CHAPTER 3

5 FULL READING TESTS

الفصل الثالث:
خمسة اختبارات
قراءة كاملة

PRELIMINARY READING TEST
(60 Minutes)

READING PASSAGE 1

You should spend about 20 minutes on Questions 1-14 which are based on Reading Passage 1 on the following pages.

Questions 1-4

Reading Passage 1 has six paragraphs A-F.

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

Write the appropriate numbers i-ix in boxes 1-4 on your answer sheet.

List of Headings

i How the reaction principle works
ii The impact of the reaction principle
iii Writers' theories of the reaction principle
iv Undeveloped for centuries
v The first rockets
vi The first use of steam
vii Rockets for military use
viii Developments of fire
ix What's next?

Examples:

Paragraph A Answer ii
Paragraph F Answer ix

1- Paragraph B
2- Paragraph C
3- Paragraph D
4- Paragraph E

THE ROCKET - FROM EAST TO WEST

The concept of the rocket, or rather the mechanism behind the idea of propelling an object into the air, has been around for over two thousand years. However, it wasn't until the discovery of the reaction principle, which was the key to space travel and so represents one of the great rules in the history of scientific thought that rocket technology was able to develop. Not only did it solve a problem that had intrigued man for ages, but, more importantly, it literally opened the door to exploration of the universe. A

An intellectual breakthrough, brilliant though it may be, does not automatically ensure that the transition is made from theory to practice. Despite the fact that rockets had been used sporadically for several hundred years, they remained a relatively minor artifact of civilization until the twentieth century. Prodigious efforts, accelerated during two world wars, were required before the technology of primitive rocketry could be translated into the reality of sophisticated astronauts. It is strange that the rocket was generally ignored by writers of fiction to transport their heroes to B

mysterious realms beyond the Earth, even though it had been commonly used in fireworks displays in China since the thirteenth century. The reason is that nobody associated the reaction principle with the idea of travelling through space to a neighbouring world.

C A simple analogy can help us to understand how a rocket operates. It is much like a machine gun mounted on the rear of a boat. In reaction to the backward discharge of bullets, the gun, and hence the boat, move forwards. A rocket motor's 'bullets' are minute, high-speed particles produced by burning propellants in a suitable chamber. The reaction to the ejection of these small particles causes the rocket to move forwards. There is evidence that the reaction principle was applied practically well before the rocket was invented. In his *Greek Nights*, Aulus Gellius describes 'the pigeon of Archytas', an invention dating back to about 360 BC. Cylindrical in shape, made of wood, and hanging from string, it was moved to and fro by steam blowing out from small exhaust ports at either end. The reaction to the discharging steam provided the bird with motive power.

D The invention of rockets is linked inextricably with the invention of 'black powder'. Most historians of technology credit the Chinese with its discovery. They base their belief on studies of Chinese writings or on the notebooks of early Europeans who settled in or made long visits to China to study its history and civilization. It is probable that, some time in the tenth century, black powder was first compounded from its basic ingredients of saltpetre, charcoal and sulphur. But this does not mean that it was immediately used to propel rockets. By the thirteenth century, powder propelled fire arrows had become rather common. The

Chinese relied on this type of technological development to produce incendiary projectiles of many sorts, explosive grenades and possibly cannons to repel their enemies. One such weapon was the 'basket of fire' or, as directly translated from Chinese, the 'arrows like flying leopards'. The 0.7 metre-long arrows, each with a long tube of gunpowder attached near the point of each arrow, could be fired from a long, octagonal-shaped basket at the same time and had a range of 400 paces. Another weapon was the 'arrow as a flying sabre', which could be fired from crossbows. The rocket, placed in a similar position to other rocket-propelled arrows, was designed to increase the range. A small iron weight was attached to the 1.5m bamboo shaft, just below the feathers, to increase the arrow's stability by moving the centre of gravity to a position below the rocket. At a similar time, the Arabs had developed the 'egg which moves and burns'. This 'egg' was apparently full of gunpowder and stabilised by a 1.5m tail. It was fired using two rockets attached to either side of this tail.

It was not until the eighteenth century that Europe E
became seriously interested in the possibilities of using the rocket itself as a weapon of war and not just to propel other weapons. Prior to this, rockets were used only in pyrotechnic displays. The incentive for the more aggressive use of rockets came not from within the European continent but from far-away India, whose leaders had built up a corps of rocketeers and used rockets successfully against the British in the late eighteenth century. The Indian rockets used against the British were described by a British Captain serving in India as 'an iron envelope about 200 millimetres long and 40 millimetres in diameter with sharp points at the

top and a long bamboo guiding stick'. In the early nineteenth century, the British began to experiment with incendiary barrage rockets. The British rocket differed from the Indian version in that it was completely encased in a stout, iron cylinder, terminating in a conical head, measuring one metre in diameter and having a stick almost five metres long and constructed in such a way that it could be firmly attached to the body of the rocket. The Americans developed a rocket, complete with its own launcher, to use against the Mexicans in the mid-nineteenth century. A long cylindrical tube was propped up by two sticks and fastened to the top of the launcher, thereby allowing the rockets to be inserted and lit from the other end. However, the results were sometimes not that impressive as the behaviour of the rockets in flight was less than predictable.

Since then, there have been huge developments in rocket technology, often with devastating results. Nevertheless, the modern day space programs owe their success to the humble beginnings of those in previous centuries who developed the foundations of the reaction principle. Who knows what it will be like in the future? F

Questions 5 and 6

Choose the appropriate letters A-D and write them in boxes 5 and 6 on your answer sheet.

5- The greatest outcome of the discovery of the reaction principle was that ... ...

A- rockets could be propelled into the air.

B- space travel became a reality.

C- a major problem had been solved.

D- bigger rockets were able to be built.

6- According to the text, the greatest progress in rocket

technology was made ... ...

A- from the tenth to the thirteenth centuries.

B- from the seventeenth to the nineteenth centuries.

C- from the early nineteenth to the late nineteenth century.

D- from the late nineteenth century to the present day.

Questions 7-10

From the information in the text, indicate who FIRST invented or used the items in the list below.

Write the appropriate letters A-E in boxes 7-10 on your answer sheet.

NB. You may use any letter more than once.

Example rockets for displays Answer A

7- black powder

8- rocket-propelled arrows for fighting

9- rockets as war weapons

10- the rocket launcher

FIRST invented or used by

A- the Chinese

B- the Indians

C- the British

D- the Arabs

E- the Americans

Questions 11-14

Look at the drawings of different projectiles below, A-H, and the names of types of projectiles given in the passage.

Match each name with one drawing.

Write the appropriate letters A-H in boxes 11-14 on your answer sheet.

Example

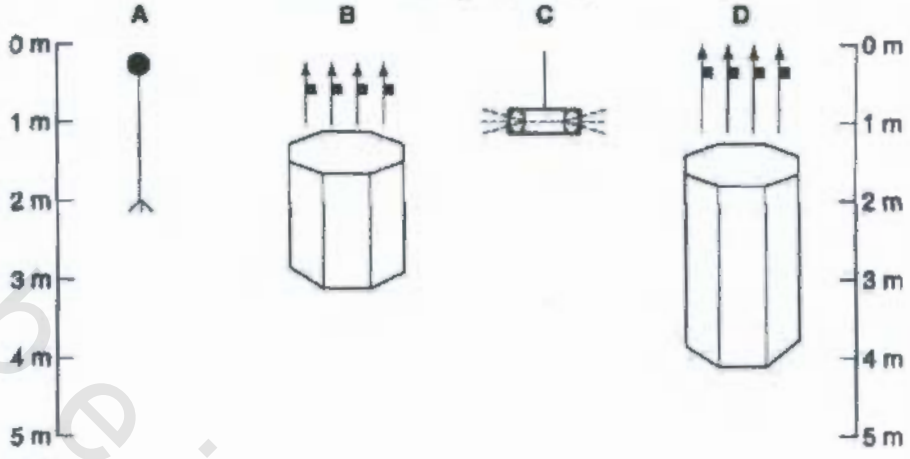
The Greek 'pigeon of Archytas' Answer C

11- The Chinese 'basket of fire'

12- The Arab 'egg which moves and burns'

13- The Indian rocket

14- The British barrage rocket



READING PASSAGE 2

You should spend about 20 minutes on Questions 15-28 which are based on Reading Passage 2 below.

The Risks of Cigarette Smoke

Discovered in the early 1800s and named nicotianine, the oily essence now called nicotine is the main active ingredient of tobacco. Nicotine, however, is only a small component of cigarette smoke, which contains more than 4,700 chemical compounds, including 43 cancer-causing substances. In recent times, scientific research has been providing evidence that years of cigarette smoking vastly increases the risk of developing fatal medical conditions.

In addition to being responsible for more than 85 per cent of lung cancers, smoking is associated with cancers of, amongst others, the mouth, stomach and kidneys, and is thought to cause about 14 per cent of leukemia and cervical cancers. In 1990, smoking caused more than 84,000 deaths, mainly resulting from such problems as pneumonia, bronchitis and influenza. Smoking, it is believed, is responsible for 30 per cent of all deaths from cancer and clearly represents the most important preventable cause of cancer in countries like the United States today.

Passive smoking, the breathing in of the side-stream smoke from the burning of tobacco between puffs or of the smoke exhaled by a smoker, also causes a serious health risk. A report published in 1992 by the US Environmental Protection Agency (EPA) emphasized the health dangers, especially from side-stream smoke. This type of smoke contains smaller particles and is therefore more likely to be

deposited deep in the lungs. On the basis of this report, the EPA has classified environmental tobacco smoke in the highest risk category for causing cancer.

As an illustration of the health risks, in the case of a married couple where one partner is a smoker and one a non-smoker, the latter is believed to have a 30 per cent higher risk of death from heart disease because of passive smoking. The risk of lung cancer also increases over the years of exposure and the figure jumps to 80 per cent if the spouse has been smoking four packs a day for 20 years. It has been calculated that 17 per cent of cases of lung cancer can be attributed to high levels of exposure to secondhand tobacco smoke during childhood and adolescence.

