hauser and Josh McDermott
- 37. Charles Rosen
- 38. Sandra Trehub

Questions 39-40

Choose the correct letter A, B, C or D

Write your answers in boxes 39-40 on your answer sheet.

39 Why was the study of animal's music uncertain?

- A. Animals don't have the same auditory system as humans.
- B. Experiments on animal's music are limited.
- C. tunes are impossible for animal to make up.

D. Animals don't have spontaneous ability for the tests.

40. What is the main subject of this passage?

- A. Language and psychology.
- B. Music formation.
- C. Role of music in human society.
- D. Music experiments for animals.

Reading Test 21

SECTION 1

California's age of Megafires

A There's a reason fire squads now battling more than a dozen blazes in southern California are having such difficulty containing the flames, despite better preparedness than ever and decades of experience fighting fires fanned by the notorious Santa Ana winds. The wildfires themselves, experts say, generally are hotter, move faster, and spread more erratically than in the past.

B The short-term explanation is that the region, which usually has dry summers, has had nine inches less rain than normal this year. Longer term, climate change across the West is leading to hotter days on average and longer fire seasons. Experts say this is likely to yield more megafires like the conflagrations that this week forced evacuations of at least 300,000 resident in California's southland and led President Bush to declare a disaster emergency in seven counties on Tuesday.

C Megafires, also called "siege fires," are the increasingly frequent blazes that bum 500,000 acres or more - 10 times the size of the average forest fire of 20 years ago. One of the current wildfires is the sixth biggest in California ever, in terms of acreage burned, according to state figures and news reports. The trend to more superhot fires, experts say, has been driven by a century-long policy of the US Forest Service to stop

wildfires as quickly as possible. The unintentional consequence was to halt the natural eradication of underbrush, now the primary fuel for megafires. Three other factors contribute to the trend, they add. First is climate change marked by a 1 -degree F. rise in average yearly temperature across the West. Second is a fire season that on average is 78 days longer than in the late 1980s. Third is increased building of homes and other structures in wooded areas.

D "We are increasingly building our homes ... in fire-prone ecosystems," says Dominik Kulakowski, adjunct professor of biology at Clark University Graduate School of Geography in Worcester, Mass. Doing that "in many of the forests of the Western US ... is like building homes on the side of an active volcano." In California, where population growth has averaged more than 600,000 a year for at least a decade, housing has pushed into such areas. "What once was open space is now residential homes providing fuel to make fires burn with greater intensity," says Terry McHale of the California Department of Forestry firefighters union. "With so much dryness, so many communities to catch fire, so many fronts to fight, it becomes an almost incredible job."

E That said, many experts give California high marks for making progress on preparedness since 2003, when the largest fires in state history scorched 750,000 acres, burned 3,640 homes, and killed 22 people. Stung then by criticism of bungling that allowed fires to spread when they might have been contained, personnel are meeting the peculiar challenges of neighborhood- and canyon-hopping fires better than in recent years, observers say.

F State promises to provide newer engines, planes, and helicopters have been fulfilled. Firefighters unions that then complained of dilapidated equipment, old fire engines, and insufficient blueprints for fire safety are now praising the state's commitment, noting that funding for firefighting has increased despite huge cuts in many other programs. "We are pleased that the Schwarzenegger administration has been very proactive in its support of us and come through with budgetary support of the infrastructure needs we have long sought," says Mr. McHale with the firefighters union.

G Besides providing money to upgrade the fire engines that must traverse the mammoth state and wind along serpentine canyon roads, the state has invested in better command- and-control facilities as well as the strategies to run them. "In the fire sieges of earlier years, we found out that we had the willingness of mutual-aid help from other jurisdictions and states, but we were not able to communicate adequately with them," says Kim Zagaris, chief of the state's Office of Emergency Services, fire and rescue branch. After a 2004 blue-ribbon commission examined and revamped those procedures, the statewide response "has become far more professional and responsive," he says.

H Besides ordering the California National Guard on Monday to make 1,500 guardsmen available for firefighting efforts, Gov. Arnold Schwarzenegger asked the Pentagon to send all available Modular Airborne Fighting Systems to the area. The military Lockheed C- 130 cargo/utility aircraft carry a pressurized 3,000-gallon tank that can eject fire retardant or water in fewer than five seconds through two tubes at the rear of the plane. This load can cover an area 1/4- mile long and 60 feet wide to create a fire barrier. Governor Schwarzenegger also directed 2,300 inmate firefighters and 170 custody staff from the California Department of Corrections and Rehabilitation to work hand in hand with state and local firefighters.

I Residents and government officials alike are noting the improvements with gratitude, even amid the loss of homes, churches, businesses, and farms. By Tuesday morning, the fires had burned 1,200 homes and businesses and set 245,957 acres — 384 square miles

— ablaze. Despite such losses, there is a sense that the speed, dedication, and coordination of firefighters from several states and jurisdictions are resulting in greater efficiency than in past "siege fire" situations.

J "I am extraordinarily impressed by the improvements we have witnessed between the last big fire and this," says Ross Simmons, a San Diego-based lawyer who had to evacuate both his home and business on Monday, taking up residence at a Hampton Inn 30 miles south of his home in Rancho Bernardo. After fires consumed 172,000

acres there in 2003, the San Diego region turned communitywide soul-searching into improved building codes, evacuation procedures, and procurement of new technology. Mr. Simmons and neighbors began receiving automated phone calls at 3:30 a.m. Monday morning telling them to evacuate. "Notwithstanding all the damage that will be caused by this, we will not come close to the loss of life because of what we have ... put in place since then," he says.

Questions 1-6

Complete the following summary of the paragraphs of Reading Passage, using no more than two words from the Reading Passage for each answer. Write your answers in boxes 1-6 on your answer sheet.

Experts point out that blazes in California are having more heat, faster speed and they _____1_____ more unpredictably compared with former ones. One explanation is that California's summer is dry, _____2_____ is below the average point. Another long term explanation is that hotter and longer potential days occur due to _____3_____. Nowadays, Megafires burn _____4_____ the size of forest area caused by an ordinary fire of 20 years ago. The serious trend is mainly caused by well-grown underbrush, which provides _____5_____ for the siege fires. Other contributors are climate change and extended _____6_____.

Questions 7-9

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

Write your answers in boxes 7-9 on your answer sheet.

7. What is expert's attitude towards California's performance after 2003 megafire?

- A. They could have done better
- B. Blamed them on casualties
- C. Improvement made on preparation
- D. Serious criticism

8. According to Governor Schwarzenegger, which one is CORRECT about his effort

for firefighting?

- A. Schwarzenegger requested successfully for military weapons
- B. Schwarzenegger led many prison management staff to work together with local fire fighters
- C. Schwarzenegger acted negatively in recent megafire in California
- D. Schwarzenegger ordered 1,500 office clerks to join firefighting scene.

9. What happened to Ross Simmon on the day of megafire break out?

- A. He was sleeping till morning
- B. He was doing business at Hampton Inn
- C. He suffered employee death on that morning
- D. He was alarmed by machine calls

Questions 10-13

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

In boxes 10-13 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

- 10. The area of open space in California has declined during the past decade.
- 11. Fire squad wants to recruit more firefighters this year.
- 12. Firefighters union declared that firefighters have had more improved and supportive facility by the local government.
- 13. Before the year of 2004, well coordination and communication between California and other states already existed in fire siege.

SECTION 2

European Heat Wave

A It was the summer, scientists now realise, when felt. We knew that summer 2003 was remarkable: global warming at last made itself unmistakably Britain experienced its record high temperature and continental Europe saw forest fires raging out of control,

great rivers drying of a trickle and thousands of heat-related deaths. But just how remarkable is only now becoming clear

B The three months of June, July and August were the warmest ever recorded in western and central Europe, with record national highs in Portugal, Germany and Switzerland as well as Britain. And they were the warmest by a very long way. Over a great rectangular block of the earth stretching from west of Paris to northern Italy, taking in Switzerland and southern Germany, the average temperature for the summer months was 3.78°C above the long-term norm, said the Climatic Research Unit (CRU) of the University of East Anglia in Norwich, which is one of the world's leading institutions for the monitoring and analysis of temperature records.

C That excess might not seem a lot until you are aware of the context - but then you realise it is enormous. There is nothing like this in previous data, anywhere. It is considered so exceptional that Professor Phil Jones, the CRU's director, is prepared to say openly - in a way few scientists have done before - that the 2003 extreme may be directly attributed, not to natural climate variability, but to global warming caused by human actions.

D Meteorologists have hitherto contented themselves with the formula that recent high temperatures are consistent with predictions" of climate change. For the great block of the map — that stretching between 3 5-5 ON and 0-20E - the CRU has reliable temperature records dating back to 1781. Using as a baseline the average summer temperature recorded between 1961 and 1990, departures from the temperature norm, or "anomalies": over the area as a whole can easily be plotted. As the graph shows, such is the variability of our climate that over the past 200 years, there have been at least half a dozen anomalies, in terms of excess temperature - the peaks on the graph denoting very hot years - approaching, or even exceeding, 20 °C. But there has been nothing remotely like 2003, when the anomaly is nearly four degrees.

E "This is quite remarkable," Professor Jones told The Independent. "It's very unusual in a statistical sense. If this series had a normal statistical distribution, you wouldn't get this number. The return period "how often it could be expected to recur" would be

something like one in a thousand years. If we look at an excess above the average of nearly four degrees, then perhaps nearly three degrees of that is natural variability, because we've seen that in past summers. But the final degree of it is likely to be due to global warming, caused by human actions.

F The summer of 2003 has, in a sense, been one that climate scientists have long been expecting. Until now, the warming has been manifesting itself mainly in winters that have been less cold than in summers that have been much hotter. Last week, the United Nations predicted that winters were warming so quickly that winter sports would die out in Europe's lower-level ski resorts. But sooner or later the unprecedented hot summer was bound to come, and this year it did.

G One of the most dramatic features of the summer was the hot nights, especially in the first half of August. In Paris, the temperature never dropped below 23.0°C (73.4°F) at all between 7 and 14 August, and the city recorded its warmest-ever night on 11-12 August, when the mercury did not drop below 25.5°C (77.9°F). Germany recorded its warmest-ever night at Weinbiet in the Rhine valley with a lowest figure of 27.6°C (80.6°F) on 13 August, and similar record-breaking night-time temperatures were recorded in Switzerland and Italy.

H The 15,000 excess deaths in France during August, compared with previous years, have been related to the high night-time temperatures. The number gradually increased during the first 12 days of the month, peaking at about 2,000 per day on the night of 12-13 August, then fell off dramatically after 14 August when the minimum temperatures fell by about 5°C. The elderly were most affected, with a 70 per cent increase in mortality rate in those aged 75-94.

I For Britain, the year as a whole is likely to be the warmest ever recorded, but despite the high temperature record on 10 August, the summer itself - defined as the June, July and August period - still comes behind 1976 and 1995, when there were longer periods of intense heat. At the moment, the year is on course to be the third-hottest ever in the global temperature record, which goes back to 1856, behind 1998 and 2002 but when all the records for October, November and December are collated, it might move into

second place, Professor Jones said. The 10 hottest years in the record have all now occurred since 1990. Professor Jones is in no doubt about the astonishing nature of European summer of 2003. "The temperatures recorded were out of all proportion to the previous record," he said. "It was the warmest summer in the past 500 years and probably way beyond that It was enormously exceptional."

J His colleagues at the University of East Anglia's Tyndall Centre for Climate Change Research are now planning a special study of it. "It was a summer that has not: been experienced before, either in terms of the temperature extremes that were reached, or the range and diversity of the impacts of the extreme heat," said the centre's executive director, Professor Mike Hulme. "It will certainly have left its mark on a number of countries, as to how they think and plan for climate change in the future, much as the 2000 floods have revolutionised the way the Government is thinking about flooding in the UK. "The 2003 heat wave will have similar repercussions across Europe."

Questions 14-19

Do the following statements agree with the information given in Reading Passage 2? In boxes 14-19 on your answer sheet, write

TRUE if the statement is true

FALSE if the statement is false

NOT GIVEN if the information is not given in the passage

14. The average summer temperature in 2003 is approximately four degrees higher than that of the past.
15. Jones believes the temperature statistic is within the normal range.
16. Human factor is one of the reasons that caused hot summer.
17. In large city, people usually measure temperature twice a day.
18. Global warming has obvious effect of warmer winter instead of hotter summer before 2003.
19. New ski resorts are to be built on a high-altitude spot.

Questions 20-21

Answer the questions below using **NO MORE THAN THREE WORDS AND/OR NUMBERS** from the passage for each answer. Write your answers in boxes 20-21 on your answer sheet

20. What are the two hottest years in Britain besides 2003?

21. What will affect UK government policies besides climate change according to Hulme?

Questions 22-26

Complete the summary below using NO MORE THAN THREE WORDS AND/OR NUMBERS from the passage. Write your answers in boxes 22-26 On your answer sheet

In the summer of 2003, thousands of extra death occurred in the country of _____ 22 _____ . Moreover, world-widely, the third record of hottest summer date from _____ 23 _____ , after the year of _____ 24 _____ . According to Jones, all the 10 hottest years happened from _____ 25 _____ . However, summer of 2003 was at the peak of previous _____ 26 _____ years, perhaps even more.

Question 27

Choose the correct letter A, B, C or D

Write your answer in box 27 on your answer sheet

27. Which one can be best served as the title of this passage in the following options?

- A. Global Warming effect
- B. Global Warming in Europe
- C. The Effects of hot temperature
- D. Hottest summer in Europe

SECTION 3

The concept of childhood in the western countries

The history of childhood has been a topic of interest in social history since the highly influential 1960 book *Centuries of Childhood*, written by French historian Philippe Aries. He argued that "childhood" is a concept created by modern society.

