TEST READING
READING PASSAGE 1
You should spend about **20 minutes on Questions 1-13**, which are based **on Reading Passage 1 below.**
Trends in the Indian fashion and textile industries
During the 1950s, the Indian fashion scene was exciting, stylish and very graceful. There were no celebrity designers or models, nor were there any labels that were widely recognised. The value of a garment was judged by its style and fabric rather than by who made it. It was regarded as perfectly acceptable, even for high-society women, to approach an unknown tailor who could make a garment for a few rupees, providing the perfect fit, finish and style. They were proud of getting a bargain, and of giving their own name to the end result.
The 1960s was an era full of mischievousness and celebration in the arts, music and cinema. The period was characterised by freedom from restrictions and, in the fashion world, an acceptance of innovative types of material such as plastic and coated polyester. Tight-fitting kurtas[1] and churidars[2] and high coiffures were a trend among women.
The following decade witnessed an increase in the export of traditional materials, and the arrival in India of international fashion. Synthetics became trendy, and the disco culture affected the fashion scene.
It was in the early 80s when the first fashion store 'Ravissant' opened in Mumbai. At that time garments were retailed for a four-figure price tag. American designers like Calvin Klein became popular. In India too, contours became more masculine, and even the salwar kameez[3] was designed with shoulder pads.
With the evolution of designer stores came the culture of designer fashion, along with its hefty price tags. Whatever a garment was like, consumers were convinced that a higher price tag signified elegant designer fashion, so garments were sold at unbelievable prices. Meanwhile, designers decided to get themselves noticed by making showy outfits and associating with the right celebrities. Soon, fashion shows became competitive, each designer attempting to out-do the other in theme, guest list and media coverage.
In the last decade of the millennium, the market shrank and ethnic wear made a comeback. During the recession, there was a push to sell at any cost. With fierce competition the inevitable occurred: the once hefty price tags began their downward journey, and the fashion-show industry followed suit. However, the liveliness of the Indian fashion scene had not ended - it had merely reached a stable level.
At the beginning of the 21st century, with new designers and models, and more sensible designs, the fashion industry accelerated once again. As far as the global fashion industry is concerned, Indian ethnic designs and materials are currently in demand from fashion houses and garment manufacturers. India is the third largest producer of cotton, the second largest producer of silk, and the fifth largest producer of man-made fibres in the world.
The Indian garment and fabric industries have many fundamental advantages, in terms of a cheaper, skilled work force, cost-effective production, raw materials, flexibility, and a wide range of designs with sequins, beadwork, and embroidery. In addition, that India provides garments to international fashion houses at competitive prices, with a shorter lead time, and an effective monopoly on certain designs, is accepted the whole world over. India has always been regarded as the default source in the embroidered garments segment, but changes in the rate of exchange between the rupee and the dollar has further depressed prices, thereby attracting more buyers. So the international fashion houses walk away with customised goods, and craftwork is sold at very low rates
.
As far as the fabric market is concerned, the range available in India can attract as well as confuse the buyer. Much of the production takes place in the small town of Chapa in the eastern state of Bihar, a name one might never have heard of. Here fabric-making is a family industry; the range and quality of raw silks churned out here belie the crude production methods and equipment. Surat in Gujarat, is the supplier of an amazing set of jacquards, moss crepes and georgette sheers - all fabrics in high demand. Another Indian fabric design that has been adopted by the fashion industry is the 'Madras check', originally utilised for the universal lungi, a simple lower-body wrap worn in southern India. This design has now found its way on to bandannas, blouses, home furnishings and almost anything one can think of.
Ethnic Indian designs with batik and hand-embroidered motifs have also become popular across the world. Decorative bead work is another product in demand in the international market. Beads are used to prepare accessory items like belts and bags, and beadwork is now available for haute couture evening wear too. [1] knee-length tunics [2] trousers [3] trouser suit

PASSAGE 1: QUESTIONS 1-13

Questions 1-7

Complete the notes below.

Choose ONE WORD ONLY from the passage for each answer.

Indian fashion: 1950-2000

1950s

No well-known designers, models or 1 _____

Elegant clothing cost little

Women were pleased to get clothes for a 2 _____ price

1960s

New materials, e.g. 3 _____ and polyester

Fitted clothing and tall hairstyles

1970s

Overseas sales of 4 _____ fabrics rose

Influence of international fashion

1980s

Opening of fashion store in Mumbai

Popularity of American designers

Clothing had a 5 _____ shape

Designers tried to attract attention by presenting 6 _____ clothes and mixing with stars

1990s

Fall in demand for expensive fashion wear

Return to 7 _____ clothing

Questions 8-13

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

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

8 _____ At the start of the 21st century, key elements in the Indian fashion industry changed.