A more recent study by researchers at the University of California at San Francisco (UCSF) has shown that second-hand cigarette smoke does more harm to non-smokers than to smokers. Leaving aside the philosophical question of whether anyone should have to breathe someone else's cigarette smoke, the report suggests that the smoke experienced by many people in their daily lives is enough to produce substantial adverse effects on a person's heart and lungs.

The report, published in the Journal of the American Medical Association (AMA), was based on the researchers' own earlier research but also includes a review of studies over the past few years. The American Medical Association represents about half of all US doctors and is a strong opponent of smoking. The study suggests that people who smoke cigarettes are damaging their cardiovascular system, which adapts in order to compensate for the effects of smoking. It further states that people who do not smoke do not have the benefit of their system adapting to the smoke inhalation. Consequently, the effects of passive smoking are far greater on non-smokers than on smokers.

This report emphasizes that cancer is not caused by a single element in cigarette smoke; harmful effects to health are caused by many components. Carbon monoxide, for example, competes with oxygen in red blood cells and interferes with the blood's ability to deliver life giving oxygen to the heart. Nicotine and other toxins in cigarette smoke activate small blood cells called platelets, which increases the likelihood of blood clots, thereby affecting blood circulation throughout the body.

The researchers criticize the practice of some scientific consultants who work with the tobacco industry for assuming that cigarette smoke has the same impact on smokers as it does on non-smokers. They argue that those scientists are underestimating the damage done by passive smoking and, in support of their recent findings, cite some previous research which points to passive smoking as the cause for between 30,000 and 60,000 deaths from heart attacks each year in the United States. This means that passive smoking is the third most preventable cause of death after active smoking and alcohol-related diseases.

The study argues that the type of action needed against passive smoking should be similar to that being taken against illegal drugs and AIDS (SIDA). The UCSF researchers maintain that the simplest and most cost-effective action is to establish smoke-free work places, schools and public places.

Questions 15-17

Choose the appropriate letters A-D and write them in boxes 15—17 on your answer sheet.

15- According to information in the text, leukaemia and pneumonia ... ...

A- are responsible for 84,000 deaths each year.
B- are strongly linked to cigarette smoking.
C- are strongly linked to lung cancer.
D- result in 30 per cent of deaths per year.

16- According to information in the text, intake of carbon monoxide ... ...

A- inhibits the flow of oxygen to the heart.
B- increases absorption of other smoke particles.
C- inhibits red blood cell formation.
D- promotes nicotine absorption.

17- According to information in the text, intake of nicotine encourages ... ...

A- blood circulation through the body.
B- activity of other toxins in the blood.
C- formation of blood clots.
D- an increase of platelets in the blood.

Questions 18-21

Do the following statements reflect the claims of the writer in Reading Passage 2?

In boxes 18-21 on your answer sheet write:

YES — if the statement reflects 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

18- Thirty per cent of deaths in the United States are caused by smoking-related diseases.

19- If one partner in a marriage smokes, the other is likely to take up smoking.
20- Teenagers whose parents smoke are at risk of getting lung cancer at some time during their lives.
21- Opponents of smoking financed the UCSF study.

Questions 22-24

Choose ONE phrase from the list of phrases A-J below to complete each of the following sentences (Questions 22-24). Write the appropriate letters in boxes 22-24 on your answer sheet.

22- Passive smoking ... ...
23- Compared with a non-smoker, a smoker ... ...
24- The American Medical Association ... ...

A- includes reviews of studies in its reports.
B- argues for stronger action against smoking in public places.
C- is one of the two most preventable causes of death.
D- is more likely to be at risk from passive smoking diseases.
E- is more harmful to non-smokers than to smokers.
F- is less likely to be at risk of contracting lung cancer.
G- is more likely to be at risk of contracting various cancers.
H- opposes smoking and publishes research on the subject.
I- is just as harmful to smokers as it is to non-smokers.
J- reduces the quantity of blood flowing around the body.

Questions 25-28

Classify the following statements as being

A- a finding of the UCSF study
B- an opinion of the UCSF study
C- a finding of the EPA report
D- an assumption of consultants to the tobacco industry

Write the appropriate letters A-D in boxes 25-28 on your answer sheet.

NB You may use any letter more than once.

25- Smokers' cardiovascular systems adapt to the intake of environmental smoke.
26- There is a philosophical question as to whether people should have to inhale others' smoke.
27- Smoke-free public places offer the best solution.
28- The intake of side-stream smoke is more harmful than smoke exhaled by a smoker.

READING PASSAGE 3

You should spend about 20 minutes on Questions 29-40 which are based on Reading Passage 3 on the following pages.

Questions 29-33

Reading Passage 3 has seven paragraphs A-G. Choose the most suitable headings for paragraphs C-G from the list of headings below. Write the appropriate numbers i-x in boxes 29-33 on your answer sheet.

List of Headings

i The Crick and Watson approach to research
ii Antidotes to bacterial infection
iii The testing of hypotheses
iv Explaining the inductive method
v Anticipating results before data is collected
vi How research is done and how it is reported
vii The role of hypotheses in scientific research
viii Deducing the consequences of hypotheses
ix Karl Popper's claim that the scientific method is hypothetico-deductive
x The unbiased researcher

Example

Paragraph A Answer ix

29- Paragraph C
30- Paragraph D
31- Paragraph E
32- Paragraph F
33- Paragraph G

THE SCIENTIFIC METHOD

'Hypotheses,' said Medawar in 1964, 'are imaginative and inspirational in character'; they are 'adventures of the mind'. He was arguing in favour of the position taken by Karl Popper in *The Logic of Scientific Discovery* (1972, 3rd edition) that the nature of scientific method is hypothetico-deductive and not, as is generally believed, inductive. A

It is essential that you, as an intending researcher, understand the difference between these two interpretations of the research process so that you do not become discouraged or begin to suffer from a feeling of 'cheating' or not going about it the right way. B

The myth of scientific method is that it is inductive: that the formulation of scientific theory starts with the basic, raw evidence of the senses - simple, unbiased, unprejudiced observation. Out of these sensory data - commonly referred to as 'facts' - generalizations will form. The myth is that from a disorderly array of factual information an orderly, relevant theory will somehow emerge. However, the starting point of induction is an impossible one. C

There is no such a thing as an unbiased observation. Every act of observation we make is a function of what we have seen or otherwise experienced in the past. All scientific work of an experimental or exploratory nature starts with some expectation about the outcome. This expectation is a hypothesis. Hypotheses provide the initiative and incentive for the inquiry and influence the method. It is in the light of an expectation that some observations are held to be relevant and some irrelevant, that one methodology is chosen and others discarded, that some experiments are conducted and others are not. Where is, your naive, pure and objective researcher now? D

Hypotheses arise by guesswork, or by inspiration, but having been formulated they can and must be tested rigorously, using the appropriate methodology. If the predictions you make as a result of deducing certain consequences from your hypothesis are not shown to be correct then you discard or modify your hypothesis. If the predictions turn out to be correct then your hypothesis has been supported and may be retained until such time as some further test shows it not to be correct. Once you have arrived at your hypothesis, which is a product of your imagination, you then proceed to a strictly logical and rigorous process, based upon deductive argument- hence the term 'hypothetico-deductive'. E

So don't worry if you have some idea of what your results will tell you before you even begin to collect data; there are no scientists in existence who really wait until they have all the evidence in front of them before they try to work out what it might possibly mean. The closest we ever get to this situation is when something happens by accident; but even then the F

researcher has to formulate a hypothesis to be tested before being sure that, for example, a mould might prove to be a successful antidote to bacterial infection.

The myth of scientific method is not only that it is G inductive (which we have seen is incorrect) but also that the hypothetico-deductive method proceeds in a step-by-step, inevitable fashion. The hypothetico-deductive method describes the *logical* approach to much research work, but it does not describe the *psychological* behaviour that brings it about. This is much more holistic - involving guesses, reworkings, corrections, blind alleys and above all inspiration, in the deductive as well as the hypothetic component- than is immediately apparent from reading the final thesis or published papers. These have been, quite properly, organised into a more serial, logical order so that the worth of the *output* may be evaluated independently of the behavioural processes by which it was obtained. It is the difference, for example between the academic papers with which Crick and Watson demonstrated the structure of the DNA molecule and the fascinating book *The Double Helix* in which Watson (1968) described how they did it. From this point of view, 'scientific method' may more usefully be thought of as a way of *writing up* research rather than as a way of carrying it out.

Questions 34 and 35

In which TWO paragraphs in Reading Passage 3 does the writer give advice directly to the reader?

Write the TWO appropriate letters (A-G) in boxes 34 and 35 on your answer sheet.

Questions 36-39

Do the following statements reflect the opinions of the writer in Reading Passage 3?

In boxes 36-39 on your answer sheet write

YES — if the statement reflects 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- Popper says that the scientific method is hypothetico-deductive.

37- If a prediction based on a hypothesis is fulfilled, then the hypothesis is confirmed as true.

38- Many people carry out research in a mistaken way.

39- The 'scientific method' is more a way of describing research than a way of doing it.

Question 40

Choose the appropriate letter A-D and write it in box 40 on your answer sheet. Which of the following statements best describes the writer's main purpose in Reading Passage 3?

A- to advise Ph.D students not to cheat while carrying out research

B- to encourage Ph.D students to work by guesswork and inspiration

C- to explain to Ph.D students the logic which the scientific research paper follows

D- to help Ph.D students by explaining different conceptions of the research process

READING TEST ONE (60 MINUTES)

Reading Passage 1

You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 on the following pages.

Seaweed for Human Consumption

Seaweeds are algae that live in the sea or in brackish water. Scientists often call them 'benthic marine algae', which just means 'attached algae that live in the sea'. Seaweeds come in three basic colours: red, green, and brown: dulse is the red seaweed; sea lettuce is amongst the green algae; and the brown is a wrack. Red and brown algae are almost exclusively marine, whilst green algae are also common in freshwater and in terrestrial situations. Many of these algae are very ancient organisms, and although lumped together as 'algae' are not actually closely related, having representatives in four of the five kingdoms of organisms. There are about 10,500 species of seaweeds, of which 6,500 are red algae (Rhodophyta).