A One of the most hotly debated issues in the history of childhood has been whether childhood is itself a recent invention. The historian Philippe Aries argued that in Western Europe during the Middle Ages (up to about the end of the fifteenth century) children were regarded as miniature adults, with all the intellect and personality that this implies. He scrutinized medieval pictures and diaries, and found no distinction between children and adults as they shared similar leisure activities and often the same type of work. Aries, however, pointed out that this is not to suggest that children were neglected, forsaken or despised. The idea of childhood is not to be confused with affection for children; it corresponds to an awareness of the particular nature of childhood, that particular nature which distinguishes the child from the adult, even the young adult.

B There is a long tradition of the children of the poor playing a functional role in contributing to the family income by working either inside or outside the home. In this sense children are seen as 'useful. Back in the Middle Ages, children as young as 5 or 6 did important chores for their parents and, from the sixteenth century, were often encouraged (or forced) to leave the family by the age of 9 or 10 to work as servants for wealthier families or to be apprenticed to a trade.

C With industrialization in the eighteenth and nineteenth centuries, a new demand for child labour was created, and many children were forced to work for long hours, in mines, workshops and factories. Social reformers began to question whether labouring long hours from an early age would harm children's growing bodies. They began to recognize the potential of carrying out systematic studies to monitor how far these early deprivations might be affecting children's development.

D Gradually, the concerns of the reformers began to impact on the working conditions of children. In Britain, the Factory Act of 1833 signified the beginning of legal protection of children from exploitation and was linked to the rise of schools for factory children. The worst forms of child exploitation were gradually eliminated, partly through factory

reform but also through the influence of trade unions and economic changes during the nineteenth century which made some forms of child labour redundant. Childhood was increasingly seen as a time for play and education for all children, not just for a privileged minority. Initiating children into work as 'useful' children became less of a priority. As the age for starting full-time work was delayed, so childhood was increasingly understood as a more extended phase of dependency, development and learning. Even so, work continued to play a significant, if less central role in children's lives throughout the later nineteenth and twentieth century. And the 'useful child, has become a controversial image during the first decade of the twenty-first century especially in the context of global concern about large numbers of the world's children engaged in child labour .

E The Factory Act of 1833 established half-time schools which allowed children to work and attend school. But in the 1840s, a large proportion of children never went to school, and if they did, they left by the age of 10 or 11. The situation was very different by the end of the nineteenth century in Britain. The school became central to images of⁷a normal childhood .

F Attending school was no longer a privilege and all children were expected to spend a significant part of their day in a classroom. By going to school, children's lives were now separated from domestic life at home and from the adult world of work. School became an institution dedicated to shaping the minds, behaviour and morals of the young. Education dominated the management of children's waking hours, not just through the hours spent in classrooms but through /home/ work, the growth of after school⁷ activities and the importance attached to 'parental involvement.

G Industrialization, urbanization and mass schooling also set new challenges for those responsible for protecting children's welfare, and promoting their learning. Increasingly, children were being treated as a group with distinctive needs and they were organized into groups according to their age. For example, teachers needed to know what to expect of children in their classrooms, what kinds of instruction were appropriate for different age groups and how best to assess children's progress. They also wanted tools that could enable them to sort and select children according to their abilities and

potential.

Questions 28-34

Do the following statements agree with the information given in Reading Passage 3?
Write your answers in boxes 28-34 on your answer sheet.

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

28. Aries pointed out that children did different types of work as adults during the Middle Age.
29. During the Middle Age, going to work necessarily means children were unloved indicated by Aries.
30. Scientists think that overworked labour damages the health of young children
31. the rise of trade union majorly contributed to the protection children from exploitation in 19th century
32. By the aid of half-time schools, most children went to school in the mid of 19 century.
33. In 20 century almost all children need to go to school in full time schedule.
34. Nowadays, children's needs were much differentiated and categorised based on how old they are

Questions 35-40

Answer the questions below.

Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 35-40 on your answer sheet.

35. what is the controversial topic arises with the French historian Philippe Aries's concept
36. what image for children did Aries believed to be like in Western Europe during the Middle Ages
37. what historical event generated the need for great amount child labour to work long time in 18 and 19 century

38. what legal format initiated the protection of children from exploitation in 19th centenary
39. what the activities were more and more regarded as being preferable for almost all children time in 19th centenary
40. where has been the central area for children to spend largely of their day as people's expectation in modern society

Reading Test 22

SECTION 1

You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 on the following pages

Natural Pesticide in India

A A dramatic story about cotton farmers in India shows how destructive pesticides can be for people and the environment; and why today's agriculture is so dependent on pesticides. This story also shows that it's possible to stop using chemical pesticides without losing a crop to ravaging insects, and it explains how to do it.

B The story began about 30 years ago, a handful of families migrated from the Guntur district of Andhra Pradesh, southeast India, into Pudukula, a community of around 900 people farming plots of between two and 10 acres. The outsiders from Guntur brought cotton-culture with them. Cotton wooed farmers by promising to bring in more hard cash than the mixed crops they were already growing to eat and sell: millet, sorghum, groundnuts, pigeon peas, mung beans, chilli and rice. But raising cotton meant using pesticides and fertilisers - until then a mystery to the mostly illiterate farmers of the community. When cotton production started spreading through Andhra Pradesh state. The high value of cotton made it an exceptionally attractive crop, but growing cotton required chemical fertilizers and pesticides. As most of the farmers were poor, illiterate, and without previous experience using agricultural chemicals, they were forced to rely on local, small-scale agricultural dealers for advice. The dealers sold them seeds, fertilizers, and pesticides on credit and also guaranteed purchase of their crop. The

dealers themselves had little technical knowledge about pesticides. They merely passed on promotional information from multinational chemical companies that supplied their products. At first, cotton yields were high, and expenses for pesticides were low because cotton pests had not yet moved in. The farmers had never earned so much! But within a few years, cotton pests like bollworms and aphids plagued the fields, and the farmers saw how rapid insect evolution can be. Repeated spraying killed off the weaker pests, but left the ones most resistant to pesticides to multiply. As pesticide resistance mounted, the farmers had to apply more and more of the pesticides to get the same results. At the same time, the pesticides killed off birds, wasps, beetles, spiders, and other predators that had once provided natural control of pest insects. Without these predators, the pests could destroy the entire crop if pesticides were not used. Eventually, farmers were mixing pesticide "cocktails" containing as many as ten different brands and sometimes having to spray their cotton as frequently as two times a week. They were really hooked!

D The villagers were hesitant, but one of Pudukula's village elders decided to risk trying the natural methods instead of pesticides. His son had collapsed with acute pesticide poisoning and survived but the hospital bill was staggering. SECURE's staff coached this villager on how to protect his cotton crop by using a toolkit of natural methods that India's Center for Sustainable Agriculture put together in collaboration with scientists at Andhra Pradesh's state university. They called the toolkit "Non-Pesticide Management" — or "NPM."

E The most important resource in the NPM toolkit was the neem tree (*Azadirachta indica*) which is common throughout much of India. Neem tree is a broad-leaved evergreen tree related to mahogany. It protects itself against insects by producing a multitude of natural pesticides that work in a variety of ways: with an arsenal of chemical defenses that repel egg-laying, interfere with insect growth, and most important, disrupt the ability of crop-eating insects to sense their food.

F In fact, neem has been used traditionally in India to protect stored grains from insects and to produce soaps, skin lotions, and other health products. To protect crops from insects, neem seeds are simply ground into a powder that is soaked overnight in water.

The solution is then sprayed onto the crop. Another preparation, neem cake, can be mixed into the soil to kill pests and diseases in the soil, and it doubles as an organic fertilizer high in nitrogen. Neem trees grow locally, so the only "cost" is the labor to prepare neem for application to fields.

G The first farmer's trial with NPM was a complete success! His harvest was as good as the harvests of farmers that were using pesticides, and he earned much more because he did not spend a single rupee on pesticides. Inspired by this success, 20 farmers tried NPM the next year. SECURE posted two well-trained staff in Punukula to teach and help everyone in the village, and the village women put pressure on their husbands to stop using toxic chemicals. Families that were no longer exposing themselves to pesticides began to feel much better, and the rapid improvements in income, health, and general wellbeing quickly sold everyone on the value of NPM. By 2000, all the farmers in Punukula were using NPM, not only for cotton, but for their other crops as well.

H The suicide epidemic came to an end. And with the cash, health, and energy that returned when they stopped poisoning themselves with pesticides, the villagers were inspired to start more community and business projects. The women of Punukula created a new source of income by collecting, grinding, and selling neem seeds for NPM in other villages. The villagers rescued their indentured children and gave them special six-month "catch-up" courses to return to school.

I Fighting against pesticides, and winning, increased village solidarity, self-confidence, and optimism about the future. When dealers tried to punish NPM users by paying less for NPM cotton, the farmers united to form a marketing cooperative that found fairer prices elsewhere. The leadership and collaboration skills that the citizens of Punukula developed in the NPM struggle have helped them to take on other challenges, like water purification, building a cotton gin to add value to the cotton before they sell it, and convincing the state government to support NPM over the objection of multi-national pesticide corporations.

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 is true

FALSE if the statement is false

NOT GIVEN if the information is not given in the passage

1. Cotton in Andhra Pradesh state could really bring more income to the local farmers than traditional farming.
2. The majority of farmers had used the agricultural pesticides before 30 years ago.
3. The yield of cotton is relatively lower than that of other agricultural crops.
4. The farmers didn't realize the spread of the pests was so fast.

Questions 5-11

Complete the summary below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer, Write your answers in boxes 5-10 on your answer sheet.

The Making of pesticide protecting crops against insects

The broad-leaved neem tree was chosen, it is a fast-growing and 5 _____ tree and produces amount of 6 _____ for itself that can be effective like insects repellent. Firstly, neem seeds need to be crushed into 7 _____ form, which is left behind 8 _____ in water. Then we need to spray the solution onto the crop. A special 9 _____ is used when mix with soil in order to eliminate bugs and bacteria, and its effect 10 _____ when it adds the level of 11 _____ in this organic fertilizer meanwhile.

Questions 12-14

Answer the questions below. choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer Write your answers in boxes 12-14 on your answer sheet.

12. In which year did all the farmers use NPM for their crops in Punukula?
13. What gave the women of Punukula a business opportunity to NPMs?
14. Name one project that the citizens of Punukula decide to develop in the NPM.

SECTION 2

You should spend about 20 minutes on Questions 15 - 27, which are based on Reading Passage 2 below.

Numeracy: Can animals tell numbers?

A

Prime among basic numerical faculties is the ability to distinguish between a larger and a smaller number, says psychologist Elizabeth Brannon. Humans can do this with ease - providing the ratio is big enough - but do other animals share this ability? In one experiment, rhesus monkeys and university students examined two sets of geometrical objects that appeared briefly on a computer monitor. They had to decide which set contained more objects. Both groups performed successfully but, importantly, Brannon's team found that monkeys, like humans, make more errors when two sets of objects are close in number. The students' performance ends up looking just like a monkey's. It's practically identical, 'she says.

B

Humans and monkeys are mammals, in the animal family known as primates. These are not the only animals whose numerical capacities rely on ratio, however. The same seems to apply to some amphibians. Psychologist Claudia Uller's team tempted salamanders with two sets of fruit flies held in clear tubes. In a series of trials, the researchers noted which tube the salamanders scampered towards, reasoning that if they had a capacity to recognise number, they would head for the larger number. The salamanders successfully discriminated between tubes containing 8 and 16 flies respectively, but not between 3 and 4, 4 and 6, or 8 and 12. So it seems that for the salamanders to discriminate between two numbers, the larger must be at least twice as big as the smaller. However, they could differentiate between 2 and 3 flies just as

well as between 1 and 2 flies, suggesting they recognise small numbers in a different way from larger numbers.

C

Further support for this theory comes from studies of mosquitofish, which instinctively join the biggest shoal they can. A team at the University of Padova found that while mosquitofish can tell the difference between a group containing 3 shoal-mates and a group containing 4, they did not show a preference between groups of 4 and 5. The team also found that mosquitofish can discriminate between numbers up to 16, but only if the ratio between the fish in each shoal was greater than 2:1. This indicates that the fish, like salamanders, possess both the approximate and precise number systems found in more intelligent animals such as infant humans and other primates.

D

While these findings are highly suggestive, some critics argue that the animals might be relying on other factors to complete the tasks, without considering the number itself. 'Any study that's claiming an animal is capable of representing number should also be controlling for other factors,' says Brannon. Experiments have confirmed that primates can indeed perform numerical feats without extra clues, but what about the more primitive animals?

E

To consider this possibility, the mosquito fish tests were repeated, this time using varying geometrical shapes in place of fish. The team arranged these shapes so that they had the same overall surface area and luminance even though they contained a different number of objects. Across hundreds of trials on 14 different fish, the team found they consistently discriminated 2 objects from 3. The team is now testing whether mosquitofish can also distinguish 3 geometric objects from 4.

F

Even more primitive organisms may share this ability. Entomologist Jurgen Tautz sent a group of bees down a corridor, at the end of which lay two chambers - one which contained sugar water, which they like, while the other was empty. To test the bees'

numeracy, the team marked each chamber with a different number of geometrical shapes

- between 2 and 6. The bees quickly learned to match the number of shapes with the correct chamber. Like the salamanders and fish, there was a limit to the bees' mathematical prowess - they could differentiate up to 4 shapes, but failed with 5 or 6 shapes.

G

These studies still do not show whether animals learn to count through training, or whether they are born with the skills already intact. If the latter is true, it would suggest there was a strong evolutionary advantage to a mathematical mind. Proof that this may be the case has emerged from an experiment testing the mathematical ability of three- and four-day-old chicks. Like mosquitofish, chicks prefer to be around as many of their siblings as possible, so they will always head towards a larger number of their kin. If chicks spend their first few days surrounded by certain objects, they become attached to these objects as if they were family. Researchers placed each chick in the middle of a platform and showed it two groups of balls of paper. Next, they hid the two piles behind screens, changed the quantities and revealed them to the chick. This forced the chick to perform simple computations to decide which side now contained the biggest number of its "brothers". Without any prior coaching, the chicks scuttled to the larger quantity at a rate well above chance. They were doing some very simple arithmetic, claim the researchers.