9 _____ India now exports more than half of the cotton it produces.

10 _____ Conditions in India are generally well suited to the manufacture of clothing.

11 _____ Indian clothing exports have suffered from changes in the value of its currency.

12 _____ Modern machinery accounts for the high quality of Chapa's silk.

13 _____ Some types of Indian craftwork which are internationally popular had humble origins.

READING PASSAGE 2

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

Sustainable growth at Didcot The outline of a report by South Oxfordshire District Council

A The UK Government's South East Plan proposes additional housing growth in the town of Didcot, which has been a designated growth area since 1979. We in South Oxfordshire District Council consider that, although Didcot does have potential for further growth, such development should be sustainable, well-planned, and supported by adequate infrastructure and community services.

B Recent experience in Didcot has demonstrated that large greenfield [1] developments cannot resource all the necessary infrastructure and low-cost housing requirements. The ensuing compromises create a legacy of local transport, infrastructure and community services deficits, with no obvious means of correction. We wish to ensure that there is greater recognition of the cost attached to housing growth, and that a means is found to resource the establishment of sustainable communities in growth areas.

C Until the 1950s, the development of job opportunities in the railway industry, and in a large, military ordnance depot, was the spur to Didcot's expansion. Development at that time was geared to providing homes for the railway and depot workers, with limited investment in shopping and other services for the local population. Didcot failed to develop Broadway as a compact town centre, and achieved only a strip of shops along one side of the main street hemmed in by low density housing and service trade uses.

D From the 1970s, strategic planning policies directed significant new housing development to Didcot. Planners recognised Didcot's potential, with rapid growth in local job opportunities and good rail connections for those choosing to work farther afield. However, the town is bisected by the east-west railway, and people living in Ladygrove, the urban extension to the north which has been built since the 1980s, felt, and still feel, cut off from the town and its community.

E Population growth in the new housing areas failed to spark adequate private-sector investment in town centre uses, and the limited investment which did take place - Didcot Market Place development in 1982, for instance - did not succeed in delivering the number and range of town centre uses needed by the growing population. In 1990, public-sector finance was used to buy the land required for the Orchard Centre development, comprising a superstore, parking and a new street of stores running parallel to Broadway. The development took 13 years to complete.

F The idea that, by obliging developers of new housing to contribute to the cost of infrastructure and service requirements, all the necessary finance could be raised, has proved unachievable. Substantial public finance was still needed to deliver major projects such as the new link road to the A34 on the outskirts of the town at Milton, the improved railway crossing at Marsh Bridge and new schools. Such projects were delayed due to difficulties in securing public finance. The same problem also held back expansion of health and social services in the town.

G In recent years, government policy, in particular the requirement for developers that forty percent of the units in a new housing development should be low cost homes, has had a major impact on the economics of such development, as it has limited the developers' contribution to the costs of infrastructure. The planning authorities are facing difficult choices in prioritising the items of infrastructure which must be funded by development, and this, in turn, means that from now on public finance will need to provide a greater proportion of infrastructure project costs.

H The Government's Sustainable Communities Plan seeks a holistic approach to new urban development in which housing, employment, services and infrastructure of all kinds are carefully planned and delivered in a way which avoids the infrastructure deficits that have occurred in places like Didcot in the past. This report, therefore, is structured around the individual components of a sustainable community, and shows the baseline position for each component.

I Didcot has been identified as one of the towns with which the Government is working to evaluate whether additional growth will strengthen the economic potential of the town, deliver the necessary infrastructure and improve environmental standards. A programme of work, including discussions with the local community about their aspirations for the town as well as other stakeholders, will be undertaken over the coming months, and will lead to the development of a strategic master plan. The challenge will be in optimising scarce resources to achieve maximum benefits for the town. [1] land that has never previously been built on

PASSAGE 2: QUESTIONS 14-26

Questions 14-19 Reading Passage 2

has 9 paragraphs, A-I. Which paragraph contains the following information?

Write the correct letter, A-I.

14 [ ] reference to the way the council's report is organised

15 [ ] the reason why inhabitants in one part of Didcot are isolated

16 [ ] a statement concerning future sources of investment

17 [ ] the identification of two major employers at Didcot

18 [ ] reference to groups who will be consulted about a new development plan

19 [ ] an account of how additional town centre facilities were previously funded

Questions 20-23

Look at the following places and the list of statements below.

Match each place with the correct statement, A-F.

Write the correct letter, A-F.