The trend today is to refer to marine algae used as food as 'sea-vegetables'. The main species used in Ireland at present are dulse, carrageen moss, and various kelps and wracks. Dulse -also known as dillisk in a number of areas- is a red alga that is eaten on both sides of the North Atlantic. Generally only eaten in Ireland after it has been dried, it is frequently sold in small packets, most commonly in the west and north. About 16 tonnes are used in Ireland at present; the species is also eaten in Canada, Iceland, Norway, France and Scotland. About 53 tonnes of carrageen moss were gathered in Ireland in 1994.

Whilst dulse and carrageen moss are worthy sea-vegetables with a history of utilisation and a small but proven market, other species also show considerable promise. Our kelp resources are considerably under-utilised. All of the kelp species are edible but Laminaria saccharina is probably the most palatable as it has a somewhat sweet taste, probably due to its high levels of mannitol, and it also cooks better.

Two other brown algae with potential as food are currently under investigation by us: Himanthalia elongate, known in some places as thonowped, and Alano esculenta, also known as dabberlocks or murlins. Himanthalia is eaten in France after drying or pickling ('Spaghettis de mer'), and plants are sold in Ireland dried. After soaking in water it makes a surprisingly fine accompaniment to a mixed salad; it does not have the strong seaweedy taste that some dislike. With the aid of a basic research grant from Forbairt, the Irish research and development body, we are examining the growth and life cycle of populations of this species on the west coast. Plants are easy to collect but must be dried quickly and packaged well to preserve their excellent taste and mouth feel.

Alaria is a large, kelp-like brown alga that grows on exposed shores. In Ireland, plants grow to considerable sizes, being found up to 6m in length in some areas, but these are dwarfed by some Pacific species that may grow to 18m in length and to 2m in width. With Marine Research Measure funding, a study of the possibility of developing fast-growing hybrids of this species by crossing species from the Atlantic and Pacific is being carried out. We have growing in culture isolates of A. esculenta from Ireland, Scotland, France, Norway, and Atlantic Canada and other species from British Columbia and Japan. Species of this genus are ideal for cross-breeding studies as the males and females are tiny filamentous plants that are relatively easy

to grow and propagate in culture under red light which stimulates reproduction in our growth rooms. Male and female reproductive structures occur on different plants so that we can put plants from one country in with those from another to see if they are sexually compatible.

To date, we have obtained interesting results with A. praelonga, a large species from Japan that co-operates sexually with A. esculenta from the Aran Islands and other Irish sites. The resulting Irish/Japanese progeny are grown initially in sample bottles agitated on a small shaker and their growth rates compared with plants that have resulted from self crosses. Preliminary results are very encouraging, with hybrid plants showing relatively high growth rates. We hope by this method to obtain sterile hybrids that will not reproduce in the wild so that we can introduce foreign genetic material without the fear that some sort of a tryffid will be introduced that will take over the west coast of Ireland.

While studies of these two food species are very promising, we must bear in mind that the market for such sea-vegetables is very small and needs development and investment. Nutritionally, sea-vegetables are as good as any land-vegetable and are superior in their vitamin, trace element and even protein content. The increase in catholic food tastes in Europe should see greater utilisation of sea-vegetables in the next 20 years.

Questions 1-5

Classify the following features as characterizing

A brown algae
B green algae
C red algae
D brown and red algae

Write the correct letter A, B, C or D in boxes 1-5 on your answer sheet.

1- are being investigated as possible food sources.
2- are now called sea-vegetables.
3- make up more than half of all seaweed species.
4- are found on land and in freshwater.
5- are nearly all marine..

Questions 6-9

Complete the table below.
Choose NO MORE THAN THREE WORDS from Reading Passage 1 for each answer.
Write your answers in boxes 6-9 on your answer sheet.

Types of brown algae	Himanthalia elongata	Alaria esculenta
Potential	food	food
Common name	thongweed	dabberlocks or ... (6)
Research funded	with a ..... (7) from Forbairt	by Marine Research Measure
Purpose	to examine growth and life cycle populations	creation of fast-growing ..... (8) .....
Advantage	easy to collect	just right for ..... (9)

Questions 10-13

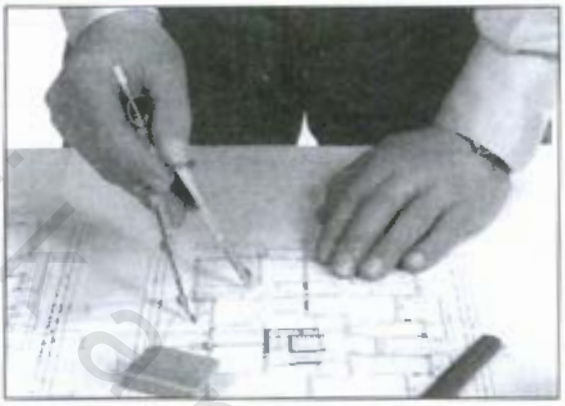
Answer the questions below.
Choose NO MORE THAN THREE WORDS from the passage for each answer.
Write your answers in boxes 10-13 on your answer sheet.

10- What does the red light in the growth rooms do?
11- What are initial growth rates shown to be?
12- What does the sea-vegetable market need?
13- What increasingly should lead to greater consumption of sea-vegetables?

Reading Passage 2

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

Designing and shipping after the Restriction of Hazardous Substances (RoHS) directive



Almost two months after the European Union's ban on 1
the use of six environmentally unfriendly materials went into effect, designers have clear evidence that failure to meet the Restriction of Hazardous Substances (RoHS) directive means lost sales. Palm Inc. recently announced that its Treo 650 smart phone is no longer being shipped to Europe, since it doesn't meet RoHS requirements. And several Apple Computer Inc. products will not be sold in Europe for the same reason.

The EU directive, which took effect on 1st July, covers 2
lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers. Electronics vendors worldwide are working to eliminate those substances from nearly all new products developed for the European market,

while also adapting their manufacturing processes to a lead (Pb)-free environment.

But that is only the beginning. Other countries, 3
including China, Taiwan and South Korea, and certain U.S. states are creating their own "green" or RoHS-like legislation. That means RoHS compliance must become an integral part of a designer's development process, with RoHS checks at each step: concept, development, prototype, first builds and volume production.

Major companies will run the gamut from finding 4
component databases of qualified green components to taking due care to prove compliance and developing processes that allow for the higher-temperature requirements of Pb-free manufacturing. And for designers, those are just the tip of the iceberg. A host of technical and reliability issues remain to be sorted out in Pb-free board processing and soldering.

What it comes down to is what Ken Stanvick, senior 5
vice president at Design Chain Associates, calls a lack of 'tribal knowledge' on design RoHS- compliant systems. 'We had a great tribal knowledge when it came to dealing with leaded systems, but we haven't built up that same amount of knowledge for Pb-free,' he said. 'Every problem will be blamed on Pb-free until it's been worked out. We need to figure out tests that replicate more of the environment and different stresses that we're going to see in this new system.'

Manny Marcano, president and CEO of EMA Design 6
Automation Inc. (Rochester, N.Y.), cited the impact of parts obsolescence, including the need to redesign older products and the resultant emphasis on component engineering at the expense of conceptual design. A key challenge is identifying RoHS design

specifications as early as possible in the design process, he said.

But even before they get to that point, designers must understand whether they are designing a fully compliant product or one that's subject to some exemptions, said Robert Chinn, director for consultant firm PRTM (Mountain View, Calif.). This affects their design parameters,' he said. 'Previously, they looked at components based on size, performance, electrical parameters, features and functionality. Now they have to add on a new constraint, revolving around environmental compliance: Is it RoHS 6-compliant or is it RoHS 5-compliant?' (RoHS 6 components eliminate all six of the banned substances, while RoHS 5 models, because of exemptions, still contain lead.) 7

If designers do not take RoHS seriously, any country that can prove a product does not comply can levy fines against the vendor. That can cost market share, Marcano said,- since noncompliant companies become non-competitive. And then, not being prepared can mean belatedly diverting resources to RoHS compliance, causing missed market opportunities. 8

But many industry observers believe smaller and medium-size companies will continue to be complacent about the RoHS transition until some major company is cited for non-compliance. 'When that happens, there will be an earthquake throughout the industry, and it will wake up every design engineer,' said Steve Schultz, director of strategic planning and communications at Avnet Logistics and program manager for the distributor's compliance efforts for RoHS in the Americas. 9

The product developer's RoHS concerns center on the fear of lost revenue- from a product ban. a customer 10

who demands a RoHS-compliant product that the company doesn't have, or competition', said Harvey Stone, managing director for consultancy GoodBye Chain Group (Colorado Springs, Colo.). 'With price, quality and service being relatively equal, a savvy customer is going to choose a RoHS-compliant product,' he said.

Meanwhile, designers are looking over their shoulders at several other -and potentially stricter- environmental regulations in the pipeline. These include the EU's Registration, Evaluation and Authorization of Chemicals legislation, which could restrict the use of thousands of chemicals, and its Energy-using Products (EuP) directive, which will initially target energy-efficiency requirements. 11

Questions 14-17

Look at the following people and the list of statements below. Match each person with the correct statement. Write the correct letter A-G in boxes 14-17 on your answer sheet.

14- Manny Marcano
15- Harvey Stone
16- Steve Shultz
17- Ken Stanvick

List of Statements:

A believes that the EU directive requires no action
B claims that old products need to be redesigned
C claims that customers will want a RoHS compliant product
D states that many products will be RoHS exempt
E is involved in planning and communications
F predicts that design engineers will like RoHS
G claims that more knowledge about Pb-free systems is needed

Questions 18-24

Complete the summary using the list of words A-P below. Write the correct letter A-P in boxes 18-24 on your answer sheet.

The EU has banned the use of six materials that are ... ...(18) to the environment. This means that if designers do not meet the Restriction of Hazardous Substances (RoHS) directive, sales will ... ...(19) Similar legislation is being put together around the world, which indicates that RoHS compliance needs to become a ... ...(20) part of a designer's development process. RoHS checks at every step from concept to mass production is also a necessity. But ... ...(21) technical and reliability problems remain to be ... ...(22) Previously, the performance etc. of components were ... ...(23) but now a new ... ...(24) needs to be taken into account: environmental compliance.