H

Why these skills evolved is not hard to imagine, since it would help almost any animal forage for food. Animals on the prowl for sustenance must constantly decide which tree has the most fruit, or which patch of flowers will contain the most nectar. There are also other, less obvious, advantages of numeracy. In one compelling example, researchers in America found that female coots appear to calculate how many eggs they have laid – and add any in the nest laid by an intruder - before making any decisions about adding to them. Exactly how ancient these skills are is difficult to determine, however. Only by studying the numerical abilities of more and more creatures using standardized

procedures can we hope to understand the basic preconditions for the evolution of number.

Questions 15-21

Answer the table below.

Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer. Write your answers in boxes 15-21 on your answer sheet

Animal Numeracy		
Subjects	Experiments	Results
Mammals and birds		
rhesus monkeys and humans	looked at two sets of geometrical objects on computer screen	performance of two groups is almost 15.....
Chicks	chose between two sets of 16..... which are altered	chicks can do calculations in order to choose larger group
Coots	behaviour of female birds was observed	bird seems to have ability to 17.....
Amphibians, fish and insects		
Salamanders	offered clear tubes containing different quantities of 18.....	salamanders distinguish between numbers over four if bigger number is at least two times larger

19	shown real shoals and later artificial ones of geometrical shapes; these are used to check influence of total 20..... d brightness	subjects know difference between two and three and possibly three and four, but not between four and five
Bees	had to learn where 21..... was stored	could soon choose correct place

Question 22-27

Do the following statements agree with the information given in Reading Passage 2?
In boxes 22-27 on your answer sheet, write

- TRUE** if the statement is true
- FALSE** if the statement is false
- NOT GIVEN** if the information is not given in the passage

- 22. Primates are better at identifying the larger of two numbers if one is much bigger than the other.
- 23. Jurgen Tautz trained the insects in his experiment to recognise the shapes of individual numbers.
- 24. The research involving young chicks took place over two separate days.

25. The experiment with chicks suggests that some numerical ability exists in newborn animals.
26. Researchers have experimented by altering quantities of nectar or fruit available to certain wild animals.
27. When assessing the number of eggs in their nest, coots take into account those of other birds.

SECTION 3

Multitasking Debate

Can you do them at the same time?

A

Talking on the phone while driving isn't the only situation where we're worse at multitasking than we might like to think we are. New studies have identified a bottleneck in our brains that some say means we are fundamentally incapable of true multitasking. If experimental findings reflect real-world performance, people who think they are multitasking are probably just underperforming in all - or at best, all but one - of their parallel pursuits. Practice might improve your performance, but you will never be as good as when focusing on one task at a time.

B

The problem, according to Rene Marois, a psychologist at Vanderbilt University in Nashville, Tennessee, is that there's a sticking point in the brain. To demonstrate this, Marois devised an experiment to locate it. Volunteers watch a screen and when a particular image appears, a red circle, say, they have to press a key with their index finger. Different coloured circles require presses from different fingers. Typical response time is about half a second, and the volunteers quickly reach their peak performance. Then they learn to listen to different recordings and respond by making a specific sound. For instance, when they hear a bird chirp, they have to say "ba"; an electronic sound should elicit a "ko", and so on. Again, no problem. A normal person can do that in about half a second, with almost no effort.

C

The trouble comes when Marois shows the volunteers an image, and then almost immediately plays them a sound. Now they're flummoxed. "If you show an image and play a sound at the same time, one task is postponed," he says. In fact, if the second task is introduced within the half-second or so it takes to process and react to the first, it will simply be delayed until the first one is done. The largest dual-task delays occur when the two tasks are presented simultaneously; delays progressively shorten as the interval between presenting the tasks lengthens.

D

There are at least three points where we seem to get stuck, says Marois. The first is in simply identifying what we're looking at. This can take a few tenths of a second, during which time we are not able to see and recognise second item. This limitation is known as the "attentional blink": experiments have shown that if you're watching out for a particular event and a second one shows up unexpectedly any time within this crucial window of concentration, it may register in your visual cortex but you will be unable to act upon it. Interestingly, if you don't expect the first event, you have no trouble responding to the second. What exactly causes the attentional blink is still a matter for debate.

E

A second limitation is in our short-term visual memory. It's estimated that we can keep track of about four items at a time, fewer if they are complex. This capacity shortage is thought to explain, in part, our astonishing inability to detect even huge changes in scenes that are otherwise identical, so-called "change blindness". Show people pairs of near- identical photos - say, aircraft engines in one picture have disappeared in the other - and they will fail to spot the differences. Here again, though, there is disagreement about what the essential limiting factor really is. Does it come down to a dearth of storage capacity, or is it about how much attention a viewer is paying?

F

A third limitation is that choosing a response to a stimulus - braking when you see a child in the road, for instance, or replying when your mother tells you over the phone that she's thinking of leaving your dad - also takes brainpower. Selecting a response to one of these things will delay by some tenths of a second your ability to respond to the other. This is called the "response selection bottleneck" theory, first proposed in 1952.

G

But David Meyer, a psychologist at the University of Michigan, Ann Arbor, doesn't buy the bottleneck idea. He thinks dual-task interference is just evidence of a strategy used by the brain to prioritise multiple activities. Meyer is known as something of an optimist by his peers. He has written papers with titles like "Virtually perfect time-sharing in dual-task performance: Uncorking the central cognitive bottleneck". His experiments have shown that with enough practice - at least 2000 tries - some people can execute two tasks simultaneously as competently as if they were doing them one after the other. He suggests that there is a central cognitive processor that coordinates all this and, what's more, he thinks it uses discretion sometimes it chooses to delay one task while completing another.

H

Marois agrees that practice can sometimes erase interference effects. He has found that with just 1 hour of practice each day for two weeks, volunteers show a huge improvement at managing both his tasks at once. Where he disagrees with Meyer is in what the brain is doing to achieve this. Marois speculates that practice might give us the chance to find less congested circuits to execute a task - rather like finding trusty back streets to avoid heavy traffic on main roads - effectively making our response to the task subconscious. After all, there are plenty of examples of subconscious multitasking that most of us routinely manage: walking and talking, eating and reading, watching TV and folding the laundry.

I

It probably comes as no surprise that, generally speaking, we get worse at multitasking

as we age. According to Art Kramer at the University of Illinois at Urbana- Champaign, who studies how ageing affects our cognitive abilities, we peak in our 20s. Though the decline is slow through our 30s and on into our 50s, it is there; and after 55, it becomes more precipitous. In one study, he and his colleagues had both young and old participants do a simulated driving task while carrying on a conversation. He found that while young drivers tended to miss background changes, older drivers failed to notice things that were highly relevant. Likewise, older subjects had more trouble paying attention to the more important parts of a scene than young drivers.

J

It's not all bad news for over-55s, though. Kramer also found that older people can benefit from practice. Not only did they learn to perform better, brain scans showed that underlying that improvement was a change in the way their brains become active. While it's clear that practice can often make a difference, especially as we age, the basic facts remain sobering. "We have this impression of an almighty complex brain," says Marois, "and yet we have very humbling and crippling limits." For most of our history, we probably never needed to do more than one thing at a time, he says, and so we haven't evolved to be able to. Perhaps we will in future, though. We might yet look back one day on people like Debbie and Alun as ancestors of a new breed of true multitasker.

Questions 28-32

The reading Passage has ten paragraphs A-J. Which paragraph contains the following information?

Write the correct letter in boxes 28-32 on your answer sheet.

- 28. A theory explained delay happens when selecting one reaction
- 29. Different age group responds to important things differently
- 30. Conflicts happened when visual and audio element emerge simultaneously
- 31. An experiment designed to demonstrate the critical part in brain for multitasking
- 32. An viewpoint favors optimistic side of multitask performance

Questions 33-35

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

Write your answers in boxes 33-35 on your answer sheet.

33 Which one is correct about experiment conducted by Ren6 Marois?

- A. participants performed poorly on listening task solely
- B. volunteers press different key on different color
- C. participants need use different fingers on different colored object
- D. they did a better job on Mixed image and sound information

34 Which statement is correct about the first limitation of Marois's experiment?

- A. "attentional blink" takes about ten seconds
- B. lag occurs if we concentrate on one object while second one appears
- C. we always have trouble in reacting the second one
- D. first limitation can be avoid by certain measures

35 Which one is NOT correct about Meyer's experiments and statements?

- A. just after failure in several attempts can people execute dual-task
- B. Practice can overcome dual-task interference
- C. Meyer holds a different opinion on Marois's theory
- D. an existing processor decides whether delay another task or not

Questions 36-40

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

In boxes 36-40 on your answer sheet, write

YES if the statement is true

NO if the statement is false

NOT GIVEN if the information is not given in the passage

36. Longer gap between two presenting tasks means shorter delay toward the second one.

37. Incapable in human memory cause people sometimes miss the differences when presented two similar images.

38. Marois has different opinion on the claim that training removes bottleneck effect.

39. Art Kramer proved there is a correlation between multitasking performance and genders.

40. The author doesn't believe that effect of practice could bring any variation.

Reading Test 23

SECTION 1

Organic farming and chemical fertilisers

A

The world's population continues to climb. And despite the rise of high-tech agriculture, 800 million people don't get enough to eat. Clearly it's time to rethink the food we eat and where it comes from. Feeding 9 billion people will take more than the same old farming practices, especially if we want to do it without felling rainforests and planting every last scrap of prairie. Finding food for all those people will tax predicting farmers'—and researchers'—ingenuity to the limit. Yet already, precious aquifers that provide irrigation water for some of the world's most productive farmlands are drying up or filling with seawater, and arable land in China is eroding to create vast dust storms that redden sunsets as far away as North America. "Agriculture must become the solution to environmental problems in 50 years. If we don't have systems that make the environment better not just hold the fort—then we're in trouble," says Kenneth Cassman, an agronomist at the University of Nebraska at Lincoln. That view was echoed in January by the Curry report, a government panel that surveyed the future of farming and food in Britain.

B

It's easy to say agriculture has to do better, but what should this friendly farming of the future look like? Concerned consumers come up short at this point, facing what appears to be an ever-widening ideological divide. In one corner are the techno-optimists who put their faith in genetically modified crops, improved agrochemicals and computer-enhanced machinery; in the other are advocates of organic farming, who reject artificial chemicals and embrace back-to-nature techniques such as composting. Both sides cite plausible science to back their claims to the moral high ground, and both bring enough

passion to the debate for many people to come away thinking we're faced with a stark choice between two mutually incompatible options.

C

Not so. If you take off the ideological blinkers and simply ask how the world can produce the food it needs with the least environmental cost, a new middle way opens. The key is sustainability: whatever we do must not destroy the capital of soil and water we need to keep on producing. Like today's organic farming, the intelligent farming of the future should pay much more attention to the health of its soil and the ecosystem it's part of. But intelligent farming should also make shrewd and locally appropriate use of chemical fertilisers and pesticides. The most crucial ingredient in this new style of agriculture is not chemicals but information about what's happening in each field and how to respond. Yet ironically, this key element may be the most neglected today.

D

Clearly, organic farming has all the warm, fuzzy sentiment on its side. An approach that eschews synthetic chemicals surely runs no risk of poisoning land and water. And its emphasis on building up natural ecosystems seems to be good for everyone. Perhaps these easy assumptions explain why sales of organic food across Europe are increasing by at least 50 per cent per year.

E

Going organic sounds idyllic-but it's naive, too. Organic agriculture has its own suite of environmental costs, which can be worse than those of conventional farming, especially if it were to become the world norm. But more fundamentally, the organic versus-chemical debate focuses on the wrong question. The issue isn't what you put into a farm, but what you get out of it, both in terms of crop yields and pollutants, and what condition the farm is in when you're done.

F

Take chemical fertilisers, which deliver nitrogen, an essential plant nutrient, to crops along with some phosphorus and potassium. It is a mantra of organic farming that these fertilisers are unwholesome, and plant nutrients must come from natural sources. But in fact the main environmental damage done by chemical fertilisers as opposed to any

other kind is through greenhouse gases-carbon dioxide from the fossil fuels used in their synthesis and nitrogen oxides released by their degradation. Excess nitrogen from chemical fertilisers can pollute groundwater, but so can excess nitrogen from organic manures.

G

On the other hand, relying solely on chemical fertilisers to provide soil nutrients without doing other things to build healthy soil is damaging. Organic farmers don't use chemical fertilisers, so they are very good at building soil fertility by working crop residues and manure into the soil, rotating with legumes that fix atmospheric nitrogen, and other techniques.

H

This generates vital soil nutrients and also creates a soil that is richer in organic matter, so it retains nutrients better and is hospitable to the crop's roots and creatures such as earthworms that help maintain soil fertility. Such soil also holds water better and therefore makes more efficient use of both rainfall and irrigation water. And organic matter ties up CO₂ in the soil, helping to offset emissions from burning fossil fuels and reduce global warming.

I

Advocates of organic farming like to point out that fields managed in this way can produce yields just as high as fields juiced up with synthetic fertilisers. For example, Bill Liebhardt, research manager at the Rodale Institute in Kutztown, Pennsylvania recently compiled the results of such comparisons for corn, wheat, soybeans and tomatoes in the US and found that the organic fields averaged between 94 and 100 per cent of the yields of nearby conventional crops.

J

But this optimistic picture tells only half the story. Farmers can't grow such crops every year if they want to maintain or build soil nutrients without synthetic fertilisers. They need to alternate with soil-building crops such as pasture grasses and legumes such as alfalfa. So in the long term, the yield of staple grains such as wheat, rice and com

must go down.

This is the biggest cost of organic farming. Vaclav Smil of the University of Manitoba in Winnipeg, Canada, estimates that if farmers worldwide gave up the 80 million tonnes of synthetic fertiliser they now use each year, total grain production would fall by at least half. Either farmers would have to double the amount of land they cultivate- at catastrophic cost to natural habitat --or billions of people would starve.