20 [ ] Broadway

21 [ ] Market Place

22 [ ] Orchard Centre

24 [ ] Marsh Bridge

List of statements
A It provided extra facilities for shopping and cars.
B Its location took a long time to agree
C Its layout was unsuitable.
D Its construction was held up due to funding problems.
E It was privately funded.
F It failed to get Council approval at first.

Questions 24-26

Complete the sentences below.

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

A certain proportion of houses in any new development now have to be of the 24 [ ] type.

The government is keen to ensure that adequate 25 [ ] will be provided for future housing developments.

The views of Didcot's inhabitants and others will form the basis of a 26 [ ] for the town.

READING PASSAGE 3

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

Language diversity

One of the most influential ideas in the study of languages is that of universal grammar (UG). Put forward by Noam Chomsky in the 1960s, it is widely interpreted as meaning that all languages are basically the same, and that the human brain is born language-ready, with an in-built programme that is able to interpret the common rules underlying any mother tongue. For five decades this idea prevailed, and influenced work in linguistics, psychology and cognitive science. To understand language, it implied, you must sweep aside the huge diversity of languages, and find their common human core.

Since the theory of UG was proposed, linguists have identified many universal language rules. However, there are almost always exceptions. It was once believed, for example, that if a language had syllables[1] that begin with a vowel and end with a consonant (VC), it would also have syllables that begin with a consonant and end with a vowel (CV). This universal lasted until 1999, when linguists showed that Arrernte, spoken by Indigenous Australians from the area around Alice Springs in the Northern Territory, has VC syllables but no CV syllables. Other non-universal universals describe the basic rules of putting words together. Take the rule that every language contains four basic word classes: nouns, verbs, adjectives and adverbs. Work in the past two decades has shown that several languages lack an open adverb class, which means that new adverbs cannot be readily formed, unlike in English where you can turn any adjective into an adverb, for example 'soft' into 'softly'. Others, such as Lao, spoken in Laos, have no adjectives at all. More controversially, some linguists argue that a few languages, such as Straits Salish, spoken by indigenous people from north-western regions of North America, do not even have distinct nouns or verbs. Instead, they have a single class of words to include events, objects and qualities.

Even apparently indisputable universals have been found lacking. This includes recursion, or the ability to infinitely place one grammatical unit inside a similar unit, such as 'Jack thinks that Mary thinks that ... the bus will be on time'. It is widely considered to be the most essential characteristic of human language, one that sets it apart from the communications of all other animals. Yet Dan Everett at Illinois State University recently published controversial work showing that Amazonian Piraha does not have this quality.

But what if the very diversity of languages is the key to understanding human communication? Linguists Nicholas Evans of the Australian National University in Canberra, and Stephen Levinson of the Max Planck Institute for Psycholinguistics in Nijmegen, the Netherlands, believe that languages do not share a common set of rules. Instead, they say, their sheer variety is a defining feature of human communication - something not seen in other animals. While there is no doubt that human thinking influences the form that language takes, if Evans and Levinson are correct, language in turn shapes our brains. This suggests that humans are more diverse than we thought, with our brains having differences depending on the language environment in which we grew up. And that leads to a disturbing conclusion: every time a language becomes extinct, humanity loses an important piece of diversity.

If languages do not obey a single set of shared rules, then how are they created? 'Instead of universals. you get standard engineering solutions that languages adopt again and again, and then you get outliers.' says Evans. He and Levinson argue that this is because any given language is a complex system shaped by many factors, including culture, genetics and history. There- are no absolutely universal traits of language, they say, only tendencies. And it is a mix of strong and weak tendencies that characterises the 'bio-cultural' mix that we call language.

According to the two linguists, the strong tendencies explain why many languages display common patterns. A variety of factors tend to push language in a similar direction, such as the structure of the brain, the biology of speech, and the efficiencies of communication. Widely shared linguistic elements may also be ones that build on a particularly human kind of reasoning. For example, the fact that before we learn to speak we perceive the world as a place full of things causing actions (agents) and things having actions done to them (patients) explains why most languages deploy these grammatical categories.

Weak tendencies, in contrast, are explained by the idiosyncrasies of different languages. Evans and Levinson argue that many aspects of the particular natural history of a population may affect its language. For instance, Andy Butcher at Flinders University in Adelaide, South Australia, has observed that indigenous Australian children have by far the highest incidence of chronic middle-ear infection of any population on the planet, and that most indigenous Australian languages lack many sounds that are common in other languages, but which are hard to hear with a middle-ear infection. Whether this condition has shaped the sound systems of these languages is unknown, says Evans, but it is important to consider the idea. Levinson and Evans are not the first to question the theory of universal grammar, but no one has summarised these ideas quite as persuasively, and given them as much reach. As a result, their arguments have generated widespread enthusiasm, particularly among those linguists who are tired of trying to squeeze their findings into the straitjacket of 'absolute universals'. To some, it is the final nail in UG's coffin. Michael Tomasello, co-director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, has been a long-standing critic of the idea that all languages conform to a set of rules. 'Universal grammar is dead,' he says.