A requirement	B friendly	C hostile
D increase	E big	F basic
G insignificant	H numerous	I variety
J decline	K solved	L important
M idea	N small	O recognised
P need		

Questions 25-27

Do the following statements agree with the information in Reading Passage 2? In boxes 25-27 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

25- Countries can impose fines on the sellers of products that do not comply with RoHS.

26- Smaller companies are taking the changeover to RoHS seriously.
27- The Energy-using directive will be introduced in the very near future.

*** *** ***

Reading Passage 3

You should spend about 20 minutes on Questions 28-40, which are based on Reading Passage 3 on the following pages.

Questions 28-33

Reading Passage 3 has seven paragraphs A-G.
Choose the correct heading for paragraphs A and C-Gfrom the list of headings below. Write the correct number, i-ix, in boxes 28-33 on your answer sheet.

List of Headings

i Some criticisms of video-conferencing
ii The future of conferencing by video
iii The transmission of education to remote areas
iv The first stages of video-conferencing
v The necessity of having two TVs
vi How video-conferencing can benefit organizations
vii How video-conferencing became more accessible to the general public
viii The various pieces of equipment needed
ix The lack of exploitation of video-conferencing in education

Example

Paragraph B Answer vii

28- Paragraph A
29- Paragraph C
30- Paragraph D
31- Paragraph E
32- Paragraph F
33- Paragraph G

Seeing the Future in with video-conferencing

Video-conferencing (or Video tele-conferencing-VTC) as a means of communication has essentially been possible since the dawn of television. But the early systems, first demonstrated in 1968, were in fact so prohibitively expensive and of such poor picture quality that they were not viable applications for general public use. A

However, in the 1980s, digital telephone networks like ISDN began to proliferate, so that by the 1990s the decrease in cost brought the equipment necessary for video-conferencing within the reach of the masses. The 1990s also saw the rival of IP (Internet Protocol) based video-conferencing with more efficient video compression technologies being introduced, thus permitting desktop, or personal computer (PC)-based video-conferencing. VTC had come on the scene in a big way as free services, web plugins and software, such as NetMeeting, and MSN Messenger, Skype and others brought cheap, albeit low-quality, VTC to the public at large. B

Video-conferencing has been disparaged for the lack C

of eye-contact that can affect the efficacy of the medium and for the fact that participants can be camera conscious. But these obstacles are not insurmountable. The size of modern televisions along with the vast improvement in picture quality as a result of the arrival of the digital age has enhanced the potential of the latest video-conferencing equipment, going somewhat towards solving the former problem. Early studies by Alphonse Chapanis found that the addition of video hindered rather than improved communication. However, as with video and sound recording of meetings, interviews etc, awareness of the presence of the technology diminishes with time to the point that its presence is not felt. A further drawback common to all technology is the ever present possibility of technical hitches. But in the end video-conferencing is no different from any electronic device like a PC or a telephone and so in time, any problems will be ironed out.

Conferencing by video has enhanced the performance of different organizations through its efficiency and effectiveness, saving both time and money for businesses and, in this carbon-conscious age, by the reduction in the environmental cost of business travel from one corner of the world to another. These apart, video-conferencing has an immediacy that is difficult to challenge. It is now essential in any work situation where organizations with employees on different sites or in different parts of the globe can contact each other rapidly. Like a telephone line permanently connected it is easy to dial up a colleague in seconds anywhere in the world. D

And what about the equipment? The equipment for video-conferencing is relatively straightforward to use. E

It has, in fact, been commonplace in the news media for a number of years as corporations have broadcast live from the back of a truck or van in news hotspots around the world. Two ISDN lines are needed at each location: one for video output and the other for video input; a high quality camera with omnidirectional microphones or microphones which can be hand-held, clipped on or central are required; and for data transfer a LAN is also needed. And, of course, a televison screen at each end is essential.

F The potential use of video-conferencing in the educational field has yet to be fully exploited. In this day and age when academic institutions are supposed to be more revenue conscious and much more flexible, video-conferencing could be employed to bring business into the educational field and vice versa. The system can also be used to take expertise anywhere in the world. It is no longer necessary for experts to travel vast distances for conferences or to teach. In certain areas, say remote islands like the Outer Hebrides in Scotland or the Cape Verde Islands off West Africa, where it may be difficult to find teachers in specialist subjects like languages, video-conferencing is a perfect way to bring education within the reach of everyone. Video-conferencing is certainly not a panacea for every problem, not an end in itself, but a useful tool that can complement rather than supplant existing teaching methods.

G Like the electronic or smart whiteboard, whose introduction in the classroom has met with resistance, video-conferencing may take some time to become mainstream, if ever. But, perhaps with the mounting concern about our carbon footprint, the environment will ultimately be the biggest spur. A sobering thought

is whether classrooms and offices of the future will consist solely of TV screens.

Questions 34-36

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

Write your answers in boxes 34-36 on your answer sheet.

34- Video-conferencing was not common initially because of... ... ...

A- the cost and poor image quality.
B- poor advertising and marketing.
C- the lack of skilled technicians.
D- constant electronic failures.

35- Video-conferencing became more practical on personal computers once ... ...

A- the Internet became more widespread.
B- the picture quality became perfect.
C- the software became free for the general public.
D- video compression technology worked better.

36- Video-conferencing has been attacked for ... ...

A- several problems that cannot be solved.
B- the lack of large TV screens.
C- there not being direct eye contact.
D- the failure of new digital technology.

Questions 37-39

Choose THREE letters A-F.

Write your answers in boxes 37-39 on your answer sheet.

NB Your answers may be given in any order.

Which THREE of the following statements are true of video-conferencing?

A It is cost-effective for businesses to use.
B Operating VC equipment is not complicated.
C It will solve many problems in the classroom.
D More people now have the necessary skills to use video-conferencing.

E Modern equipment rarely breaks down.
F People in remote areas can have expertise taken to them.

Question 40

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

Write your answer in box 40 on your answer sheet.

40- The writer concludes that the success of video-conferencing in the classroom

A- is less likely than that of the whiteboard.
B- will certainly be short-lived.
C- may be linked to many unknown factors.
D- may finally depend on the environment.

*** *** ***

READING TEST TWO (60 MINUTES)

Reading Passage 1

You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 on the following pages.

Questions 1-4

Reading passage 1 has five sections A-E.
Choose the correct heading for sections B-E from the list of headings below.
Write the correct number, i-vii, in boxes 1-4 on your answer sheet.

List of Headings

i How the problem of land scarcity has been overcome in the past
ii Various predictions about future solutions to a lack of space
iii The effects of population growth on land availability
iv The importance of the new British Library
v An expanding population
vi A description of a mega-city
vii A firm belief that human habitation of outer space will occur
viii The importance of having an international space station

Example

Section A Answer v

1 section B 2 section C
3 section D 4 section E

SPACE

Is Humanity running out of space or will we find new frontiers? As populations grow, people have to look for more innovative ways to provide space.

Section A

The world has changed dramatically since Thomas Malthus's work "An Essay on the Principle of Population" first published in 1798, argued that by the mid 1800s the unrestricted expansion of the human population would outgrow the agricultural land available to supply humanity with food. Over 150 years have passed since this theoretical milestone, but mankind, admittedly somewhat more cramped, is still expanding and will continue to do so.

Section B

The impact of unfettered population growth is clear for all to see. Urbanization is now a more evident worldwide phenomenon than previously as even greater numbers of people drift from rural areas to vast cities all over the world like Tokyo, Mexico City and Mumbai (26.4 million, 18.4 million and 18.1 million inhabitants in 2000 respectively) in their quest for a better life. These mega-cities, i.e. conurbations with an estimated population of more than 10 million people, are springing up in every continent. Now teeming with humanity, they are hungry for one increasingly valuable resource: land.

While developments in agricultural technology ensure humanity may be able, by and large, to feed the people flocking to these great metropolises, the expansion of the human race is fuelling an unprecedented appetite for real estate. Space, whether it be for personal or public use, corporate or national, human or flora/fauna, is now at a premium as we move into a new century. Not only is more land required for accommodation, but also for a wide range of infrastructure facilities. Transport systems including roads within and between cities need to be constructed or upgraded to create motorways; green fields are turned into airports; virgin forest is stripped to provide food and firewood. In poorer regions, this newly exposed land becomes desert, completing the cycle of destruction.

Section C

Hitherto, the most common practice for the utilization of expensive space for living and working has been to build upwards; hence, the demand for ever higher buildings, both apartment and commercial, in major cities like New York, Shanghai and Singapore all vying with each other for the tallest buildings. There has also been a tradition for building underground, not just for transport systems, but for the storage of waste, depositories for books etc. as in London, where The British Library housing millions of books has been built largely underground.

Recent years have seen more novel construction developments around the world. In the past, in many countries, Holland and the UK included, marshes and flood plains have been reclaimed from the sea. Like the city of Venice in Italy, housing complexes and even airports have now been constructed off-shore to amazing effect. In Japan, Kansai International Airport has been built off-shore on a man-made island at vast expense and in Dubai a very imaginative and expensive housing complex in the shape of

a palm tree is being built just off the coast on land created by a construction company. However, these and other developments are at risk from rising sea levels as a consequence of global warming.

Section D

But where will the human race go when planet earth is full? There have been many theories put forward about the human population moving to outer space. Marshall Savage (1992, 1994), for example, has projected that the human population will reach five quintillion throughout the solar system by the year 3000, with the majority living in the asteroid belt. Arthur C Clarke, a fervent supporter of Savage, now argues that by the year 2057 there will be humans on the Moon, Mars, Europa, Ganymede, Titan and in orbit around Venus, Neptune and Pluto. Feeman Dyson (1999) favours the Kuiper belt as the future home of humanity, suggesting this could happen within a few centuries.