K

That doesn't mean farmers couldn't get by with less fertilizer. Technologically advanced farmers in wealthy countries, for instance, can now monitor their yields hectare by hectare, or even more finely, throughout a huge field. They can then target their fertiliser to the parts of the field where it will do the most good, instead of responding to average conditions. This increases yield and decreases fertiliser use. Eventually, farmers may - incorporate long-term weather forecasts into their planning as well, so that they can cut back on fertiliser use when the weather is likely to make harvests poor anyway, says Ron Olson, an agronomist with Cargill Fertilizer in Tampa, Florida.

L

Organic techniques certainly have their benefits, especially for poor farmers. But strict "organic agriculture", which prohibits certain technologies and allows others, isn't always better for the environment. Take herbicides, for example. These can leach into waterways and poison both wildlife and people. Just last month, researchers led by Tyrone Hayes at the University of California at Berkeley found that even low concentrations of atrazine, the most commonly used weedkiller in the US, can prevent frog tadpoles from developing properly.

Questions 1 - 4

Use the information in the passage to match the people (listed A-D) with opinions or deeds below. Write the appropriate letters A-D in boxes 1-4 on your answer sheet.

- A. Vaclav Smil
- B. Bill Liebhardt
- C. Kenneth Cassman

D. Ron Olson

1. Use of chemical fertilizer can be optimised by combining weather information.
2. Organic farming yield is nearly equal to traditional ones.
3. Better agricultural setting is a significant key to solve environmental tough nut.
4. Substantial production loss would happen in case all farmers shifted from using synthetic fertiliser.

Questions 5 - 9

Do the following statements agree with the information given in Reading Passage 1 In boxes 5-9 on your answer sheet, write

YES if the statement agrees with the information
NO if the statement contradicts the information
NOT GIVEN if there is no information on this

5. Increasing population, draining irrigation, eroding farmland push agricultural industry to extremity.
6. There are only two options for farmers; they use chemical fertiliser or natural approach.
7. Chemical fertilizer currently are more expensive than the natural fertilisers.
8. In order to keep nutrient in the soil, organic farmers need to rotate planting method.
9. "organic agriculture" is the way that environment-damaging technologies are all strictly forbidden.

Questions 10-13

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

Several 10..... approaches need to be applied in order that global population

wouldn't go starved. A team called 11..... repeated the viewpoint of a scholar by a survey in British farming. More and more European farmers believe in 12..... farming these years. The argument of organic against 13..... seems in an inaccurate direction.

SECTION 2

You should spend about 20 minutes on Questions 14-26, which are based on Reading Passage 1 on the following pages.

The Pearl

A

Throughout history, pearls have held a unique presence within the wealthy and powerful. For instance, the pearl was the favored gem of the wealthy during the Roman Empire. This gift from the sea had been brought back from the orient by the Roman conquests. Roman women wore pearls to bed so they could be reminded of their wealth immediately upon waking up. Before jewelers learned to cut gems, the pearl was of greater value than the diamond. In the Orient and Persia Empire, pearls were ground into powders to cure anything from heart disease to epilepsy, with possible aphrodisiac uses as well. Pearls were once considered an exclusive privilege for royalty. A law in 1612 drawn up by the Duke of Saxony prohibited the wearing of pearls by nobility, professors, doctors or their wives in an effort to further distinguish royal appearance. American Indians also used freshwater pearls from the Mississippi River as decorations and jewelry.

B

There are essentially three types of pearls: natural, cultured and imitation. A natural pearl (often called an Oriental pearl) forms when an irritant, such as a piece of sand, works its way into a particular species of oyster, mussel, or clam. As a defense mechanism, the mollusk secretes a fluid to coat the irritant. Layer upon layer of this coating is deposited on the irritant until a lustrous pearl is formed.

C

The only difference natural pearls and cultured pearls is that the irritant is a surgically implanted bead or piece of shell called Mother of Pearl. Often, these shells are ground oyster shells that are worth significant amounts of money in their own right as irritant-catalysts for quality pearls. The resulting core is, therefore, much larger than in a natural pearl. Yet, as long as there are enough layers of nacre (the secreted fluid covering the irritant) to result in a beautiful, gem-quality pearl, the size of the nucleus is of no

consequence to beauty or durability.

D

Pearls can come from either salt or freshwater sources. Typically, saltwater pearls tend to be higher quality, although there are several types of freshwater pearls that are considered high in quality as well. Freshwater pearls tend to be very irregular in shape, with a puffed rice appearance the most prevalent. Nevertheless, it is each individual pearls merits that determines value more than the source of the pearl. Saltwater pearl oysters are usually cultivated in protected lagoons or volcanic atolls. However, most freshwater cultured pearls sold today come from China. Cultured pearls are the response of the shell to a tissue implant. A tiny piece of mantle tissue from a donor shell is transplanted into a recipient shell. This graft will form a pearl sac and the tissue will precipitate calcium carbonate into this pocket. There are a number of options for producing cultured pearls: use freshwater or seawater shells, transplant the graft into the mantle or into the gonad, add a spherical bead or do it non-beaded. The majority of saltwater cultured pearls are grown with beads.

E

Regardless of the method used to acquire a pearl, the process usually takes several years. Mussels must reach a mature age, which can take up to 3 years, and then be implanted or naturally receive an irritant. Once the irritant is in place, it can take up to another 3 years for the pearl to reach its full size. Often, the irritant may be rejected, the pearl will be terrifically misshapen, or the oyster may simply die from disease or countless other complications. By the end of a 5 to 10 year cycle, only 50% of the oysters will have survived. And of the pearls produced, only approximately 5% are of substantial quality for top jewelry makers. From the outset, a pearl farmer can figure on spending over \$100 for every oyster that is farmed, of which many will produce nothing or die.

F

Imitation pearls are a different story altogether. In most cases, a glass bead is dipped into a solution made from fish scales. This coating is thin and may eventually wear off. One can usually tell an imitation by biting on it. Fake pearls glide across your teeth, while the layers of nacre on real pearls feel gritty. The Island of Mallorca (in Spain) is known for its imitation pearl industry. Quality natural pearls are very rare jewels. The actual value of a natural pearl is determined in the same way as it would be for other "precious" gems. The valuation factors include size, shape, and color, quality of surface, orient and luster. In general, cultured pearls are less valuable than natural pearls, whereas imitation pearls almost have no value. One way that jewelers can determine whether a pearl is cultured or natural is to have a gem lab perform an x-ray of the pearl. If the x-ray reveals a nucleus, the pearl is likely a bead-nucleated saltwater pearl. If no nucleus is present, but irregular and small dark inner spots indicating a cavity are visible, combined with concentric rings of organic substance, the pearl is likely a cultured freshwater. Cultured freshwater pearls can often be confused for natural pearls which present as homogeneous pictures which continuously darken toward the surface of the pearl. Natural pearls will often show larger cavities where organic matter has dried out and decomposed. Although imitation pearls look the part, they do not have the same weight or smoothness as real pearls, and their luster will also dim greatly. Among cultured pearls, Akoya pearls from Japan are some of the most lustrous. A good quality necklace of 40 Akoya pearls measuring 7mm in diameter sells for about \$1,500, while a super- high quality strand sells for about \$4,500. Size on the other hand, has to do with the age of the oyster that created the pearl (the more mature oysters produce larger pearls) and the location in which the pearl was cultured. The South Sea waters of Australia tend to produce the larger pearls; probably because the water along the coast line is supplied with rich nutrients from the ocean floor. Also, the type of mussel common to the area seems to possess a predilection for producing comparatively large pearls

G

Historically, the world's best pearls came from the Persian Gulf, especially around what is now Bahrain. The pearls of the Persian Gulf were natural created and collected by breath-hold divers. The secret to the special luster of Gulf pearls probably derived from

the unique mixture of sweet and salt water around the island. Unfortunately, the natural pearl industry of the Persian Gulf ended abruptly in the early 1930's with the discovery of large deposits of oil. Those who once dove for pearls sought prosperity in the economic boom ushered in by the oil industry. The water pollution resulting from spilled oil and indiscriminate over-fishing of oysters essentially ruined the once pristine pearl producing waters of the Gulf. Today, pearl diving is practiced only as a hobby. Still, Bahrain remains one of the foremost trading centers for high quality pearls. In fact, cultured pearls are banned from the Bahrain pearl market, in an effort to preserve the location's heritage. Nowadays, the largest stock of natural pearls probably resides in India. Ironically, much of India's stock of natural pearls came originally from Bahrain. Unlike Bahrain, which has essentially lost its pearl resource, traditional pearl fishing is still practiced on a small scale in India.

Questions 14-17

Reading Passage 1 has seven paragraphs, A-G. Which paragraph contains the following information?

Write the correct letter A-G in boxes 1-4 on your answer sheet.

- 14.ancient stories around the pearl and customers
- 15.Difficulties in cultivating process.
- 16.Factors can decide the value of natural pearls.
- 17.Different growth mechanisms that distinguish the cultured pearls from natural ones.

Questions 18 - 23

Complete the summary below

Choose letter from A-K for each answer. Write them in boxes 5-10 on your answer sheet.

In ancient history, pearls have great importance within the rich and rulers, which was treated as gem for women in 18..... And pearls were even used as medicine and sex drug for people in 19..... There are essentially three types of pearls: natural, cultured and imitation. Most freshwater cultured pearls sold today come

from China while the 20..... is famous for its imitation pearl industry. The country 21..... usually manufactures some of the glitteriest cultured ones while the nation such as 22..... produces the larger sized pearl due to the favorable environment along the coast line. In the past, one country of 23 in Gulf produced the world's best pearls. Nowadays, the major remaining suppliers of the natural pearls belongs to India

- A America B Ancient Rome C Australia
D Bahrain E China F Japan G India
H Korea I Mexico J Persia K Spain

Questions 24 - 27

Do the following statements agree with the information given in the Reading Passage 1? In boxes 11-14 on your answer sheet, write

TRUE *If the statement is true*
FALSE *if the statement is false*
NOT GIVEN *if the information is not given in the passage*

24. Often cultured pearl's centre is significantly larger than in a natural pearl.
25. Cultivated cultured pearls are generally valued the same much as natural ones.
26. The size of pearls produced in Japan is usually of smaller size than those came from Australia.
27. Akoya pearls from Japan Glows more deeply than the South Sea pearls of Australia

SECTION 3

Scent of success

A
Innovation and entrepreneurship, in the right mix, can bring spectacular results and propel a business ahead of the pack. Across a diverse range of commercial successes, from the Hills Hoist clothes line to the Cochlear ear implant, it is hard to generalize

beyond saying the creators tapped into something consumers could not wait to get their hands on. However, most ideas never make it to the market. Some ideas that innovators are spruiking to potential investors include new water-saving shower heads, a keyless locking system, ping-pong balls that keep pollution out of rainwater tanks, making teeth grow from stem cells inserted in the gum, and technology to stop LPG tanks from exploding. Grant Kearney, chief executive of the Innovation Xchange, which connects businesses to innovation networks, says he hears of great business ideas that he knows will never get on the market. "Ideas by themselves are absolutely useless," he says. "An idea only becomes innovation when it is connected to the right resources and capabilities."

B. One of Australia's latest innovation successes stems from a lemon-scented bathroom cleaner called Shower Power, the formula for which was concocted in a factory in Yatala, Queensland. In 1995, Tom Quinn and John Heron bought a struggling cleaning products business, OzKleen, for 250,000. It was selling 100 different kinds of cleaning products, mainly in bulk. The business was in bad shape, the cleaning formulas were ineffective and environmentally harsh, and there were few regular clients. Now Shower Power is claimed to be the top-selling bathroom cleaning product in the country. In the past 12 months, almost four million bottles of OzKleen's Power products have been sold and the company forecasts 2004 sales of 10 million bottles. The company's sales in 2003 reached \$11 million, with 700k of business being exports. In particular, Shower Power is making big inroads on the British market.

C. OzKleen's turnaround began when Quinn and Heron hired an industrial chemist to revitalize the product line. Market research showed that people were looking for a better cleaner for the bathroom, universally regarded as the hardest room in the home to clean. The company also wanted to make the product formulas more environmentally friendly. One of Tom Quinn's sons, Peter, aged 24 at the time, began working with the chemist on the formulas, looking at the potential for citrus-based cleaning products. He detested all the chlorine-based cleaning products that dominated the market. "We didn't want to use chlorine, simple as that," he says. "It offers bad working conditions and there's no money in it." Peter looked at citrus ingredients, such as orange peel, to replace the petroleum by-products in cleaners. He is credited with finding the Shower Power formula. "The head," he says. The company is the recipe is in a vault somewhere and in my sole owner of the intellectual property.

D

To begin with, Shower Power was sold only in commercial quantities but Tom Quinn decided to sell it in 750ml bottles after the constant "raves" from customers at their retail store at Beenleigh, near Brisbane. Customers were traveling long distances to buy supplies. Others began writing to OzKleen to say how good Shower Power was. "We did a dummy label and went to see Woolworths," Tom Quinn says. The Woolworths buyer took a bottle home and was able to remove a stain from her basin that had been impossible to shift. From that point on, she championed the product and OzKleen had its first supermarket order, for a palette of Shower Power worth \$3000. "We were over the moon," says OzKleen's financial controller, Belinda McDonnell.

E

Shower Power was released in Australian supermarkets in 1997 and became the top-selling product in its category within six months. It was all hands on deck at the factory, labeling and bottling Shower Power to keep up with demand. OzKleen ditched all other products and rebuilt the business around Shower Power. This stage, recalls McDonnell, was very tough. "It was hand-to-mouth, cash flow was very difficult," she says. OzKleen had to pay new-line fees to supermarket chains, which also squeezed margins.