[1] a unit of sound

PASSAGE 3: QUESTIONS 27-40

Questions 27-32

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

Write

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

27 In the final decades of the twentieth century, a single theory of language learning was dominant.

28 The majority of UG rules proposed by linguists do apply to all human languages.

29 There is disagreement amongst linguists about an aspect of Straits Salish grammar.

30 The search for new universal language rules has largely ended.

31 If Evans and Levinson are right, people develop in the same way no matter what language they speak.

32 The loss of any single language might have implications for the human race.

Questions 33-37 Choose the correct letter, A, B, C or D.

33 Which of the following views about language are held by Evans and Levinson?

A Each of the world's languages develops independently.

B The differences between languages outweigh the similarities.

C Only a few language features are universal.

D Each language is influenced by the characteristics of other languages.

34 According to Evans and Levinson, apparent similarities between languages could be due to

A close social contact.

B faulty analysis.

C shared modes of perception.

D narrow descriptive systems.

35 In the eighth paragraph, what does the reference to a middle-ear infection serve as?

A A justification for something.

B A contrast with something.

C The possible cause of something.

D The likely result of something.

36 What does the writer suggest about Evans' and Levinson's theory of language development?

A It had not been previously considered.

B It is presented in a convincing way.

C It has been largely rejected by other linguists.

D It is not supported by the evidence.

37 Which of the following best describes the writer's purpose?

A To describe progress in the field of cognitive science.

B To defend a long-held view of language learning.

C To identify the similarities between particular languages.

D To outline opposing views concerning the nature of language.

Questions 38-40

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

Write the correct letter, A-E.

38 The Arrernte language breaks a ‘rule’ concerning

39 The Lao language has been identified as lacking

40 It has now been suggested that Amazonia Piraha does not have

A words of a certain grammatical type.

B a sequence of sounds predicted by UG.

C words which can have more than one meaning.

D the language feature regarded as the most basic.

E sentences beyond a specified length.

TEST READING Answer Keys:

1 labels
2 bargain
3 plastic
4 traditional
5 masculine
6 showy
7 ethnic
8 TRUE
9 NOT GIVEN
10 TRUE
11 FALSE
12 FALSE
13 TRUE
14 H
15 D
16 G
17 C
18 I
19 E
20 C
21 E
22 A
24 low cost
25 infrastructure
26 strategic master plan
27 YES
28 NO
29 YES
30 NOT GIVEN
31 NO
32 YES
33 A
34 C
35 C
36 B
37 D
38 B
39 A
40 D

Vocabulary Of Reading- TRENDS IN THE INDIAN FASHION AND TEXTILE INDUSTURY

1. **CONTOURS- AN OUTLINE, ALINE ON A MAP JOINING POINTS OF EQUAL HEIGHTS**
2. **HEFTY- LARGE, HEAVY, POWERFUL**
3. **COMPETITIVE- KEEP TO BE MORE SUCCESSFUL THAN OTHERS**
4. **SHRANK- BECOME OR MAKE SMALLER (PAST FROM OF SHRINK)**
5. **RECESSION- A TEMPORARY DECLINE IN ECONOMIC ACTIVITY**
6. **SEQUINS- SHINY DISC FOR DECORATING CLOTHES**
7. **MONOPOLY- THE CONTROL OF THE SUPPLY OF A PRODUCT OR SERVICE BY ONE PERSON OR ORGANISATION**
8. **CHURNED- MOVE OR CAUSE TO MOVE ABOUT VIGOROUSLY**
9. **CRUDE- NOT YET PROCESSED OR REFINED**
10. **ORDNANCE- MOUNTED GUNS**
11. **SPUR- A SPIBED DEVICE WORN ON A RIDER`S HEEL FOR URGING A HORSE ON**
12. **PREVAILED- PROVE MORE POWEFUL OR SUPERIOR**
13. **INDIGENOUS- NATIVE**
14. **INDISPUTABLE- UNDEBATABLE, UNDENIABLE**
15. **RECURSION- REAPPEARANCE, RECURRENCE**
16. **SHEER- ABSOLUTE,(OF A FABRIC) VERY THIN**

TEST READING

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

Green virtues of green sand

Revolution in gloss recycling could help keep water clean

A For the past 100 years special high grade white sand dug from the ground at Leighton Buzzard in the UK. has been used to filter tap water to remove bacteria and impurities but this may no longer be necessary. A new factory that turns used wine bottles into green sand could revolutionise the recycling industry and help to filter Britain's drinking water. Backed by $1.6m from the European Union and the Department for Environment, Food and Rural Affairs (Defra), a company based in Scotland is building the factory, which will turn beverage bottles back into the sand from which they were made in the first place. The green sand has already been successfully tested by water companies and is being used in 50 swimming pools in Scotland to keep the water clean.