Section E

Habitation in outer space in huge stations is no longer just a dream, but a reality. A permanent international space station now orbits the earth. The first commercial tourist recently went into outer space with more trips planned for the near future. This is only a beginning, but the development of space hotels is not far-off. There is no knowing where mankind may end up. But the ideas about off-world habitation are not fanciful and I am sure I am not alone in fantasizing about summer holidays spent watching the moons rising in some far-flung planet or on a floating hotel somewhere on the Andromeda nebula.

Questions 5-8

Complete the sentences below.

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

answer sheet.

5- The movement of rural people to cities is a ... ...

6- Land is now a very ... ..., as a result of the growing demand for space.

7- The feeding of the human race will perhaps be guaranteed by changes in ... ...

8- Besides the demands of accommodation, land is needed for various ... ...

Questions 9-13

Do the following statements agree with the claims of the writer in Reading Passage 1? In boxes 9-13 on your answer sheet write:

YES if the statement reflects 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

9- The destruction of land for food and firewood is linked to desertification.

10- Shortage of space has also led to underground building construction.

11- The building of the airport in Japan cost much more than that of the housing complex in Dubai.

12- Arthur C Clarke was the only person to predict that mankind will inhabit other parts of the solar system.

13- The concept of the habitation of outer space by mankind is unimaginable.

Reading Passage 2

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

The History of Salt

Salt is so simple and plentiful that we almost take it for granted. In chemical terms, slat 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. 1

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 2

textiles and fabric, from producing soaps and detergents to making our roads safe in winter, salt plays an essential part in our daily lives.

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. 3

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. 4

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." 5

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 6

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.

The Erie Canal, an engineering marvel that connected 7
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.

In religion and culture, salt long held an important 8
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.

In the Southwest of the United States, the Pueblo 9
worship the Salt Mother. Other native tribes had significant restrictions on who was permitted to eat salt. Hopilegend 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. In 1933, the Dalai Lama was buried sitting up in a bed of salt. 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.

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 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 many of Napoleon's soldiers during the French retreat from Moscow.

Reading Passage 3

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

Volunteering: enriching others and helping oneself

Volunteering, some might mistakenly think, embraces a plethora of people from all walks of life as well as activities, but data from the other side of the world suggest otherwise. A 2001 survey on who participated in volunteering by the Office for National Statistics (ONS) in the United Kingdom (UK) revealed that people in higher income households are more likely than others to volunteer. In England and Wales, 57 per cent of adults with gross annual household incomes of £75,000 or more, have volunteered formally (such as raising or handling money for a charity or being a member of a committee) in the 12 months prior to the survey date. They were almost twice as likely to have done so than those living in households with an annual income under £10,000. A

As well as having high household incomes, volunteers also tend to have higher academic qualifications, be in higher socio-economic groups and be in employment. B

Among people with a degree or postgraduate qualification, 79 per cent had volunteered informally and 57 per cent had volunteered formally in the previous 12 months. For people with no qualifications the corresponding proportions were 52 per cent and 23 per cent. But voluntary work is certainly not the exclusive preserve of the rich, nor should it be. Does the answer not lie perhaps in the fact that the rich tend to have money to allow them the time to become involved in voluntary work compared to less well-off people?

A breakdown in the year 2000 of the range of volunteering activities taken from The Australian Bureau of Statistics gives an idea of the scale of activities in which people are typically involved. Eleven sectors are given ranging from Community and Welfare, which accounted for just over a quarter of the total hours volunteered in Australia, to Law/ justice/politics with 1.2 percent at the other end of the scale. Other fields included sport/recreation, religious activities and education, following at 21.2 per cent, 16.9 and 14.3 per cent respectively. Foreign/ international volunteer work accounted for 2.4 per cent of the total hours. The data here also seem to point to a cohort of volunteers with expertise and experience. C

The knock-on effect of volunteering on the lives of individuals can be profound. Voluntary work helps foster independence and imparts the ability to deal with different situations, often simultaneously, thus teaching people how to work their way through different systems. It therefore brings people into touch with the real world; and, hence, equips them for the future. D

Initially, young adults in their late teens might not E

seem to have the expertise or knowledge to impart to others that say a teacher or agriculturalist or nurse would have, but they do have many skills that can help others. And in the absence of any particular talent, their energy and enthusiasm can be harnessed for the benefit of their fellow human beings, and ultimately themselves. From all this, the gain to any community - no matter how many volunteers are involved- is immeasurable.

Employers will generally look favourably on people who have shown an ability to work as part of a team. It demonstrates a willingness to learn and an independent spirit, which would be desirable qualities in any employee. So to satisfy employers' demands for experience when applying for work, volunteering can act as a means of gaining experience that might otherwise elude would-be workers and can ultimately lead to paid employment in the desired field. F

But what are the prerequisites for becoming a volunteer? One might immediately think of attributes like kindness, selflessness, strength of character, ability to deal with others, determination, adaptability and flexibility and a capacity to comprehend the ways of other people. While offering oneself selflessly, working as a volunteer makes further demands on the individual. It requires a strength of will, a sense of moral responsibility for one's fellow human beings, and an ability to fit into the ethos of an organization or community. But it also requires something which in no way detracts from the valuable work done by volunteers and which may seem at first glance both contradictory and surprising: self-interest. G

Organizations involved in any voluntary work have to be realistic about this. If someone, whatever the age, is H

going to volunteer and devote their time without money, they do need to receive something from it for themselves. People who are unemployed can use volunteer work as a stepping-stone to employment or as a means of finding out whether they really like the field they plan to enter or as a way to help them find themselves.

It is tempting to use some form of community work as an alternative to national service or as punishment for petty criminals by making the latter for example clean up parks, wash away graffiti, work with victims of their own or of other people. This may be acceptable, but it does not constitute volunteer work, two cardinal rules of which are the willingness to volunteer without coercion and working unpaid.

Questions 28-33

Reading Passage 3 has nine paragraphs A-I.

Which paragraph contains the following information?

Write the correct letter, A-I, in boxes 28-33 on your answer sheet.

28- a description of what does not satisfy the criteria for volunteer work

29- the impact of voluntary work on the development of individuals

30- the requirement for both selflessness and self-interest in volunteers

31- various areas in which people volunteer

32- the benefit of voluntary work for the young

33- a mistaken view of volunteering

Questions 34-37

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

Write the correct letter in boxes 34-37 on your answer sheet.

34- The ONS survey was done to find out ... ...

A- why people undertook volunteering.
B- how many people participated in volunteering.
C- how many rich people did volunteer work.
D- which people were involved in volunteering.

35- The ONS survey found that people with university qualifications were ... ...
A- as likely to volunteer as those with no qualification.
B- more likely to volunteer than those with no qualifications.
C- less likely to volunteer than those with no qualifications.
D- the only group likely to do formal volunteer work.

36- It is suggested that rich people volunteer as a result of having ... ...
A- clearer goals.
B- fewer children.
C- more spare time.
D- greater guilt.

37- Volunteer work benefits people by teaching them how to ... ...
A- function in systems.
B- communicate clearly.
C- deal with failure.
D- overcome shyness.

Questions 38-40

Complete each sentence with the correct ending, A-F below. Write the correct letter, A-F, in boxes 38-40 on your answer sheet.

38- One of the requirements of being a volunteer is being able to ... ...

39- Volunteering can be used as a way for the unemployed to ... ...

40- Employers in general tend to ... ...

A- consider workers with volunteer work experience an asset.
B- gain a very well paid job.
C- gain access to a job in a field of interest.
D- benefit most from volunteer work.
E- understand how people behave.
F- want much younger workers.

READING TEST THREE (60 MINUTES)

Reading Passage 1

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

English Heritage Blue Plaques

A

The blue plaques scheme has been running for over 140 years and is one of the oldest of its kind in the world. The idea of erecting 'memorial tablets' was first proposed by William Ewart; in the House of Commons in 1863. It had an immediate impact on the public imagination, and in 1866 the Society of Arts (later Royal Society of Arts) founded an official plaques scheme. The Society erected its first plaque -to the poet Lord Byron- in 1867. In all, the Society of Arts erected 35 plaques; today, less than half of them survive, the earliest of which commemorates Napoleon III (1867). In 1901, the plaques scheme was taken over by London County Council (LCC), which erected nearly 250 plaques over the next 64 years and gave the scheme its popular appeal. It was under the LCC that the blue plaque design as we know it today was adopted, and the selection criteria were formalised. On the abolition of the LCC in 1965, the plaques scheme passed to the Greater London Council (GLC). The scheme changed little, but the GLC was keen to broaden the range of

people commemorated. The 262 plaques erected by the GLC include those to figures such as Sylvia Pankhurst, campaigner for women's rights; Samuel Coleridge-Taylor, composer of the Song of Hiawatha; and Mary Seacole, the Jamaican nurse and heroine of the Crimean War. Since 1986, English Heritage has managed the blue plaques scheme. So far, English Heritage has erected nearly 300 plaques, bringing the total number to over 800.

English heritage receives about 100 suggestions for blue plaques each year, almost all of which come from members of the public. The background of each case is very different. Each nominated person has to meet basic selection criteria before they can be considered. Most importantly, they must have been dead for 20 years or have passed the centenary of their birth, whichever is the earlier. This delay allows a person's reputation to mature and ensures that their fame is long-lasting. B

English Heritage's Blue Plaques Panel -representatives of various disciplines from across the country- considers all the suggestions which meet the basic criteria; on average, around 1 in 3 proposals are accepted. If a figure is rejected, proposers must wait a further 10 years before their suggestion can be considered again. Detailed research is carried out into the surviving addresses of shortlisted candidates, using sources such as autobiographies, electoral registers and post office directories. C

As only one plaque is allowed per person, the house to be commemorated has to be chosen very carefully. Factors which are considered include length of residence and the accomplishments of a candidate during the relevant years. A significant place of work can also be considered. D

Before a plaque can be erected, the owners and tenants of the building in question have to give their consent. Where listed buildings are involved, Listed Building Consent is sought from the relevant local authority. If such consents are granted, the plaque is designed, and then produced by a specialist manufacturer. It is normally ready within about two months. Plaques are set into the fabric of the building, flush with the wall face. The cost of plaque manufacture and installation are borne entirely by English Heritage. In all, it can take between 2 and 5 years from the initial suggestion to the erection of a plaque. E

The exact form of the blue plaque, as we see it now, was a relatively late development, though certain guiding principles had been in place from the outset. The earliest plaques, erected in 1867, were blue. Their format, a circle with the name of the Society of Arts worked into a pattern around the edge, was used consistently by the Society over its 35 years of management. F

Manufacture of each plaque is undertaken by the mixing and pouring of a thick clay slip into a casting mould. When sufficiently dry, the cast is removed and the outline of the inscription and border is piped onto the face of the plaque and filled with white glaze. Blue glaze is then applied to the background before firing. This process produces gently raised characters and border, a unique feature of English Heritage plaques. After firing, plaques usually have a thickness of 2 inches (50mm) and a final diameter of 19.5 inches (495mm), although smaller diameter plaques are sometimes used to meet special circumstances. G

Plaques have been found to be extremely durable and have an almost indefinite life expectancy. Similar H

plaques erected by the Society of Arts have lasted, perfectly legible, for over one hundred years. Due to the slightly domed design, they are self-cleansing and require virtually no maintenance.