F

OzKleen's next big break came when the daughter of a Coles Myer executive used the product while on holidays in Queensland and convinced her father that Shower Power should be in Coles supermarkets. Despite the product success, Peter Quinn says the company was wary of how long the sales would last and hesitate to spend money on upgrading the manufacturing process. As a result, he remembers long periods of working around the clock to keep up with orders. Small tanks were still being used so batches were small and bottles were labeled and filled manually. The privately owned OzKleen relied on cash-flow to expand. "The equipment could not keep up with demand," Peter Quinn says. Eventually a new bottling machine was bought for \$50,000 in the hope of streamlining production, but he says: "We got ripped off." Since then he has been developing a new automated bottling machine that can control the amount of foam produced in the liquid, so that bottles can be filled more effectively - "I love coming up with new ideas." The machine is being patented.

G

Peter Quinn says OzKleen's approach to research and development is open slather. "If I need it, I get it. It is about doing something simple that no one else is doing. Most of these things are just sitting in front of people ... it's just seeing the opportunities." With a tried and tested product, OzKleen is expanding overseas and developing more Power-brand household products. Tom Quinn, who previously ran a real estate agency, says: "We are competing with the same market all over the world; the (cleaning) products are sold everywhere." Shower Power, known as Bath Power in Britain, was launched four years ago with the help of an export development grant from the Federal Government. "We wanted to do it straight away because we realized we had the same opportunities worldwide." OzKleen is already number three in the British market, and the next stop is France. The Power range includes cleaning products for carpets, kitchens and pre-wash stain removal. The Quinn and Heron families are still involved. OzKleen has been approached with offers to buy the company, but Tom Quinn says he is happy with things as they are. "We're having too much fun."

Questions 28-34

Reading Passage 1 has six paragraphs, A—G. Which paragraph contains the following information?

Write the correct letter A-G, in boxes 1-7 on your answer sheet.

NB You may use any letter more than once.

- 28. Description of one family member persuading another of selling cleaning products
- 29. An account of the cooperation of all factory staff to cope with sales increase
- 30. An account of the creation of the formula of Shower Power
- 31. An account of buying the original OzKleen company
- 32. Description of Shower Power's international expansion
- 33. The reason of changing the packaging size of Shower Power
- 34. An example of some innovative ideas

Questions 35 - 38

Look at the following people and list of statements below. Match each person with the

correct statement

Write the correct letter A-E in boxes 8-11 on your answer sheet.

- 35. Grant Keamey
- 36. Tom Quinn
- 37. Peter Quinn
- 38. Belinda McDonnell

List of Statement

- A. Described his story of selling his product to a chain store
- B. Explained there was a shortage of money when sales suddenly increased
- C. Believe innovations need support to succeed
- D. Believes new products like Shower Power may incur risks
- E. Says business won't succeed with innovations

Questions 39 - 40

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

Write your answers in boxes 12-13 on your answer sheet.

36. Tom Quinn changed the bottle size to 750ml to make Shower Power

- A. Easier to package.
- B. Appealing to individual customers.
- C. Popular in foreign markets.
- D. Attractive to supermarkets.

36 Why did Tom Quinn decide not to sell OzKleen?

- A. No one wanted to buy OzKleen.
- B. New products were being developed in OzKleen.
- C. He couldn't make an agreement on the price with the buyer.
- D. He wanted to keep things unchanged.

Reading Test 24

SECTION 1

Coastal Archaeology of Britain

A The recognition of the wealth and diversity of England's coastal archaeology has been one of the most important developments of recent years. Some elements of this enormous resource have long been known. The so-called 'submerged forests' off the coasts of England, sometimes with clear evidence of human activity, had attracted the interest of antiquarians since at least the eighteenth century but serious and systematic attention has been given to the archaeological potential of the coast only since the early 1980s.

B It is possible to trace a variety of causes for this concentration of effort and interest. In the 1980s and 1990s scientific research into climate change and its environmental impact spilled over into a much broader public debate as awareness of these issues grew; the prospect of rising sea levels over the next century, and their impact on current coastal environments, has been a particular focus for concern. At the same time archaeologists were beginning to recognize that the destruction caused by natural processes of coastal erosion and by human activity was having an increasing impact on the archaeological resource of the coast.

C The dominant process affecting the physical form of England in the post-glacial period has been the rise in the altitude of sea level relative to the land, as the glaciers melted and the landmass readjusted. The encroachment of the sea, the loss of huge areas of land now under the North Sea and the English Channel, and especially the loss of the land bridge between England and France, which finally made Britain an island, must have been immensely significant factors in the lives of our prehistoric ancestors. Yet the way in which prehistoric communities adjusted to these environmental changes has seldom been a major theme in discussions of the period. One factor contributing to this has been that, although the rise in relative sea level is comparatively well documented, we know little about the constant reconfiguration of the coastline. This was affected by many processes, mostly quiet, which have not yet been adequately researched. The detailed reconstruction of coastline histories and the changing environments available for human use will be an important theme for future research.

D So great has been the rise in sea level and the consequent regression of the coast that much of the archaeological evidence now exposed in the coastal zone, whether being eroded or exposed as a buried land surface, is derived from what was originally terrestrial occupation. Its current location in the coastal zone is the product of later unrelated processes, and it can tell us little about past adaptations to the sea. Estimates of its significance will need to be made in the context of other related evidence from dry land sites. Nevertheless, its physical environment means that preservation is often excellent, for example in the case of the Neolithic structure excavated at the Stumble in Essex.

E In some cases these buried land surfaces do contain evidence for human exploitation of what was a coastal environment, and elsewhere along the modern coast there is similar evidence. Where the evidence does relate to past human exploitation of the resources and the opportunities offered by the sea and the coast, it is both diverse and as yet little understood. We are not yet in a position to make even preliminary estimates of answers to such fundamental questions as the extent to which the sea and the coast affected human life in the past, what percentage of the population at any time lived within reach of the sea, or whether human settlements in coastal environments showed a distinct character from those inland.

F The most striking evidence for use of the sea is in the form of boats, yet we still have much to learn about their production and use. Most of the known wrecks around our coast are not unexpectedly of post-medieval date, and offer an unparalleled opportunity for research which has as yet been little used. The prehistoric sewn-plank boats such as those from the Humber estuary and Dover all seem to belong to the second millennium BC; after this there is a gap in the record of a millennium, which cannot yet be explained, before boats reappear, but built using a very different technology. Boatbuilding must have been an extremely important activity around much of our coast, yet we know almost nothing about it, Boats were some of the most complex artefacts produced by pre-modern societies, and further research on their production and use make an important contribution to our understanding of past attitudes to technology and technological change.

G Boats needed landing places, yet here again our knowledge is very patchy. In many cases the natural shores and beaches would have sufficed, leaving little or no archaeological trace, but especially in later periods, many ports and harbors, as well as smaller facilities such as quays, wharves, and jetties, were built. Despite a growth of interest in the waterfront archaeology of some of our more important Roman and medieval towns, very little attention has been paid to the multitude of smaller landing places. Redevelopment of harbor sites and other development and natural pressures along the coast are subjecting these important locations to unprecedented threats, yet few surveys of such sites have been undertaken.

H One of the most important revelations of recent research has been the extent of industrial activity along the coast. Fishing and salt production are among the better documented activities, but even here our knowledge is patchy. Many forms of fishing will leave little archaeological trace, and one of the surprises of recent survey has been the extent of past investment in facilities for procuring fish and shellfish. Elaborate wooden fish weirs, often of considerable extent and responsive to aerial photography in shallow water, have been identified in areas such as Essex and the Severn estuary. The production of salt, especially in the late Iron Age and early Roman periods, has been recognized for some time, especially in the Thames estuary and around the Solent and Poole Harbor, but the reasons for the decline of that industry and the nature of later coastal salt working are much less well understood. Other industries were also located along the coast, either because the raw materials outcropped there or for ease of working and transport: mineral resources such as sand, gravel, stone, coal, ironstone, and alum were all exploited. These industries are poorly documented, but their remains are sometimes extensive and striking.

I Some appreciation of the variety and importance of the archaeological remains preserved in the coastal zone, albeit only in preliminary form, can thus be gained from

recent work, but the complexity of the problem of managing that resource is also being realised. The problem arises not only from the scale and variety of the archaeological remains, but also from two other sources: the very varied natural and human threats to the resource, and the complex web of organisations with authority over, or interests in, the coastal zone. Human threats include the redevelopment of historic towns and old dockland areas, and the increased importance of the coast for the leisure and tourism industries, resulting in pressure for the increased provision of facilities such as marinas. The larger size of ferries has also caused an increase in the damage caused by their wash to fragile deposits in the intertidal zone. The most significant natural threat is the predicted rise in sea level over the next century especially in the south and east of England. Its impact on archaeology is not easy to predict, and though it is likely to be highly localised, it will be at a scale much larger than that of most archaeological sites. Thus protecting one site may simply result in transposing the threat to a point further along the coast. The management of the archaeological remains will have to be considered in a much longer time scale and a much wider geographical scale than is common in the case of dry land sites, and this will pose a serious challenge for archaeologists.

Questions 1-3

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

Write your answers in boxes 1-3 on your answer sheet.

1. What has caused public interest in coastal archaeology in recent years?

- A. Golds and jewelleries in the ships that have submerged
- B. The rising awareness of climate change
- C. Forests under the sea
- D. Technological advance in the field of sea research

2. What does the passage say about the evidence of boats?

- A. We have a good knowledge of how boats were made and what boats were for prehistorically

- B. Most of the boats discovered were found in harbors
- C. The use of boats had not been recorded for a thousand years
- D. The way to build boats has remained unchanged throughout human history

3. What can be discovered from the air?

- A. Salt mines
- B. Shellfish
- C. Ironstones
- D. Fisheries

Questions 4-10

Do the following statements agree with the information given in Reading Passage 1?
 In boxes 4-10 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

- 4. England lost much of its land after the ice-age due to the rising sea level.
- 5. The coastline of England has changed periodically.
- 6. Coastal archaeological evidence may be well-protected by sea water.
- 7. The design of boats used by pre-modern people was very simple.
- 8. Similar boats were also discovered in many other European countries
- 9. There are few documents relating to mineral exploitation.
- 10. Large passenger boats are causing increasing damage to the seashore.

Questions 11-13

Choose THREE letters J-G Write your answer in boxes 11-13 on your answer sheet
 Which THREE of the following statements are mentioned in the passage?

- A. Our prehistoric ancestors adjusted to the environmental change caused by the rising sea level by moving to higher lands
- B. It is difficult to understand how many people lived close to the sea.
- C. Human settlements in coastal environment were different from those inland.
- D. Our knowledge of boat evidence is limited.
- E. The prehistoric boats were built mainly for collecting sand from the river.
- F. Human development threatens the archaeological remains.
- G. The reason for the decline of salt industry was the shortage of laborers.

SECTION 2

Activities for Children

A Twenty-five years ago, children in London walked to school and played in parks and playing fields after school and at the weekend. Today they are usually driven to school by parents anxious about safety and spend hours glued to television screens or computer games. Meanwhile, community playing fields are being sold off to property developers at an alarming rate. 'This change in lifestyle has, sadly, meant greater restrictions on children,' says Neil Armstrong, Professor of Health and Exercise Sciences at the University of Exeter. 'If children continue to be this inactive, they'll be storing up big problems for the future.'

A In 1985, Professor Armstrong headed a five-year research project into children's fitness. The results, published in 1990, were alarming. The survey, which monitored 700 11-16-year-olds, found that 48 per cent of girls and 41 per cent of boys already exceeded safe cholesterol levels set for children by the American Heart Foundation. Armstrong adds, "heart is a muscle and need exercise, or it loses its strength." It also found that 13 per cent of boys and 10 per cent of girls were overweight. More disturbingly, the survey found that over a four-day period, half the girls and one-third of the boys did less exercise than the equivalent of a brisk 10-minute walk. High levels of cholesterol, excess body fat and inactivity are believed to increase the risk of coronary heart disease.

C Physical education is under pressure in the UK – most schools devote little more than 100 minutes a week to it in curriculum time, which is less than many other European countries. Three European countries are giving children a head start in PE, France, Austria and Switzerland - offer at least two hours in primary and secondary schools. These findings, from the European Union of Physical Education Associations, prompted specialists in children's physiology to call on European governments to give

youngsters a daily PE programme. The survey shows that the UK ranks 13th out of the 25 countries, with Ireland bottom, averaging under an hour a week for PE. From age six to 18, British children received, on average, 106 minutes of PE a week. Professor Armstrong, who presented the findings at the meeting, noted that since the introduction of the national curriculum there had been a marked fall in the time devoted to PE in UK schools, with only a minority of pupils getting two hours a week.

D As a former junior football international, Professor Armstrong is a passionate advocate for sport. Although the Government has poured millions into beefing up sport in the community, there is less commitment to it as part of the crammed school curriculum. This means that many children never acquire the necessary skills to thrive in team games. If they are no good at them, they lose interest and establish an inactive pattern of behaviour. When this is coupled with a poor diet, it will lead inevitably to weight gain. Seventy per cent of British children give up all sport when they leave school, compared with only 20 per cent of French teenagers. Professor Armstrong believes that there is far too great an emphasis on team games at school. "We need to look at the time devoted to PE and balance it between individual and pair activities, such as aerobics and badminton, as well as team sports." He added that children need to have the opportunity to take part in a wide variety of individual, partner and team sports.

E The good news, however, is that a few small companies and children's activity groups have reacted positively and creatively to the problem. Take That, shouts Gloria Thomas, striking a disco pose astride her mini-spacehopper. Take That, echo a flock of toddlers, adopting outrageous postures astride their space hoppers. 'Michael Jackson, she shouts, and they all do a spoof fan-crazed shriek. During the wild and chaotic hopper race across the studio floor, commands like this are issued and responded to with untrammelled glee. The sight of 15 bouncing seven-year-olds who seem about to launch into orbit at every bounce brings tears to the eyes. Uncoordinated, loud, excited and emotional, children provide raw comedy.

F Any cardiovascular exercise is a good option, and it doesn't necessarily have to be high intensity. It can be anything that gets your heart rate up: such as walking the dog,

swimming, miming, skipping, hiking. "Even walking through the grocery store can be exercise," Samis-Smith said. What they don't know is that they're at a Fit Kids class, and that the fun is a disguise for the serious exercise plan they're covertly being taken through. Fit Kids trains parents to run fitness classes for children. 'Ninety per cent of children don't like team sports,' says company director, Gillian Gale.