B The idea is not only to avoid using up an increasingly scarce natural resource, sand but also to solve a crisis in the recycling industry. Britain uses 5.5m tonnes of glass a year, but recycles only 750,000 tonnes of it. The problem is that half the green bottle glass in Britain is originally from imported wine and beer bottles. Because there is so much of it, and it is used less in domestic production than other types, green glass is worth only $25 a tonne. Clear glass, which is melted down and used for whisky bottles, mainly for export, is worth double that amount.

C Howard Drvden. a scientist and managing director of the company. Drvden Aqua, of Bonnyrigg, near Edinburgh, has spent six years working on the product he calls Active Filtration Media, or AFM. He concedes that he has given what is basically recycled glass a 'fancy name' to remove the stigma of what most people would regard as an inferior product. He says he needs bottles that have already contained drinkable liquids to be sure that drinking water filtered through the AFM would not be contaminated. Crushed down beverage glass has fewer impurities than real sand and it performed better in trials. *The fact is that tests show that AFM does the job better than sand, it is easier to clean and reuse and has all sorts of properties that make it ideal for other applications.' he claimed.

D The factory is designed to produce 100 tonnes of AFM a day, although Mr Dryden regards this as a large-scale pilot project rather than full production. Current estimates of the UK market for this glass for filtering drinking water, sewage, industrial water, swimming pools and fish farming are between 175.000 to 217.000 tonnes a year, which w ill use up most of the glass available near the factory. So he intends to build five or six factories in cities where there are large quantities of bottles, in order to cut down on transport costs.

E The current factory will be completed this month and is expected to go into full production on January 14th next year. Once it is providing a 'regular' product, the government's drinking water inspectorate will be asked to perform tests and approve it for widespread use by water companies. A Defra spokesman said it was hoped that AFM could meet approval within six months. The only problem that they could foresee was possible contamination if some glass came from sources other than beverage bottles.

F Among those who have tested the glass already is Caroline Fitzpatrick of the civil and environmental engineering department of University College London. 'We have looked at a number of batches and it appears to do the job.' she said. 'Basically, sand is made of glass and Mr Dryden is turning bottles back into sand. It seems a straightforward idea and there is no reason we can think of why it would not work. Since glass from wine bottles and other beverages has no impurities and clearly did not leach any substances into the contents of the bottles, there was no reason to believe there would be a problem,' Dr Fitzpatrick added.

G Mr Dryden has set up a network of agents round the world to sell AFM. It is already in use in central America to filter water on banana plantations where the fruit has to he washed before being despatched to European markets. It is also in use in sewage works to filter water before it is returned to rivers, something which is becoming legally necessary across the European Union because of tighter regulations on sewage works. So there are a great number of applications involving cleaning up water. Currently, however, AFM costs $670 a tonne, about four times as much as good quality sand. 'Hut that is because we haven't got large-scale production. Obviously, when we get going it will cost a lot less, and be competitive with sand in price as well.' Mr Dryden said. 'I believe it performs better and lasts longer than sand, so it is going to be better value too.'

H If AFM takes off as a product it will be a big boost for the government agency which is charged with finding a market for recycled products. Crushed glass is already being used in road surfacing and in making tiles and bricks. Similarly. AFM could prove to have a widespread use and give green glass a cash value.

PASSAGE 1: QUESTIONS 1-14

Questions 1-10

Reading Passage 1 has 8 paragraphs labelled A-H Which paragraph contains the following information?

Write the correct letter A-H in boxes 1-10 on your answer sheet.

NB You may use any letter more than once.

1 a description of plans to expand production of AFM

2 the identification of a potential danger in the raw material for AFM

3 an example of AFM use in the export market

4 a comparison of the value of green glass and other types of glass

5 a list of potential applications of AFM in the domestic market

6 the conclusions drawn from laboratory checks on the process of AFM production

7 identification of current funding for the production of green sand

8 an explanation of the chosen brand name for crushed green glass

9 a description of plans for exporting AFM

10 a description of what has to happen before AFM is accepted for general use

Questions 11-14

Complete the summary below.

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

Write your answers in boxes 11-14 on your answer sheet.

Green sand

The use of crushed green glass (AFM) may have two significant impacts: it may help to save a diminishing 11 _____ while at the same time solving a major problem for the 12 _____ in the UK.