Questions 1-6

Reading Passage 1 has eight paragraphs A-H.

Which paragraph contains the following information? Write the correct letter, A-H, in boxes 1-6 on your answer sheet.

1- the toughness of the plaques
2- the length of time it takes to produce a plaque
3- the way the Blue Plaques Panel functions
4- the conditions which need to be met in each case
5- the reasons behind selecting a house to be honoured
6- how the Blue Plaques scheme first started

Questions 7-10

Complete the following about Blue Plaques.

7- ... ... is applied to background before firing.
8- Outlined ... ... of inscription are raised after firing.
9- ... ... is also raised after firing.
10- A Blue plaque is ... ... in diameter.

Questions 11-13

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

In boxes 11-13 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 about the statement

11- The GLC did not erect as many plaques as English Heritage has.
12- Rejected proposals are given a detailed explanation of their refusal.
13- The form of the blue plaque has not changed since it was first made.

Reading Passage 2

You should spend about 20 minutes on Questions 14-27, which are based on Reading Passage 2 on the following pages.

Questions 14-19

Reading Passage 2 has eight paragraphs A-H.

Choose the correct heading for paragraphs B and D-H from the list of headings below. Write the correct number, i-xi, in boxes 14-19 on your answer sheet

List of Headings

i	Testing acquired knowledge
ii	The way future performance is forecast through testing
iii	The Minnesota Multiphasic Personality Inventory
iv	Software tools in research explained
v	The use of a five-point scale in testing
vi	A test used to obtain a summary score of an individual's intelligence
vii	The method most widely used by psychologists in various situations
viii	Subjective interests employed to predict future behaviour
ix	The different classes of standardized tests
x	The importance of prior learning in tests
xi	Information gathered by self-reporting

Examples:

Paragraph A answer iv

Paragraph C answer i

14- Paragraph B

15- Paragraph D

16- Paragraph E

17- Paragraph F

18- Paragraph G

19- Paragraph H

The software tools of research are typically more abundant than hardware tools in the social sciences. Software is usually thought of as meaning computer programs that tell the hardware what to do, but any tool not related to a physical device can be considered software. Included in this category are published tests and questionnaires. A

Often researchers want to gather information related to a general area such as personality or intelligence. For these instances, the use of a standardized test may be the best choice. With already published tests you can be sure of both validity and reliability and can save a lot of time that might otherwise be spent on test construction. Standardized tests can be classified into five main categories: achievement, aptitude, interest, personality, and intelligence. B

Achievement tests are designed specifically to measure an individual's previously learned knowledge or ability. They are available for many topic areas related to psychology, education, business, and other fields. Achievement tests require that prior learning take place and that this learning be demonstrated in order to pass. C

Aptitude tests attempt to predict an individual's performance in some activity at some point in the D

future. They do not require any specific prior learning although basic knowledge related to reading and writing is usually required and some preparation, such as studying up on math formulas or sentence structure, can be helpful. A well-known example of this type is the Scholastic Achievement Test (SAT), designed to predict future college performance.

Interest inventories also require only general knowledge but no preparation is needed. These tests look at an individual's subjective interests in order to make predictions about some future behavior or activity. Perhaps the most used interest inventory is the Strong Interest Inventory, which compares interests related to specific careers in order to help guide an individual's career path. Endorsed interests are compared with the interests of successful individuals in various fields and predictions are made regarding the test-taker's fit with the various career fields. E

Typically designed to assess and diagnose personality and mental health related disorders, personality tests are used extensively by psychologists in clinical, educational, and business related settings. By far the most widely used test of this type is the Minnesota Multiphasic Personality Inventory, Second Edition (MMPI-2), which compares an individual's responses on a series of true-false items to those suffering from various mental disorders such as depression, schizophrenia, and anxiety. The theory behind the test argues that if you endorse items similar to the items endorsed by those with depression, for example, then the chances that you are also depressed increases. F

Intelligence tests could be classified as aptitude tests since they are sometimes used to predict future performance. They could also be classified as G

personality tests since they can be used to diagnose disorders such as learning disabilities and mental retardation. However, because of their limited scope, we will place them in their own category. The purpose of an intelligence test is to attain a summary score or intelligence quotient (IQ) of an individual's intellectual ability. Scores are compared to each other and can be broken down into different subcategories depending on the intelligence test used. The most commonly used tests of this type are the Wechsler Scales, including the Wechsler Adult Intelligence Scale (WAIS), the Wechsler Intelligence Scale for Children (WISC), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI).

Self-response questionnaires are a great way to gather large amounts of information in a relatively short amount of time. A questionnaire, similar to a survey you might see on a web page, allows subjects to respond to questions, rate responses, or offer opinions. Their responses can then be used to place them in specific categories or groups or can be compared to other subjects for data analysis. A concern with self-report, however, is the accuracy of the responses. Unlike direct observation, there is no way of knowing if the subject has told the truth or whether or not the question was understood as intended. There are several different methods for gathering information on a questionnaire or survey, including a Likert scale, the Thurstone technique, and the semantic differential. The Likert scale is a popular method used in surveys because it allows the researcher to quantify opinion based items. Questions are typically grouped together and rated or responded to based on a five-point scale. This scale typically ranges in order from one extreme

to the other, such as (1) very interested; (2) somewhat interested; (3) unsure; (4) not very interested; and (5) not interested at all. Items that might be rated with this scale representing the subject's level of interest could include a list of careers or academic majors, for example.

Questions 20-23

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

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

20- Tests that are already on the market ... ...

A- need some form of reconstruction.

B- fail to ensure validity and reliability.

C- guarantee validity and reliability.

D- waste large amounts of time.

21- Some knowledge of reading and writing ... ...

A- is commonly not necessary in aptitude tests.

B- is normally a requirement in aptitude tests.

C- is less important in aptitude tests than other tests.

D- is as important as prior learning in aptitude tests.

22- With interest inventories, subjective interests are examined to ... ...

A- test people's general knowledge.

B- help people change their career.

C- compare individual's backgrounds.

D- forecast future behaviour or activity.

23- Intelligence tests could come under aptitude tests ... ...

A- because they can be used to forecast future performance.

B- since they are not used very widely.

C- as they can be broken down into different sub-groups.

D- because they are sometimes used to diagnose learning disabilities.

Questions 24-26

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

In boxes 24-26 on your answer sheet, write

YES if the statement reflects 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

24- The Wechsler Scales are the only type of intelligence test now used.

25- Where large quantities of data need to be collected fairly quickly self-response questionnaires work well.

26- The Likert Scale ensures greater accuracy than other techniques.

Question 27

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

Write your answer in box 27 on your answer sheet.

27- Which of the following is the most suitable heading for Reading Passage 2?

A- Different types of intelligence test

B- How personality can be tested

C- The importance of aptitude tests

D- The various software tools of research

Much ado about almost nothing

The public outcry over genetically modified foods offers several lessons for those working and investing in nanotechnology.

"The time for discussion of the rights and wrongs of GM crops has passed. Intense and consistent economic sabotage and intimidation are what will make the commercialisation of GM crops an unattractive option." 1

Words like these, from an article in the current edition of Earth First!, a radical environmental journal, send shivers down the spines of those involved in commercialising biotechnology. The strength of public disapproval of genetically modified organisms (GMOs) was a shock and a surprise to most of those involved. Now, some people are wondering whether nanotechnology -a term that covers the manipulation of matter at scales of a millionth of a millimetre- could be in for similar treatment and, if so, whether there are lessons that its protagonists can learn from the public backlash against biotechnology. 2

Profit of Doom

In a neglected corner, amid thousands of participants at a Nanotech conference held in Boston last week, Jeffrey Matsuura, a law professor at the University of Dayton, in Ohio, stood next to his unprepossessing poster of his work. His warning, however, was pertinent to everyone there -especially the investors who were scouring the conference for opportunities. And this is that several of the factors that created a public backlash against biotechnology are already at work within nanotechnology. Dr Matsuura says that 3

biotechnologists assumed that the public would quickly recognise and appreciate biotech's potential for improving the quality of life. Instead, the risks captured the attention of the media and much of the general public. Well-fed European consumers met the suggestion of cheaper food, in particular, with scepticism. Many felt that the gains would accrue to the companies which had developed GMOs, while the risks of growing and consuming the crops would be taken on by the public.

Dr. Matsuura believes that public perception of nanotechnology is developing along a similar track. 4
Like those of biotechnology, the first applications of nanotechnology will bring little obvious benefit to consumers. Better, cheaper materials, and hidden manufacturing efficiencies that benefit producers first, are redolent of the 'advantages' of biotech -namely reduced applications of agricultural chemicals, which help to keep the cost down while raising yields. Obvious consumer benefits, such as improvements in medicine, are further away.

This should not matter -consumers do benefit eventually, even from cost savings. And yet, in alliance with a feeling 5
that there are hazards involved, an absence of immediate benefits could turn public opinion against nanotech quite rapidly. Concerns over out-of-control, self-replicating 'nanobots' that would eventually consume and transform the entire planet into a 'grey goo' are absurd. And yet, it is true that novel 'nanoparticles' might have real toxicological risks.