G A prevention survey found that children whose parents keep in shape are much more likely to have healthy body weights themselves. "There's nothing worse than telling a child what he needs to do and not doing it yourself," says Elizabeth Ward, R.D., a Boston nutritional consultant and author of *Healthy Foods, Healthy Kids*. "Set a good example and get your nutritional house in order first." In the 1930s and '40s, kids expended 800 calories a day just walking, carrying water, and doing other chores, notes Fima Lifshitz, M.D., a pediatric endocrinologist in Santa Barbara. "Now, kids in obese families are expending only 200 calories a day in physical activity," says Lifshitz, "incorporate more movement in your family's lifepark farther away from the stores at the mall, take stairs instead of the elevator, and walk to nearby friends' houses instead of driving."

Questions 14 -17

The reading Passage has seven paragraphs A-G. Which paragraph contains the following information?

Write the correct letter A-G, in boxes 14-17 on your answer sheet.

14. Health and living condition of children
15. Health organization monitored physical activity
16. Comparison of exercise time between UK and other countries
17. Wrong approach for school activity

Questions 18-21

Do the following statements agree with the information given in Reading Passage 2?
In boxes 18-21 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

18. According to American Heart Foundation, cholesterol levels of boys are higher than girls'.
19. British children generally do less exercise than some other European countries.
20. Skipping becomes more and more popular in schools of UK.
21. According to Healthy Kids, the first task is for parents to encourage their children to keep the same healthy body weight.

Questions 22-26

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

Write your answers in boxes 22-26 on your answer sheet.

22. According to paragraph A, what does Professor Neil Armstrong concern about?

- A. Spending more time on TV affect academic level
- B. Parents have less time stay with their children
- C. Future health of British children
- D. Increasing speed of property's development

23. What does Armstrong indicate in Paragraph B?

- A. We need to take a 10 minute walk everyday
- B. We should do more activity to exercise heart
- C. Girls' situation is better than boys
- D. Exercise can cure many disease

24. What is aim of First Kids' training?

- A. Make profit by running several sessions
- B. Only concentrate on one activity for each child
- C. To guide parents how to organize activities for children
- D. Spread the idea that team sport is better

25. What did Lifshitz suggest in the end of this passage?

- A. Create opportunities to exercise your body
- B. Taking elevator saves your time
- C. Kids should spend more than 200 calories each day
- D. We should never drive but walk

26. What is main idea of this passage?

- A. health of the children who are overweight is at risk in the future
- B. Children in UK need proper exercises
- C. Government mistaken approach for children
- D. Parents play the most important role in children's activity

SECTION 3

You should spend about 20 minutes on Questions 27-40, which are based on Reading Passage 3 on the following pages.

Mechanisms of Linguistic Change

A The changes that have caused the most disagreement are those in pronunciation. We have various sources of evidence for the pronunciations of earlier times, such as the spellings, the treatment of words borrowed from other languages or borrowed by them, the descriptions of contemporary grammarians and spelling-reformers, and the modern pronunciations in all the languages and dialects concerned. From the middle of the sixteenth century, there are in England writers who attempt to describe the position of the speech-organs for the production of English phonemes, and who invent what are in effect systems of phonetic symbols. These various kinds of evidence, combined with a knowledge of the mechanisms of speech-production, can often give us a very good idea of the pronunciation of an earlier age, though absolute certainty is never possible.

B When we study the pronunciation of a language over any period of a few generations or more, we find there are always large-scale regularities in the changes: for example, over a certain period of time, just about all the long [a:] vowels in a language may change into long [e:] vowels, or all the [b] consonants in a certain position (for example at the end of a word) may change into [p] consonants. Such regular changes are often called sound laws. There are no universal sound laws (even though sound laws often

reflect universal tendencies), but simply particular sound laws for one given language (or dialect) at one given period

C It is also possible that fashion plays a part in the process of change. It certainly plays a part in the spread of change: one person imitates another, and people with the most prestige are most likely to be imitated, so that a change that takes place in one social group may be imitated (more or less accurately) by speakers in another group. When a social group goes up or down in the world, its pronunciation of Russian, which had formerly been considered desirable, became on the contrary an undesirable kind of accent to have, so that people tried to disguise it. Some of the changes in accepted English pronunciation in the seventeenth and eighteenth centuries have been shown to consist in the replacement of one style of pronunciation by another style already existing, and it is likely that such substitutions were a result of the great social changes of the period: the increased power and wealth of the middle classes, and their steady infiltration upwards into the ranks of the landed gentry, probably carried elements of middle-class pronunciation into upper-class speech.

D A less specific variant of the argument is that the imitation of children is imperfect: they copy their parents' speech, but never reproduce it exactly. This is true, but it is also true that such deviations from adult speech are usually corrected in later childhood. Perhaps it is more significant that even adults show a certain amount of random variation in their pronunciation of a given phoneme, even if the phonetic context is kept unchanged. This, however, cannot explain changes in pronunciation unless it can be shown that there is some systematic trend in the failures of imitation: if they are merely random deviations they will cancel one another out and there will be no net change in the language.

E One such force which is often invoked is the principle of ease, or minimization of effort. The change from fussy to fuzzy would be an example of assimilation, which is a very common kind of change. Assimilation is the changing of a sound under the influence of a neighbouring one. For example, the word scant was once skamt, but the /m/ has been changed to /n/ under the influence of the following /t/. Greater efficiency has hereby been achieved, because /n/ and /t/ are articulated in the same place (with

the tip of the tongue against the teeth-ridge), whereas /m/ is articulated elsewhere (with the two lips). So the place of articulation of the nasal consonant has been changed to conform with that of the following plosive. A more recent example of the same kind of thing is the common pronunciation of football as *football*.

F Assimilation is not the only way in which we change our pronunciation in order to increase efficiency. It is very common for consonants to be lost at the end of a word: in Middle English, word-final [-n] was often lost in unstressed syllables, so that *baken* 'to bake' changed from ['ba:kan] to ['ba:kʌ], and later to [ba:k]. Consonant-clusters are often simplified. At one time there was a [t] in words like *castle* and *Christmas*, and an initial [k] in words like *knight* and *know*. Sometimes a whole syllable is dropped out when two successive syllables begin with the same consonant (haplology): a recent example is *temporary*, which in Britain is often pronounced as if it were *temporari*.

Questions 27-30

Complete the summary below.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer. Write your answers in boxes 27-30 on your answer sheet.

The pronunciation of living language undergo changes throughout thousands of years. Large scale regular changes are usually called 27 _____. There are three reasons for these changes. Firstly, the influence of one language on another; when one person imitates another pronunciation (the most prestige's), the imitation always partly involving factor of 28 _____. Secondly, the imitation of children from adults¹ language sometimes are 29 _____, and may also contribute to this change if there are insignificant deviations though later they may be corrected. Finally, for those random variations in pronunciation, the deeper evidence lies in the 30 _____ or minimization of effort.

Questions 31-37

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

In boxes 31-37 on your answer sheet, write

TRUE	if the statement is true
FALSE	if the statement is false
NOT GIVEN	if the information is not given in the passage

31. it is impossible for modern people to find pronunciation of words in an earlier age
32. The great change of language in Russian history is related to the rising status and fortune of middle classes.
33. All the children learn speeches from adults while they assume that certain language is difficult to imitate exactly.
34. Pronunciation with causal inaccuracy will not exert big influence on language changes.
35. The link of can be influenced being pronounced as 'nf'
36. The [g] in gnat not being pronounced will not be spelt out in the future.
37. The sound of 'temporary' cannot wholly present its spelling.

Questions 38-40

Look at the following sentences and the list of statements below. Match each statement with the correct sentence, A-D.

Write the correct letter, A-D, in boxes 38-40 on your answer sheet

- A. Since the speakers can pronounce it with less effort
- B. Assimilation of a sound under the influence of a neighbouring one
- C. It is a trend for changes in pronunciation in a large scale in a given period
- D. Because the speaker can pronounce [n] and [t] both in the same time

38. As a consequence, 'b' will be pronounced as

39. The pronunciation of [mt] changed to [nt]

40. The omit of 'f' in the sound of Christmas

READING TEST 25

SECTION 1

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

A. Adults and children are frequently confronted with statements about the alarming rate of loss of tropical rainforests. For example, one graphic illustration to which children might readily relate is the estimate that rainforests are being destroyed at a rate equivalent to one thousand football fields every forty minutes — about the duration of a normal classroom period. In the face of the frequent and often vivid media coverage, it is likely that children will have formed ideas about rainforests - what and where they are, why they are important, what endangers them-independent of any formal tuition. It is also possible that some of these ideas will be mistaken.

B. Many studies have shown that children harbour misconceptions about 'pure', curriculum science. These misconceptions do not remain isolated but become incorporated into a multifaceted, but organized, conceptual framework, making it and the component ideas, some of which are erroneous, more robust but also accessible to modification. These ideas may be developed by children absorbing ideas through the popular media. Sometimes this information may be erroneous. It seems schools may not be providing an opportunity for children to re-express their ideas and so have them tested and refined by teachers and their peers.

C. Despite the extensive coverage in the popular media of the destruction of rainforests, little formal information is available about children's ideas in this area. The aim of the present study is to start to provide such information, to help teachers design their educational strategies to build upon correct ideas and to displace misconceptions and to plan programmes in environmental studies in their schools. The study surveys children's scientific knowledge and attitudes to rainforests. Secondary school children were asked to complete a questionnaire containing five open-form questions. The most

frequent responses to the first question were descriptions which are self-evident from the term 'rainforest'. Some children described them as damp, wet or hot. The second question concerned the geographical location of rainforests. The commonest responses were continents or countries; Africa (given by 43% of children), South America (30%), Brazil (25%). Some children also gave more general locations, such as being near the Equator.

D. Responses to question three concerned the importance of rainforests. The dominant idea, raised by 64% of the pupils, was that rainforests provide animals with habitats. Fewer students responded that rainforests provide plant habitats, and even fewer mentioned the indigenous populations of rainforests. More girls (70%) than boys (60%) raised the idea of the rainforest as animal habitats. Similarly, but at a lower level, more girls (13%) than boys (5%) said that rainforests provided human habitats. These observations are generally consistent with our previous studies of pupils' views about the use and conservation of rainforests, in which girls were shown to be more sympathetic to animals and expressed views which seem to place an intrinsic value on non-human animal life.

E. The fourth question concerned the causes of the destruction of rainforests. Perhaps encouragingly, more than half of the pupils (59%) identified that it is human activities which are destroying rainforests, some personalizing the responsibility by the use of terms such as 'we are'. About 18% of the pupils referred specifically to logging activity. One misconception, expressed by some 10% of the pupils, was that acid rain is responsible for rainforest destruction; a similar proportion said that pollution is destroying rainforests. Here, children are confusing rainforest destruction with damage to the forests of Western Europe by these factors. While two fifths of the students provided the information that the rainforests provide oxygen, in some cases this response also embraced the misconception that rainforest destruction would reduce atmospheric oxygen, making the atmosphere incompatible with human life on Earth.

F. In answer to the final question about the importance of rainforest conservation, the majority of children simply said that we need rainforests to survive. Only a few of the

pupils (6%) mentioned that rainforest destruction may contribute to global warming. This is surprising considering the high level of media coverage on this issue. Some children expressed the idea that the conservation of rainforests is not important. The results of this study suggest that certain ideas predominate in the thinking of children about rainforests. Pupils' responses indicate some misconceptions in basic scientific knowledge of rainforests' ecosystems such as their ideas about rainforests as habitats for animals, plants and humans and the relationship between climatic change and destruction of rainforests.

G. Pupils did not volunteer ideas that suggested that they appreciated the complexity of causes of rainforest destruction. In other words, they gave no indication of an appreciation of either the range of ways in which rainforests are important or the complex social, economic and political factors which drive the activities which are destroying the rainforests. One encouragement is that the results of similar studies about other environmental issues suggest that older children seem to acquire the ability to appreciate, value and evaluate conflicting views. Environmental education offers an arena in which these skills can be developed, which is essential for these children as future decision-makers.

Questions 1 -8

Do the following statements agree with the information given in Reading Passage 1? In boxes 1 -8 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 plight of the rainforests has largely been ignored by the media.
2. Children only accept opinions on rainforests that they encounter in their classrooms.
3. It has been suggested that children hold their study at school.
4. The fact that children's ideas about science form part of a larger framework of ideas means that it is easier to change them.
5. The study involved asking children a number of yes/no questions such as 'Are there any rainforests in Africa?'
6. Girls are more likely than boys to hold mistaken views about the rainforests' destruction.

7. The study reported here follows on from a series of studies that have looked at children's understanding of rainforests.
8. A second study has been planned to investigate primary school children's ideas about rainforests.

Questions 9 -13

The box below gives a list of responses A-P to the questionnaire discussed in Reading Passage 1.

Answer the following questions by choosing the correct responses A-P.

9. What was the children's most frequent response when asked where the rainforests were?
10. What was the most common response to the question about the importance of the rainforests?
11. What did most children give as the reason for the loss of the rainforests?
12. Why did most children think it important for the rainforests to be protected?
13. Which of the responses is cited as unexpectedly uncommon, given the amount of time spent on the issue by the newspapers and television?

- A. There is a complicated combination of reasons for the loss of the rainforests.
- B. The rainforests are being destroyed by the same things that are destroying the forests of Western Europe.
- C. Rainforests are located near the Equator.
- D. Brazil is home to the rainforests.
- E. Without rainforests, some animals would have nowhere to live.
- F. Rainforests are important habitats for a lot of plants.
- G. People are responsible for the loss of the rainforests.
- H. The rainforests are a source of oxygen.
- I. Rainforests are of consequence for a number of different reasons.
- J. As the rainforests are destroyed, the world gets warmer.
- K. Without rainforests there would not be enough oxygen in the air.
- L. There are people for whom the rainforests are home.
- M. Rainforests are found in Africa.
- N. Rainforests are not really important to human life.
- O. The destruction of the rainforests is the direct of logging activity.
- P. Humans depend on the rainforests for their continuing existence.