However, according to Howard Dryden, only glass from bottles that have been used for 13 _____ can be used in the production process. AFM is more effective than

14 _____ as a water filter, and also has other uses.

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

NATURAL CHOICE Coffee and chocolate

What's the connection between your morning coffee, wintering North American birds and the cool shade of a tree? Actually, unite a lot, says Simon Birch.

When scientists from London's Natural History Museum descended on the coffee farms of the tiny Central American republic of F.l Salvador, they were astonished to find such diversity of insect and plant species. During 18 months' work on 12 farms, they found a third more species of parasitic wasp than arc known to exist in the whole country of Costa Rica. They described four new species and are aware of a fifth. On 24 farms they found nearly 300 species of tree when they had expected to find about 100.

El Salvador has lost much of its natural forest, with coffee farms covering nearly 10% of the country. Most of them use the 'shade-grown' method of production, which utilises a semi-natural forest ecosystem. Alex Munro, the museum's botanist on the expedition, says: 'Our findings amazed our insect specialist. There's a very sophisticated food web present. The wasps, for instance, may depend on specific species of tree.'

It's the same the world over. Species diversity is much higher where coffee is grown in shade conditions. In addition, coffee (and chocolate) is usually grow n in tropical rainforest regions that are biodiversity hotspots. 'These habitats support up to 70% of the planets plant and animal species, and so the production methods of cocoa and coffee can have a hugely significant impact,' explains Dr Paul Donald of the Royal Society for the. Protection of Birds.

So what does 'shade-grown' mean, and why is it good for wildlife? Most of the world's coffee is produced by poor farmers in the developing world. Traditionally they have grown coffee (and cocoa) under the shade of selectively thinned tracts of rain forest in a genuinely sustainable form of farming. Leaf fall from the canopy provides a supply of nutrients and acts as a mulch that suppresses weeds. The insects that live in the canopy pollinate the cocoa and coffee and prey on pests. The trees also provide farmers with fruit and wood for fuel.

Bird diversity in shade-grown coffee plantations rivals that found in natural forests in the same region.' says Robert Rice from the Smithsonian Migratory Bird Center. In Ghana, West Africa. - one of the world's biggest producers of cocoa - 90% of the cocoa is grown under shade, and these forest plantations are a vital habitat for wintering European migrant birds. In the same way. the coffee forests of Central and South America are a refuge for wintering North American migrants.

More recently, a combination of the collapse in the world market for coffee and cocoa and a drive to increase yields by producer countries has led to huge swathes of shade-grown coffee and cocoa being cleared to make way for a highly intensive, monoculture pattern of production known as 'full sun'. But this system not only reduces the diversity of flora and fauna, it also requires huge amounts of pesticides and fertilisers. In Cote d'Ivoire, which produces more than half the world's cocoa, more than a third of the crop is now grown in full-sun conditions.

The loggers have been busy in the Americas too, where nearly 70% of all Colombian coffee is now produced using full-sun production. One study carried out in Colombia and Mexico found that, compared with shade coffee, full-sun plantations have 95% fewer species of birds.

In LI Salvador. Alex Munro says shade-coffee farms have a cultural as well as ecological significance and people are not happy to see them go. But the financial pressures are great, and few of these coffee farms make much money. 'One farm we studied, a cooperative of 100 families, made just S 10,000 a year S100 per family and that's not taking labour costs into account.'

The loss of shade-coffee forests has so alarmed a number of North American wildlife organisations that they 're now harnessing consumer power to help save these threatened habitats. They are promoting a 'certification' system that can indicate to consumers that the beans have been grown on shade plantations. Bird-friendly coffee, for instance, is marketed by the Smithsonian Migratory Bird Center. The idea is that the small extra cost is passed directly on to the coffee farmers as a financial incentive to maintain their shade-coffee farms.

Not all conservationists agree with such measures, however. Some say certification could be leading to the loss not preservation of natural forests. John Rappole of the Smithsonian Conservation and Research Center, for example, argues that shade- grown marketing provides 'an incentive to convert existing areas of primary forest that are too remote or steep to be converted profitably to other forms of cultivation into shade-coffee plantations'.

Other conservationists, such as Stacey Philpott and colleagues, argue the case for shade coffee. But there are different types of shade growing. Those used by subsistence farmers are virtually identical to natural forest (and have a corresponding diversity), while systems that use coffee plants as the understorey and cacao or citrus trees as the overstorey may be no more diverse than full-sun farms. Certification procedures need to distinguish between the two. and Ms Philpott argues that as long as the process is rigorous and offers financial gains to the producers, shade growing does benefit the environment.