Nanoparticles are so small that, if inhaled, they could become lodged in the lungs. In theory, they are small enough to enter living cells and accumulate, there. Ken 6
Donaldson, a professor of respiratory toxicology at the

University of Edinburgh, told a Royal Institution seminar in London that, once inhaled, ultrafine carbon particles can move to the brain and blood.

There are already several products that use nanoparticles already, on the market, such as sunscreen and car parts. Though all this may sound alarming, people are already exposed to, nanoparticles of many different kinds, and have been throughout history. Soot, for example, is composed of carbon nanoparticles. Nevertheless, nanoparticles from sources such as diesel soot, welding fumes and photocopier, toner are already associated with ill-health. The prospect of more such particles is likely to worry many. No wonder that several people at the conference in Boston mentioned the need to address public fears over nanotechnology "aggressively". 7

One of these was Clayton Teague, the director of America's National Nanotechnology Co-ordination Office. He says the American government is as sensitive to any indication of true health risk as any member of the public. Several large and well-funded studies on the environmental and health risks of nanotechnology are now under way. 8

Dr. Teague adds that any decisions about nanotechnology will be made carefully and based on solid scientific data. But even if science gives the go-ahead, another one of Dr Matsuura's lessons is that this might not necessarily win the day, and that fear over potential abuses and accidents may dominate the debate. 9

One piece of advice Dr Matsuura gives is that everyone involved should have a consistent message. If investors are told a technology will change the world, someone who is concerned about the risks 10

cannot then be told that the same technology is no big deal. It strikes a false note to say that something can be both revolutionary and nothing to worry about, he says. Such inconsistencies will breed public mistrust and fear.

Product placement

Donald Reed is a senior consultant with Ecos, a business-advisory firm based in Sydney, Australia, that acts as an intermediary between corporations and activists. Mr. Reed goes as far as to recommend that companies think about the early products they choose to pursue -in particular, whether they can demonstrate the "societal value" of these products. For example, it might be worth emphasising that one of the early products of nanotechnology could be cheap and efficient photovoltaic materials, which are used to generate electricity from sunlight.

Questions 28-31

Look at the following people and the list of statements below. Match each person with the correct statement. Write the correct letter, A-G, in boxes 28-31 on your answer sheet.

28- Clayton league 29- Ken Donaldson
30- Donald Reed 31- Jeffrey Matsuura

List of Statements:

A Nanotechnology is being affected by factors that created opposition to biotechnology.
B Europeans have the most to gain from nantotechnology development.
C Sound scientific data will be the basis of any decisions about nanotechnology.
D Governments cannot shape the development of nanotechnology.
E Nanotechology is not a cause for concern.
F Carbon nanoparticles can be breathed in and then move

to the brain and blood.

G Companies should show how their early nanotechnology products can benefit society.

Questions 32-35

Complete the sentences.

Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 32-35 on your answer sheet.

32- Strong public disapproval of ... ... came as a shock to those working in the area.

33- Europeans reacted to the suggestion of cheaper food with ... ...

34- Anxiety about 'nanobots' that would in time change the planet is ... ...

35- Nanoparticles from photocopier toner are already linked to ... ...

Questions 36-40

Complete the summary using the list of words A-L below. Write your answers in boxes 36-40 on your answer sheet.

Some people believe that nanotechnology could face a ... ...(36) fate to biotechnology. Rather than welcoming the ... ...(37), the media and much of the general public focused their attention on the ... ...(38) of biotechnology. So it is important to emphasize the immediate ... ...(39) of nanotechnology; otherwise, the public could adopt a negative ... ...(40) towards nanotech. It is therefore important for everyone involved to be consistent.

A worse	B greater	C devices
D particles	E costs	F latter
G dangers	H thoughts	I advantages
J former	K attitude	L comparable

*** *** ***

READING TEST FOUR (60 MINUTES)

Reading Passage 1

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

Caves

Caves are natural underground spaces, commonly those into which man can enter. There are three major types: the most widespread, and extensive are those developed in soluble rocks, usually limestone or marble, by underground movement of water; on the coast are those formed in cliffs generally by the concentrated pounding of waves along joints and zones of crushed rock; and a few caves are formed in lava flows, where the solidified outer crust is left after the molten core has drained away to form rough tunnels, like those on the small basalt volcanoes of Auckland. 1

Limestone of all ages, ranging from geologically recent times to more than 450 million years ago, is found in many parts of New Zealand, although it is not all cavernous. Many caves have been discovered, but hundreds still remain to be explored. The most notable limestone areas for caves are the many hundreds of square kilometres of Te Kuiti Group (Oligocene) rocks from Port Waikato south to Mokau and from the coast 2

inland to the Waipa Valley -especially in the Waitomo district; and the Mount Arthur Marble (upper Ordovician) of the mountains of north-west Nelson (fringed by thin bands of Oligocene limestone in the valleys and near the coast).

Sedimentary rocks (including limestone) are usually laid down in almost horizontal layers or beds which may be of any thickness, but most commonly of 5-7.5 cm. These beds may accumulate to a total thickness of about a hundred metres. Pure limestone is brittle, and folding due to earth movements causes cracks along the partings, and joints at angles to them. Rain water percolates down through the soil and the fractures in the underlying rocks to the water table, below which all cavities and pores are filled with water. This water, which is usually acidic, dissolves the limestone along the joints and, once a passage is opened, it is enlarged by the abrasive action of sand and pebbles carried by streams. Extensive solution takes place between the seasonal limits of the water table. Erosion may continue to cut down into the floor, or silt and pebbles may build up floors and divert stream courses. Most caves still carry the stream that formed them.

Caves in the softer, well-bedded Oligocene limestones are typically horizontal in development, often with passages on several levels, and frequently of considerable length. Gardner's Gut, Waitomo, has two main levels and more than seven kilometres of passages. Plans of caves show prominent features, such as long, narrow, straight passages following joint patterns as in Ruakuri, Waitomo, or a number of parallel straights oriented in one or more directions like Te Anaroa, Rockville. Vertical cross sections of cave passages may be tall and narrow following joints, as in Burr Cave, Waitomo; large and ragged in collapse chambers, like Hollow Hill, Waitomo (233m

long, 59.4m wide, and 30.48m high); low and wide along bedding planes, as in Luckie Strike, Waitomo; or high vertical water-worn shafts, like Rangitaawa Shaft (91m). Waitomo Caves in the harder, massive Mount Arthur Marble (a metamorphosed limestone) are mainly vertical in development, many reaching several hundred metres, the deepest known being Harwood Hole, Takaka (370m).

The unique beauty of caves lies in the variety of mineral encrustations which are found sometimes completely covering walls, ceiling, and floor. Stalactites (Gk. stalaktos, dripping) are pendent growths of crystalline calcium carbonate (calcite) formed from solution by the deposition of minute quantities of calcite from percolating ground water. They are usually white to yellow in colour, but occasionally are brown or red. Where water evaporates faster than it drips, long thin straws are formed which may reach the floor or thicken into columns. If the source of water moves across the ceiling, a thin drape, very like a stage curtain, is formed. Helictites are stalactites that branch or curl. Stalagmites (Gk. stalagmos, that which dripped) are conical or gnarled floor growths formed by splashing, if the water drips faster than it evaporates. These may grow toward the ceiling to form columns of massive proportions. Where calcite is deposited by water spreading thinly over the walls or floor, flowstone is formed and pools of water may build up their edges to form narrow walls of rimstone. Gypsum (calcium sulphate) is a white cave deposit of many crystal habits which are probably dependent on humidity. The most beautiful form is the gypsum flower which extrudes from a point on the cave wall in curling and diverging bundles of fibres like a lily or orchid.

Questions 1-3

Complete the summary.

Choose ONE WORD ONLY from the passage for each answer. Write your answers in boxes 1-3 on your answer sheet.

There are several ... ... (1) of caves with the most common and largest being located in limestone or marble. Coastal caves are created in cliffs usually by waves. In lava flows, the solidified outer crusts that remain once the molten core has drained away also form ... ... (2). Limestone is to be found all over New Zealand, but not all of it contains caves. While many caves are known, there are large numbers that have yet to be uncovered. The main ... ... (3) for limestone caves are Te Kuiti Group rocks.

Questions 4-8

Complete the flow-chart.

Choose ONE WORD ONLY from the passage for each answer. Write answers in boxes 4-8 on your answer sheet.

The Creation of Limestone Caves

↓

limestone forms thick layers

↓

earth moves creating ... ... (4) at partings

rain water trickling down through the soil and ... ... (5) in rocks

↓

to the water table ← acidic water

↓

dissolves limestone along joints

↓

once ... ... (6) opened

↓

extended by sand/pebbles ← taken along by ... ... (7)

... ... (8) or silt and pebble accumulation changes stream course

Questions 9 and 10

Choose TWO letters A-E.

Write the correct letter A-E in boxes 9 and 10 on your answer sheet.

NB Your answers may be given in either order.

Which TWO of the following features of caves in the softer limestones are mentioned in the text?

A- they are often long
B- they are all at least 7.2km long
C- most of them are vertical
D- they only ever have one passage
E- they are characteristically horizontal

Questions 11-13

Do the following statements agree with the information in Reading Passage 1? In boxes 11-13 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 about the statement

11- The limestone found in New Zealand is more than 450 million years old.

12- Stalactites are more often white to yellow than brown or red.

13- Stalagmites never grow very large.

*** *** ***

Reading Passage 2

You should spend about 20 minutes on Questions 34-27, which are based on Reading Passage 2 below.

Left -or right-handed bath water? This seems a silly question, but it was the subject of a serious scientific investigation sponsored by the Daily Mail in 1965. The investigation showed that the direction water swirls down the plug-hole vortex depends on which side of the Equator you are.

As for homo sapiens, between 5 and 30% of the population are estimated to be left-handed, with more males than females; although -in one test, 95% of foetuses were found to suck their right thumb in the womb. The general consensus of opinion is that left-handedness is determined by a dominant right cerebral hemisphere controlling the left side of the body, and vice versa. Hereditary factors have been ruled out. So too have earlier theories concerning the need for soldiers to shield their hearts, and the desirability of learning to use Stone Age tools and implements with the hand they were designed for, as well as Plato's idea that it all boiled down to which arm a baby was cradled with. However, the almost universal human preference for dextrality, or right-handedness, remains a mystery.