Question 14

Choose the correct letter, A, B, C, D or E. Write your answer in box 14 on your answer sheet. Which of the following is the most suitable title for the Reading Passage.

- A. The development of a programme in environmental studies within a science curriculum.
- B. Children's ideas about the rainforests and the implications for course design.

- C. The extent to which children have been misled by the media concerning the rainforests.
- D. How to collect, collate and describe the ideas of secondary school children.
- E. The importance of the rainforests and the reason for their destruction.

SECTION 2

You should spend about 20 minutes on Questions 15 -26 which are based on Reading Passage 2 below.

WHAT DO WHALES FEEL?

A. An examination of the functioning of the senses in cetaceans, the group of mammals comprising whales, dolphins and porpoises. Some of the senses that we and other terrestrial mammals take for granted are either reduced or absent in cetaceans or fail to function well in water. For example, it appears from their brain structure species, on the other hand, appears to have some related brain structures but it is not known whether these are functional. It has been speculated that, as the blowholes evolved and migrated to the top of the head, the neural pathways serving sense of smell may have been nearly all sacrificed. Similarly, although at least some cetaceans have taste buds, the nerves serving these have degenerated or are rudimentary.

B. The sense of touch has sometimes been described as weak too, but this view is probably mistaken. Trainers of captive dolphins and small whales often remark on their animals' responsiveness to being touched or rubbed, and both captive and free-ranging cetacean individuals of all species (particularly adults and calves, or members of the same subgroup) appear to make frequent contact. This contact may help to maintain order within a group, and stroking or touching is part of the courtship ritual in most species. The area around the blowhole is also particularly sensitive and captive animals often object strongly to being touched there. The sense of vision is developed to different degrees in different species. Baleen species studied at close quarters underwater specifically a grey whale calf in captivity for a year, and free-ranging right whales and humpback whales studied and filmed off Argentina and Hawaii-have obviously tracked objects with vision underwater, and they can apparently see moderately well both in water and in air. However, the position of the eyes so restricts the field of vision in baleen whales that they probably do not have stereoscopic vision.

C. On the other hand, the position of the eyes in most dolphins and porpoises suggests that they have stereoscopic vision forward and downward. Eye position in freshwater dolphins, which often swim on their side or upside down while feeding, suggests that what vision they have is stereoscopic forward and upward. By comparison, the bottlenose dolphin has an extremely keen vision in water. Judging from the way it watches and tracks airborne flying fish, it can apparently see fairly well through the air-water interface as well. And although preliminary experimental evidence suggests that their in-air vision is poor, the accuracy with which dolphins leap high to take small fish out of a trainer's hand provides anecdotal evidence to the contrary.

D. Such variation can no doubt be explained with reference to the habitats in which individual species have developed. For example, vision is obviously more useful to species inhabiting clear open waters than to those living in turbid rivers and flooded plains. The South American manatee and Chinese river dolphin, for instance, appear to have very limited vision, and the Indian river dolphin is blind, their eyes reduced to slits that probably allow them to sense only the direction and intensity of light. Although the senses of taste and smell appear to have deteriorated and vision in water appears to be uncertain, such weaknesses are more than compensated for by cetaceans' well-developed acoustic sense. Most species are highly vocal, although they vary in the range of sounds they produce, and many forage for food using echolocation. Large baleen whales primarily use the lower frequencies and whales primarily use the lower frequencies and are often limited in their repertoire.

E. Notable exceptions are the nearly song-like choruses of bow-head whales in summer and the complex, haunting utterances of the humpback whales. Toothed species, in general, employ more of the frequency spectrum, and produce a wider variety of sounds, than baleen species (though the sperm whale apparently produces a monotonous series of high-energy clicks and little else). Some of the more complicated sounds are clearly communicative, although what role they may play in the social life and 'culture' of cetaceans has been more the subject of wild speculation than of solid science.

Questions 15 -21

Choose NO MORE THAN THREE WORDS from Reading Passage 2 for each answer. Write your answers in boxes 15 -21 on your answer sheet.

Complete the table below.

SENSE	SPECIES	ABILITY	COMMENTS
	toothed	No	evidence from brain structure
Smell	baleen	Not certain	Related brain structures are present
Taste	Some types	Poor	nerves linked to their ____15____ are underdeveloped
Touch	all	Yes	region around the blowhole very sensitive
	____16____	Yes	probably do not have stereoscopic vision
	dolphins, porpoises	Yes	probably have stereoscopic vision 17____ and _____

Vision	_____18_____	Yes	probably have stereoscopic vision forward and upward
	bottle nose dolphin	Yes	exceptional in _____19_____ and good in air-water interface
	boutu and beiji	Poor	have limited vision
	Indian susu	No	probably only sense direction and intensity of light
	most large baleen	Yes	Usually use _____20_____; repertoire limited
	21_____		
Hearing	whales and _____ whales	Yes	song-like
	Toothed	Yes	use more of frequency spectrum; have wider repertoire

Questions 22 -26

Answer the questions below using NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 22 -26 on your answer sheet.

22. Which of the senses is described here as being involved in mating?
23. Which species swims upside down while eating?
24. What can bottlenose dolphins follow from under the water?
25. Which type of habitat is related to good visual ability?
26. Which of the senses is best developed in cetaceans?

SECTION 3

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

VISUAL SYMBOLS AND THE BLIND

Part 1

A. From a number of recent studies, it has become clear that blind people can appreciate the use of outlines and perspectives to describe the arrangement of objects and other surfaces in space. But pictures are more than literal representations. This fact was drawn to my attention dramatically when a blind woman in one of my investigations decided on her own initiative to draw a wheel as it was spinning. To show this motion she traced a curve inside the show this motion, she traced a curve inside the circle. I was taken aback. Lines of motion, such as the one she used, are a very recent invention in the history of illustration. Indeed, as art scholar David Kunzle notes, Wilhelm Busch, a trend-setting nineteenth-century cartoonist, used virtually no motion lines in his popular figures until about 1877.

B. When I asked several other blind study subjects to draw a spinning wheel, one particularly clever rendition appeared repeatedly: several subjects showed the wheel's spokes as curved lines. When asked about these curves, they all described them as metaphorical ways of suggesting motion. Majority rule would argue that this device somehow indicated motion very well. But was it a better indicator than, say, broken or wavy lines or any other kind of line, for that matter? The answer was not clear. So I decided to test whether various lines of motion were apt ways of showing movement they were merely idiosyncratic marks. Moreover, I wanted to discover whether there were differences in how the blind and the sighted interpreted lines of motion.

C. To search out these answers, I created raised line drawings of five different wheels, depicting spokes with lines that curved, bent, waved, dashed and extended beyond the perimeter of the wheel. I then asked eighteen blind volunteers to feel the wheels and assign one of the following motions to each wheel: wobbling, spinning fast, spinning steadily, jerking or braking. My control group consisted of eighteen sighted undergraduates from the University of Toronto. All but one of the blind subjects

assigned distinctive motions to each wheel. Most guessed that the curved spokes indicated that the wheel was spinning steadily; the wavy spokes, they thought, suggested that the wheel was wobbling; and the bent spokes were taken as a sign that the wheel was jerking. Subjects assumed that spokes extending beyond the wheel's perimeter signified that the wheel had its brakes on and that dashed spokes indicated the wheel was spinning quickly.

D. In addition, the favoured description for the sighted was the favoured description for the blind in every instance. What is more, the consensus among the sighted was barely higher than that among the blind. Because motion devices are unfamiliar to the blind, the task I gave them involved some problem-solving. Evidently, however, the blind not only figured out meanings for each line of motion but as a group they generally came up with the same meaning at least as frequently as did sighted subjects.

Part 2.

E. We have found that the blind understand other kinds of visual metaphors as well. One blind woman drew a picture of a child inside a heart choosing that symbol, she said, to show that love surrounded the child. With Chang Hong Liu, a doctoral student from China, I have begun exploring how well blind people understand the symbolism behind shapes such as hearts that do not directly represent their meaning. We gave a list of twenty pairs of words to sighted subjects and asked them to pick from each pair the term that best related to a circle and the term that best related to a square. For example, we asked; What goes with soft? A circle or a square? Which shape goes with hard?

F. All our subjects deemed the circle soft and the square hard. A full 94% described happy to the circle, instead of sad. But other pairs revealed less agreement; 79% matched fast to slow and weak to strong, respectively. And only 51% linked deep to circle and shallow to the square. When we tested four totally blind volunteers using the same list, we found that their choices closely resembled those made by the sighted subjects. One man, who had been blind since birth, scored extremely well. He made only one match differing from the consensus, assigning 'far' to square and 'near' to

circle. In fact, only a small majority of sighted subjects — 53% — had paired far and near to the opposite partners. Thus, we concluded that the blind interpret abstract shapes as sighted people do.

G. List of twenty pairs of words to sighted subjects and asked them to pick from each pair the term that best related to a circle and the term that best related to a square. For example, we asked; What goes with soft? A circle or a square? Which shape goes with hard?

Words associated with circle/square	Agreement among subjects (%)
SOFT-HARD	100
MOTHER-FATHER	94
HAPPY-SAD	94
GOOD-EVIL	89
LOVE-HATE	89
ALIVE-DEAD	87
BRIGHT-DARK	87
LIGHT-HEAVY	85
WARM-COLD	81
SUMMER-WINTER	81
WEAK-STRONG	79
FAST-SLOW	97
CAT-DOG	74
SPRING-FALL	74
QUIET-LOUD	62

WALKING-STANDING	62
ODD-EVEN	57
FAR-NEAR	53
PLANT-ANIMAL	53
DEEP-SHALLOW	51

Subjects were asked which word in each pair fits best with a circle and which with a square. These percentages show the level of consensus among sighted subjects.

Questions 27 -29

Choose the correct letter, A, B, C or D. Write your answers in boxes 27-29 on your answer sheet.

27. In the first paragraph, the writer makes the point that blind people

- A. may be interested in studying art.
- B. can draw outlines of different objects and surfaces
- C. can recognize conventions such as perspective.
- D. can draw accurately.

28. The writer was surprised because the blind woman

- A. drew a circle on her own initiative.
- B. did not understand what a wheel looked like.
- C. included a symbol representing movement.
- D. was the first person to use lines of motion.

29. From the experiment described in Part 1, the writer found that the blind subjects

- A. had a good understanding of symbols representing movement.
- B. could control the movement of wheels very accurately.
- C. worked together well as a group in solving problems.
- D. got better results than the sighted undergraduates.

Questions 30 -32

Look at the following diagrams (Questions 30 - 32), and the list of types of movement below. Match each diagram to the type of movement AE generally assigned to it in the experiment. Choose the correct letter A-E and write them in boxes 30 -32 on your answer sheet.



- A. steady spinning
- B. jerky movement
- C. rapid spinning
- D. wobbling movement
- E. use of brakes

Questions 33 —39

Complete the summary below using words from the box. Write your answers in boxes 33 -39 on your answer sheet. NB you may use any word more than once.

In the experiment described in Part 2, a set of word ___33___ was used to investigate whether blind and sighted people perceived the symbolism in abstract ___34___ in the same way. Subjects were asked which word fitted best with a circle and which with a square. From the ___35___ volunteers, everyone thought a circle fitted 'soft' while a square fitted 'hard'. However, only 51% of the ___36___ volunteers assigned a circle to ___37___. When the test was later repeated with ___38___ volunteers, it was found that they made ___39___ choices.

associations	blind	deep	hard
hundred	identical	pairs	shapes
sighted	similar	shallow	soft
words			

Question 40

Choose the correct letter, A, B, C or D. Write your answer in box 40 on your answer sheet.

40. Which of the following statements best summarizes the writer's general conclusion?
- A. The blind represent some aspects of reality differently from sighted people.
 - B. The blind comprehend visual metaphors in similar ways to sighted people.
 - C. The blind may create unusual and effective symbols to represent reality.
 - D. The blind may be successful artists if given the right training.