PASSAGE 2: QUESTIONS 15-27

Questions 15-19

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

In boxes 15-19 on your answer sheet write

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

15 [ ] More species survive on the farms studied by the researchers than in the natural El Salvador forests.

16 [ ] Nearly three-quarters of the Earth's wildlife species can be found in shade- coffee plantations.

17 [ ] Farmers in El Salvador who have tried both methods prefer shade-grown plantations.

18 [ ] Shade plantations are important for migrating birds in both Africa and the Americas.

19 [ ] Full-sun cultivation can increase the costs of farming.

Questions 20-23

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

Match each opinion to the person credited with it.

Write the correct letter A-E in boxes 20-23 on your answer sheet.

NB You can write any letter more than once.

20 [ ] Encouraging shade growing may lead to farmers using the natural forest for their plantations.

21 [ ] If shade-coffee farms match the right criteria, they can be good for wildlife.

22 [ ] There may be as many species of bird found on shade farms in a particular area, as in natural habitats there.

23 [ ] Currently, many shade-coffee farmers earn very little.

A	Alex Munroe
B	Paul Donald
C	Robert Rice
D	John Rappole
E	Stacey Philpott

Questions 24-27

Classify the features described below as applying to
Write the correct letter A-C in boxes 24-27 on your answer sheet.

24 [ ] can be used on either coffee or cocoa plantations

25 [ ] is expected to produce bigger crops

26 [ ] documentation may be used to encourage sales

27 [ ] can reduce wildlife diversity

A	the shade-grown method
B	the full-sun method
C	both shade-grown and full-sun methods

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

Painters of time

A The works of Aboriginal artists are now much in demand throughout the world, and not just in Australia, where they are already fully recognised: the National Museum of Australia, which opened in Canberra in 2001, designated 40% of its exhibition space to works by Aborigines. In Europe their art is being exhibited at a museum in Lyon. France, while the future Quai Branly museum in Paris

- which will be devoted to arts and civilisations of Africa. Asia, Oceania and the Americas
- plans to commission frescoes by artists from Australia.

B Their artistic movement began about 30 years ago. but its roots go back to time immemorial. All the works refer to the founding myth of the Aboriginal culture, ‘the Dreaming’. That internal geography, which is rendered with a brush and colours, is also the expression of the Aborigines' long quest to regain the land which was stolen from them when Europeans arrived in the nineteenth century. ‘Painting is nothing without history.' says one such artist. Michael Nelson Tjakamarra.

C There arc now fewer than 400.000 Aborigines living in Australia. They have been swamped by the country's 17.5 million immigrants. These original ‘natives' have been living in Australia for 50.000 years, but they were undoubtedly maltreated by the newcomers. Driven back to the most barren lands or crammed into slums on the outskirts of cities, the Aborigines were subjected to a policy of ‘assimilation’, which involved kidnapping children to make them better ‘integrated' into European society, and herding the nomadic Aborigines by force into settled communities.

D It was in one such community, Papunya, near Alice Springs, in the central desert, that Aboriginal painting first came into its own. In 1971, a white schoolteacher. Geoffrey Bardon, suggested to a group of Aborigines that they should decorate the school walls with ritual motifs. so as to pass on to the younger generation the myths that were starting to fade from their collective memory, lie gave them brushes.

colours and surfaces to paint on cardboard and canvases. He was astounded by the result. But their art did not come like a bolt from the blue: for thousands of years Aborigines had been ‘painting' on the ground using sands of different colours, and on rock faces. They had also been decorating their bodies for ceremonial purposes. So there existed a formal vocabulary.

E This had already been noted by Europeans. In the early twentieth century. Aboriginal communities brought together by missionaries in northern Australia had been encouraged to reproduce on tree bark the motifs found on rock faces. Artists turned out a steady stream of works, supported by the churches, which helped to sell them to the public, and between 1950 and I960 Aboriginal paintings began to reach overseas museums. Painting on bark persisted in the north, whereas the communities in the central desert increasingly used acrylic paint, and elsewhere in Western Australia women explored the possibilities of wax painting and dyeing processes, known as ‘batik’.

F What Aborigines depict are always elements of the Dreaming, the collective history that each community is both part of and guardian of. I he Dreaming is the story of their origins, of their ‘Great Ancestors’, who passed on their knowledge, their art

and their skills (hunting, medicine, painting, music and dance) to man. ‘The Dreaming is not synonymous with the moment when the world was created.’ says Stephane Jacob, one of the organisers of the Lyon exhibition. ‘For Aborigines, that moment has never ceased to exist. It is perpetuated by the cycle of the seasons and the religious ceremonies which the Aborigines organise. Indeed the aim of those ceremonies is also to ensure the permanence of that golden age. The central function of Aboriginal painting, even in its contemporary manifestations, is to guarantee the survival of this world. The Dreaming is both past, present and future.'