Prejudice against the left hand dates back to ancient

times and is so entwined with religious beliefs and superstitions that it still exists today in everyday, speech. *Sinister*, the Latin for left hand, means 'suggestive of evil' in English, while the French *gauche* is awkward, or clumsy. *Left* itself derives from Anglo Saxon *lef* (weak and fragile). The non-judgmental term *southpaw*, by contrast, originates from the Chicago baseball stadium where pitchers faced west, so the pitching arm of a left-bander is to the South. 3

Other negative terms include *pen pushers*, while a left-handed compliment is actually an insult. Thomas Carlyle, who described right-handedeness as the *oldest institution in the world*, introduced the political concept of *'left'* in his work on the French Revolution -in the 1789 Paris Assembly the nobles sat on the right, opposite the radicals. 4

Associations with luck also go back to early history. The ancient Greek and Roman augurs foretold the future from bird-flight. While the former faced North, with the propitious sunrise side to their right, the latter, before changing later, when sinister took on its' ominous meaning, looked southward, so the left was for good omens. 5

Superstitions world-wide reflect this bias. In Morocco, as in many countries, an itchy left palm means losing money, and a twitching left eyelid denotes the death of a relative or sorrow, whereas the right side has felicitous indications. We throw salt over our left shoulder to thwart the demons creeping up on us, but bless with the right hand. One pours drinks with this hand and passes it round the table clockwise, the direction of the sun. 6

Our relatives, the primates, appear to be ambidextrous, or able to use both hands, although gorillas have heavier left arms seemingly due to greater utilization. 7

Aristotle observed that crabs and lobsters had larger right claws. Rats are 80% dextral, yet polar bears are believed to be left-pawed. Flat fish provide interesting data: in northern seas plaice and sole have their eyes and colour, on the right side, but tropical halibut are the other way round. If this is to do with light and sun rotation, it may explain why Indian Ocean sole are reversed, but not why northern halibut are just as sinistral as their southern cousins. In the plant kingdom, honeysuckle is a rare example of a left handed climber that twines anticlockwise.

Although we live in a more tolerant age, not so long ago in the UK youngsters were forced to use their right hand, 'to learn the value of conformity' (A. N. Palmer), often resulting in the stuttering speech defects common in 'switched sinistrals' like George VI.' In the 1950s the American psychiatrist Abram Blau accused left-handed children of infantile perversity and a stubborn refusal to accept dextrality. 8

Not all experts were so anti-sinistral, however. The 17th century Norfolk scholar Sir Thomas Browne wrote of the prejudices against left-handedness, but accepted that a small proportion of people would always be so and saw no reason to prevent them. Apart from being considered difficult, anti-social troublemakers, left-handers have also been thought to be artistic, creative and gifted. 9

Famous lefties include Leonardo Da Vinci, Michelangelo, Benjamin Franklin, Bill Clinton, Joan of Arc, Lewis Carroll, Paul McCartney, Jimi Hendrix, Jean Genet, Beethoven and many others. 10

Finally, in defence of all sinistrals, if the left side of the body is really controlled by the right hemisphere of the brain, then left-handers are the only people in their right minds! 11

Questions 14-18

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

Write your answers in boxes 14-18 on your answer sheet.

14- The direction of water going down the plug-hole ... ...

A- is not related to where you are.

B- is independent of the side of the Equator you are on.

C- is linked to the side of the Equator you are on.

D- was first discovered by the Daily Mail in the 1950s.

15- In determining left-handedness, hereditary factors are generally considered ... ...

A- as important.

B- as having no impact.

C- as being a major influence.

D- as being the prime cause.

16- The reason why ... ...

A- almost everyone is right-handed is unknown.

B- some people are right-handed is ambiguous.

C- Plato worked out the mystery of left-handedness is not known.

D- many people are right-handed is now clear.

17- The word 'southpaw' is ... ...

A- an Anglo-Saxon term.

B- not a negative term.

C- suggestive of evil.

D- a negative term.

18- The left was connected with ... ...

A- being unclean by the Greeks.

B- goodness by the French.

C- fortune and bird-flight by many cultures.

D- good fortune in ancient Greece and Rome.

Questions 19-22

Answer the questions below. Choose NO MORE THAN TWO WORDS from the passage for each answer.

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

19- Who was the originator of the political concept of *'left'*?

20- What did the ancient Romans use to predict the future?

21- What does an itchy palm in the left hand mean?

22- In which direction is a drink passed round the table?

Questions 23-26

Complete each sentence with the correct ending A-G. Write your answers in boxes 23-26 on your answer sheet.

23- Gorillas, unlike other primates, ...

24- Fish colour and eye position ... ...

25- Most plant climbers ... ...

26- In the past some experts ... ...

A- appear to have been against left-handedness.
B- are usually the same in both hemispheres.
C- are apparently not always dependent on hemisphere.
D- seem to have difficulty using both hands.
E- looked on left-handedness with indifference.
F- tend to grow clockwise rather that anti-clockwise.
G- seem to use their left-hand more.

Question 27

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

Write your answer in box 27 on your answer sheet.

27- Which of the following is the most suitable title for Reading Passage 2?

A- Left-handedness and primates
B- A defence of right-handedness
C- A defence of left-handedness
D- Left-handedness and good luck
E- Left-handedness and bad luck

Reading Passage 3

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

PHYSICIAN, RULE THYSELF!

Professions and self-regulation

When is an occupation a profession? There appears to be no absolute definition, but only different ways of looking at the issue, from historical, cultural, sociological, moral, political, ethical or philosophical viewpoints. It is often said that professions are elites who undertake specialized, selfless work, in accordance with ethical codes and that their work is guaranteed by examination and a licence to practise. In return, however, they request exclusive control over a body of knowledge, freedom to practise, special rewards and higher financial and economic status. A

The public needs experts to offer them specialist advice, but because this advice is specialized they are not in a position to know what advice they need: this has to be defined in conversation with the professional. Professional judgement could be at odds with client satisfaction since the latter cannot then be "the chief measure of whether the professional has acted in a trustworthy fashion." Professional elites have negative potential: to exploit their power and prestige for economic goals; to allow the search for the necessary theoretical or scientific knowledge to become an end in itself; to lose sight of client well-being in the continuing fragmentation of specialist knowledge. B

Professions in different cultures are subject to different levels of state intervention, and are shaped by this. In England our relatively weak state and the organic C

growth of professional groups, many of them licensed by Royal Charter, means that regulation became an arrangement among elites. Similarly, in the US, where liberal market principles have had a free rein, academic institutions have had more influence than the state in the development of the professions. By contrast, in many European countries the state has controlled the market for the professions since the late eighteenth and early nineteenth centuries. In all cases, the activities of the professions affect public interest, and so the state has a legitimate interest in them.

In general, the higher the social status of a profession the greater the degree of public trust in it, and the more freedom to operate it enjoys. There are, however, certain features which appear to be common to most, if not all, professions. In addition to a specialised knowledge base, it appears that there is an agreed set of qualifications and experience which constitutes a licence to practise. There is also frequently an agreed title or form of address, coupled with a particular, often conservative, public image, and an accepted mode of dress. Standards are maintained mainly through self-regulatory bodies. Also, financial rewards may be increased through private practice. D

Within different cultures, and at different times, the relative status of different professions may vary. For example, in Western Europe, the status of politicians has been in long-term decline since the middle of the twentieth century. Teachers would appear to have higher status in France and Italy than in the UK, where medicine and the law have traditionally been the 'elite professions'. E

The higher a profession's social status the more freedom it enjoys. Therefore, an occupation wanting to maintain F

or improve its status will try to retain as much control as possible over its own affairs. As in so many other areas, socio-cultural change has affected the professions considerably in recent years. Market forces and social pressures have forced professionals to be more open about their modes of practice. In addition, information technology has enabled the public to become much better informed, and therefore more demanding. Moreover, developments in professional knowledge itself have forced a greater degree of specialisation on experts, who constantly have to retrain and do research to maintain their position.

Self-regulation then becomes an even more important thing for a profession to maintain or extend. But in whose interests? Is self-regulation used to enable a profession to properly practise without undue interference, or is it used to maintain the status of the profession for its own ends? Is it used to enable those with appropriate education and training to join the profession? Another question that needs to be answered is whether self-regulation restricts access so that the profession retains its social and economic privileges? Or again is it used to protect clients by appropriately disciplining those who have transgressed professional norms, or to protect the public image of the profession by concealing allegations that would damage it? G

These are all questions which the medical profession in the UK has recently had to address, and which remain the subject of continuing debate. One thing is clear, however: the higher a profession's status, the better equipped it is to meet these challenges. H

Questions 28-32

Reading Passage 3 has eight paragraphs A-H.

Which paragraph contains the following information?

Write the correct letter A-H in boxes 28-32 on your answer sheet.

28- how professionals have adjusted to socio-cultural developments
29- the typical characteristics that a profession has
30- the role that is played by governments in different countries
31- a description of the relationship between professionals and their clients
32- the fact that there is no clear definition of what a profession is

Questions 33-37

Complete the sentences. Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 33-37 on your answer sheet.

33- Professionals cannot always ensure that the ... ... given will satisfy the client.
34- Liberal market principles in the US have meant that the state has had less impact on the development of the professions than ... ...
35- An agreed set of qualifications and experience give professionals a ... ...
36- Over the past 50 years or so, the status of politicians has been in ... ...
37- There is a doubt as to whether ... ... is a mechanism to safeguard a profession's social and economic privileges.

Questions 38-40

Complete the table.

Choose NO MORE THAN TWO WORDS from the passage for each answer. Write your answers in boxes 38-40 on your answer sheet.

Impact of socio-cultural change on professions

Factors	Implications
Various public influences	professionals are ... ...(38) about work.
Modern technology	people are more knowledgeable and more ... ...(39).
Progress in professional knowledge	a greater degree of ... ... (40) needed