ANSWER KEYS

Reading Test 1

1	D	2	B	3	F
4	C	5	A	6	E
7	D	8	G	9	F
10	C	11	B	12	D
13	E				
14	A	15	B	16	A
17	C	18	C	19	D
20	B	21	C	22	C
23	CREATE A STORY	24	BRAIN SCANS	25	OLFACTORY CORTEX
26	SPICE				
27	C	28	D	29	A
30	YES	31	YES	32	NO
33	NOT GIVEN	34	YES	35	C
36	A	37	F	38	D
39	E	40	A		

Reading Test 2

1	D	2	G	3	B
4	A	5	F	6	10 -minute
7	complex	8	rats	9	TRUE
10	FALSE	11	FALSE	12	NOT GIVEN
13	TRUE				
14	A	15	A	16	D
17	YES	18	NOT GIVEN	19	NOT GIVEN
20	YES	21	NO	22	A
23	B	24	C	25	A

26	C				
27	Varying rates	28	intensify	29	initiate
30	aridity	31	vegetation	32	soils
33	G	34	E	35	D
36	B	37	E	38	G
39	C	40	A		

Reading Test 3

1	conditions	2	craftsmen and artists	3	a secure livelihood
4	grand gallery	5	481 feet	6	queen's chamber
7	air channels	8	FALSE	9	NOT GIVEN
10	TRUE	11	TRUE	12	FALSE
13	D				
14	A	15	D	16	B
17	D	18	C	19	B
20	D	21	A	22	workplace injury
23	16.6 weeks	24	7%	25	golf
26	D				
27	E	28	C	29	E
30	G	31	C	32	B
33	C	34	A	35	B
36	B	37	A	38	C
39	D	40	A		

Reading Test 4

1	FALSE	2	FALSE	3	NOT GIVEN
4	FALSE	5	TRUE	6	FALSE
7	FALSE	8	TRUE	9	FALSE
10	F	11	C	12	A
13	B	14	D		
15	C	16	A	17	D

18	B	19	B	20	B
21	C	22	TRUE	23	TRUE
24	TRUE	25	FALSE	26	NOT GIVEN
27	TRUE	28	FALSE		
29	vii				
30	i	31	v	32	viii
33	A	34	D	35	C
36	D	37	E	38	A
39	C	40	F		

Reading Test 5

1	B	2	D	3	A
4	C	5	A	6	ceiling vents
7	(brick) chimneys	8	cement arches	9	big fans
10	(small) heaters	11	A OR D OR E IN EITHER ORDER	12	A OR D OR E IN EITHER ORDER
13	A OR D OR E IN EITHER ORDER				
14	B	15	E	16	F
17	C	18	D	19	B
20	D	21	A	22	E
23	E	24	email voice	25	prefrontal cortex
26	distraction	27	group meetings		
28	C	29	D	30	B
31	B	32	A	33	D
34	E	35	doubled	36	dropped
37	less	38	no	39	slightly
40	reversed				

Reading Test 6

1	NOT GIVEN	2	YES	3	NOT GIVEN
4	NO	5	YES	6	C
7	E	8	F	9	A

10	I	11	B	12	C
13	A	14	B		
15	v	16	ii	17	x
18	vii	19	i	20	viii
21	A	22	C	23	parental guidance
24	compass	25	predators	26	visible
27	plant				
28	breathing reproduction	29	gills	30	dolphin
31	NOT GIVEN	32	FALSE	33	TRUE
34	3 measurements	35	(triangular) graph	36	cluster
37	amphibious	38	halfway	39	dryland tortoises
40	D				

Reading Test 7

1	V	2	li	3	lii
4	ix	5	Vi	6	C
7	B	8	D	9	E
10	NOT GIVEN	11	FALSE	12	TRUE
13	FALSE	14	TRUE		
15	NOT GIVEN	16	FALSE	17	TRUE
18	TRUE	19	TRUE	20	FALSE
21	Phonetic	22	Detrimental	23	Mess up
24	D	25	C	26	A
27	B				
28	Enfleurage pomade	29	Ethyl Alcohol	30	The essential oil
31	FALSE	32	FALSE	33	NOT GIVEN
34	FALSE	35	A	36	E
37	D	38	F	39	B
40	Beavers/civet cats/sperm whale/musk deer (only three needed)				

Reading Test 8

1	F	2	E	3	Krakatau,1883
4	(a/the) Richter scale	5	Pounded	6	Washed away
7	Hurling toward	8	Swept over	9	725-800
10	Thousands of kilometers	11	C	12	V
13	Iv	14	lii		
15	Vi	16	I	17	YES
18	NOT GIVEN	19	NO	20	NO
21	NO	22	YES	23	Curriculum planning
24	Diagnosis	25	Best suited	26	NO
27	YES				
28	YES	29	NOT GIVEN	30	C
31	B	32	D	33	A
34	C	35	Ballast Tanks	36	David Bushnell
37	1954	38	Germany or The Germans		

Reading Test 9

1	B	2	B	3	B
4	D	5	Cracks	6	Chemicals and minerals
7	Openings	8	Metalliferous sediments	9	Colonize
10	White and small	11	Older vents	12	Sessile species
13	Crab,octopus,fish	14	Iv		
15	Vi	16	Viii	17	Vii
18	I	19	B	20	E
21	C	22	A	23	D
24	Barnes&Noble	25	Unabridged audio	26	Hypertext links
27	More choices				
28	NOT GIVEN	29	FALSE	30	TRUE
31	FALSE	32	NOT GIVEN	33	FALSE

34	B	35	A	36	D
37	C	38	Certain brain hormones	39	The immune system
40	Alien entities				

Reading Test 10

1	Wired	2	Calms	3	Prolonged concentration
4	Involuntary body functions	5	NO	6	YES
7	NO	8	NO	9	Personal
10	Cost	11	Marketed	12	Reluctant
13	Promising	14	Nutrition		
15	v	16	viii	17	ii
18	vii	19	B	20	A
21	D	22	C	23	FALSE
24	TRUE	25	FALSE	26	FALSE
27	NOT GIVEN				
28	D	29	C	30	B
31	A	32	Create something/not planning wisely/need to contribute/appreciation from other(only three needed)	33	Continue to work
34	Little effect	35	Physically demanding	36	Slight negative
37	FALSE	38	TRUE	39	NOT GIVEN
40	A				

Reading Test 11

1	C	2	B	3	S
4	T	5	S	6	T
7	R	8	FALSE	9	TRUE

10	TRUE	11	NOT GIVEN	12	NOT GIVEN
13	TRUE	14	vii		
15	ii	16	v	17	i
18	iii	19	C	20	C
21	A	22	Insoluble	23	Absorbed
24	Dispersion	25	Intensity and brightness	26	Opacity/degree of opacity
27	Gland				
28	Dragline silk	29	Strong, tough, and elastic/strength, toughness and elasticity.	30	The amorphous areas/ an amorphous matrix/non-crystalline matrix
31	rigid crystals	32	Less rigid crystals(any order)	33	NOT GIVEN
34	FALSE	35	TRUE	36	FALSE
37	NOT GIVEN	38	Third claw	39	Hairs
40	Walking claws				

Reading Test 12

1	Five	2	Five	3	3 to 7
4	Seven	5	Salmon migration/water velocity	6	River/water temperature
7	Fish passage facilities	8	1938	9	NO
10	YES	11	NOT GIVEN	12	YES
13	YES	14	V		
15	lv	16	vi	17	lx
18	X	19	YES	20	YES
21	NO	22	NOT GIVEN	23	NO
24	NO	25	NO	26	NO
27	C				
28	B	29	B	30	C
31	Healthy weight	32	Sliding scale	33	Pear
34	Apple	35	Balanced	36	Parents/whole family

37	150 minutes/ 2.5 hours	38	An inactive lifestyle/ couch-potato tendencies	39	Regular physical activity
40	Obese				

Reading Test 13

1	E	2	F	3	1900 B.C, A.D 1500
4	Geological evidence	5	The local population	6	500 feet
7	Evacuated	8	8.32 am	9	Nearly 1200 square miles
10	A quarter/ ¼ of a cubic mile	11	C	12	iv
13	viii	14	v		
15	iii	16	i	17	YES
18	NO	19	NOT GIVEN	20	NO
21	YES	22	YES	23	Organizational outcomes
24	Individual outcomes	25	Absenteeism	26	NO
27	YES				
28	NO	29	NOT GIVEN	30	Wind on file
31	A wire string	32	Set the shutter	33	The memorandum book
34	Record each picture	35	Eastman	36	1886
37	Small hand camera	38	New shutter design		

Reading Test 14

1	YES	2	NO	3	YES
4	NOT GIVEN	5	4160	6	370
7	Egyptian Nubians	8	Great Pyramids	9	Egypt's power supply
10	Evaporation	11	Sediment	12	Storage capacity

13	Agglomeration				
14	D	15	D	16	C
17	D	18	NO	19	YES
20	NO	21	YES	22	YES
23	Sleep in trees/during the day	24	Grave danger	25	Diseases and bacteria
26	Chlamydia				
27	vi	28	viii	29	v
30	ix	31	iii	32	NO
33	YES	34	NOT GIVEN	35	YES
36	YES	37	Transportation	38	Budget
39	Storage	40	savings		

Reading Test 15

1	C	2	A	3	D
4	A	5	B	6	A
7	B	8	E	3	G
10	NO	11	NOT GIVEN	12	NOT GIVEN
13	YES				
14	iii	15	vi	16	i
17	ii	18	ix	19	v
20	iv	21	(yellow – fever) epidemic	22	Finland
23	Governing institutions	24	Europe	25	Einkorn Wheat
26	Singapore				
27	D	28	C	29	B
30	B	31	C	32	B
33	E	34	D	35	F
36	NOT GIVEN	37	YES	38	YES
39	NO	40	NO		

Reading Test 16

1	B	2	A	3	F
4	C	5	TRUE	6	NOT GIVEN
7	TRUE	8	FALSE	3	B
10	B	11	C	12	D
13	A				
14	Photographic Film	15	Bakelite	16	(electric) Switches
17	Britain/UK	18	Fireproof	19	Glass

20	Rigid Foams	21	FALSE	22	NOT GIVEN
23	FALSE	24	TRUE	25	TRUE
26	TRUE				
27	D	28	B	29	A
30	C	31	A	32	A
33	High tides	34	Agricultural production	35	Coastal boundaries
36	NOT GIVEN	37	NOT GIVEN	38	NO
39	YES	40	NO		

Reading Test 17

1	NOT GIVEN	2	TRUE	3	TRUE
4	FALSE	5	D	6	E
7	C	8	D	3	B
10	D	11	D	12	C
13	B				
14	B	15	E	16	F
17	Essential element	18	Applications	19	Portable commodity
20	Taxes	21	Spirits	22	TRUE
23	NOT GIVEN	24	FALSE	25	FALSE
26	TRUE	27	TRUE		
28	A	29	B	30	C
31	B	32	D	33	E

34	F	35	H	36	C
37	YES	38	NO	39	YES
40	NOT GIVEN				

Reading Test 18

1	v	2	i		vi
4	x	5	ix		iv
7	ii	8	True		True
10	Not given	11	C		D
13	E				
14	TRUE	15	NOT GIVEN	16	TRUE
17	TRUE	18	FALSE	19	TRUE
20	Extinction	21	Drugs, crops	22	Pioneers
23	Sir Joseph banks	24	Underground vaults	25	A
26	B				

27	D	28	A	29	G
30	B	31	H	32	F
33	A	34	D	35	C
36	FALSE	37	NOT GIVEN	38	TRUE
39	TRUE	40	FALSE		

Reading Test 19

1	Ten thousand	2	South – East Asia	3	Hard seeds/ seeds
4	F	5	A	6	D
7	C	8	E	3	B

10	C	11	NOT GIVEN	12	FALSE
13	TRUE				
14	B	15	H	16	C
17	A	18	G	19	Cargo vessel
20	Luxury items	21	Gearwheel	22	Analog computer
23	C	24	B	25	B
26	A				
27	v	28	X	29	lii

30	i	31	Vii	32	Viii
33	ii	34	C	35	B
36	E	37	A	38	D
39	C	40	D		

Reading Test 20

1	B	2	B	3	D
4	D	5	B	6	ferry
7	Bicycle	8	Fan/ceiling fan	9	Air conditioner
10	Mosquitos/ mosquito	11	A	12	C
13	E				
14	NOT GIVEN	15	FALSE	16	TRUE
17	FALSE	18	FALSE	19	F
20	B	21	G	22	C
23	H	24	B	25	D
26	A				

27	Vi	28	iv	29	ii
30	V	31	vii	32	F
33	B	34	E	35	D
36	G	37	A	38	C
39	B	40	C		

Reading Test 21

1	Spread	2	Rain/rainfall	3	Climate change
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4	10 times	5	Primary Fuel	6	Fire Season
7	C	8	B	9	D
10	True	11	Not Given	12	True
13	False				
14	True	15	False	16	True

17	Not Given	18	True	19	Not Given
20	1976 and 1995	21	2000 floods	22	France
23	1956	24	1998 and 2002	25	1990
26	500	27	D		

28	False	29	True	30	True
31	Not Given	32	False	33	Not Given
34	True	35	History of Childhood	36	(as) miniature adults
37	(with the) industrialization	38	The factory act	39	Play and education
40	Classroom				

Reading Test 22

1	NOT GIVEN	2	FALSE	3	NOT GIVEN
4	TRUE	5	Evergreen	6	Natural pesticides
7	Power	8	Overnight	9	Neem cake
10	Doubles	11	Nitrogen	12	2000
13	Neem seeds	14	Water purification		
15	Identical	16	Balls of paper	17	Count/ Calculate eggs
18	fruits flies	18	Mosquito fish	20	Surface area
21	sugar water	22	TRUE	23	FALSE
24	NOT GIVEN	25	TRUE	26	NOT GIVEN
27	TRUE				
28	F	29	I	30	C
31	B	32	G	33	C
34	B	35	A	36	YES
37	YES	38	NO	39	NOT GIVEN

40	NO		
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Reading Test 23

1	D	2	B	3	C
4	A	5	YES	6	NO
7	NOT GIVEN	8	YES	3	NO
10	Farming	11	Curry	12	Natural/ organic
13	Chemical				
14	A	15	E	16	F
17	C	18	B	19	J
20	K	21	F	22	C
23	D	24	TRUE	25	FALSE
26	TRUE	27	NOT GIVEN		
28	F	29	E	30	C
31	B	32	G	33	D
34	A	35	C	36	A
37	D	38	B	39	B
40	D				

Reading Test 24

1	B	2	C	3	D
4	TRUE	5	FALSE	6	TRUE
7	FALSE	8	NOT GIVEN	9	TRUE
10	TRUE	11	B	12	D
13	F				
14	A	15	B	16	C
17	D	18	NOT GIVEN	19	TRUE
20	NOT GIVEN	21	FALSE	22	C
23	B	24	C	25	A
26	B	27	Sound laws		
28	Fashion	29	Imperfect	30	Principle

31	False	32	False	33	Not Given
34	True	35	True	36	Not Given
37	True	38	C	39	B
40	A				

Reading Test 25

1	FALSE	2	FALSE	3	TRUE
4	TRUE	5	FALSE	6	NOT GIVEN
7	NOT GIVEN	8	TRUE	9	M
10	E	11	G	12	P
13	J				
14	B	15	Taste buds	16	Baleen whales
17	Forward downward	18	Freshwater dolphins	19	Water
20	The lower frequencies	21	Bowhead humpback	22	Touch
23	Freshwater dolphins	24	Airborne flying fish	25	Clear open waters
26	Acoustic	27	C		
28	C	29	A	30	E
31	C	32	A	33	Pairs
34	Shapes	35	Sighted	36	Sighted
37	Deep	38	Blind	39	similar
40	B				