G Each work is created individually, with a form peculiar to each artist, but it is created within and on behalf of a community who must approve it. An artist cannot use a 'dream' that does not belong to his or her community, since each community is the owner of its dreams, just as it is anchored to a territory marked out by its ancestors, so each painting can be interpreted as a kind of spiritual road map for that community.

H Nowadays, each community is organised as a cooperative and draws on the services of an art adviser, a government-employed agent who provides the artists with materials, deals with galleries and museums and redistributes the proceeds from sales among the artists.

Today, Aboriginal painting has become a great success. Some works sell for more than $25,000, and exceptional items may fetch as much as $180,000 in Australia.

'By exporting their paintings as though they were surfaces of their territory, by accompanying them to the temples of western art. the Aborigines have redrawn the map of their country, into whose depths they were exiled,* says Yves Le Fur. of the Quai Branlv museum. ‘Masterpieces have been created. Their undeniable power prompts a dialogue that has proved all too rare in the history of contacts between the two cultures’.

PASSAGE 3: QUESTIONS 28-40

Questions 28-33

Reading Passage 3 has nine paragraphs A-I.

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

Write the correct number (i-viii) in boxes 28-33 on your answer sheet.

28 [ ] Paragraph A

29 [ ] Paragraph B

30 [ ] Paragraph C

31 [ ] Paragraph D

32 [ ] Paragraph E

33 [ ] Paragraph F

	List of Headings
i	Amazing results from a project
ii	New religious ceremonies
iii	Community art centres
iv	Early painting techniques and marketing systems
v	Mythology and history combined
vi	The increasing acclaim for Aboriginal art
vii	Belief in continuity
viii	Oppression of a minority people

Questions 34-37

Complete the flow chart below.

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

Write your answers in boxes 34-37 on your answer sheet.

For 34 _____, Aborigines produced ground and rock paintings.

↓

Early twentieth century: churches first promoted the use of 35 _____ for paintings.

↓

Mid-twentieth century: Aboriginal paintings were seen in 36 _____

↓

Early 1970s: Aboriginal painted traditional patterns on 37 _____ in one commodity

Questions 38-40

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

Write your answers in boxes 38-40 on your answer sheet.

38 In Paragraph G, the writer suggests that an important feature of Aboriginal art is

A ☐ its historical context.

B ☐ its significance to the group.

C ☐ its religious content.

D ☐ its message about the environment.

39 In Aboriginal beliefs, there is a significant relationship between

A ☐ communities and lifestyles.

B ☐ images and techniques.

C ☐ culture and form.

D ☐ ancestors and territory.

40 In Paragraph I. the writer suggests that Aboriginal art invites Westerners to engage with

A ☐ the Australian land.

B ☐ their own art.

C ☐ Aboriginal culture.

D ☐ their own history.

TEST READING Answer Keys:

1 D
2 E
3 G
4 B
5 D
6 F
7 A
8 C
9 G
10 E
11 natural resource
12 recycling industry
13 drinkable liquids/ beverages
14 (real) sand
15 NOT GIVEN
16 FALSE
17 NOT GIVEN
18 TRUE
19 TRUE
20 D
21 E
22 C
23 A
24 C
25 B
26 A
27 B
28 vi
29 v
30 viii
31 i
32 iv
33 vi
34 thousands of years
35 (tree) bark
36 overseas museums
37 school walls
38 B
39 D
40 C

Vocabulary Of Reading- Green Virtues Of Green Sand

1. Scarce-Only Available In Small Quantities
2. Crisis- A Time Of Severe Difficulty Or Danger
3. Suppress- Forcibly Put An End To
4. Canopy- A Roof Like Covering Or Shelter
5. Threat- Trouble Or Danger
6. Subsistence- Maintaining Or Supporting
7. Rigorous-Extremely Through Or Accurate
8. Astounded- Shocked Or Greatly Surprised
9. Manifestation- A Sign Or Evidence Of Something

TEST READING

Passage 1

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

Let's Go Bats

A Bats have a problem: how to find their way around in the dark.They hunt at night, and cannot use light to help them find prey and avoid obstacles. You might say that this is a problem of their own making, one that they could avoid simply by changing their habits and hunting by day. But the daytime economy is already heavily exploited by other creatures such as birds. Given that there is a living to be made at night, and given that alternative daytime trades are thoroughly occupied, natural selection has favoured bats that make a go of the night-hunting trade. It is probable that the nocturnal trades go way back in the ancestry of all mammals. In the time when the dinosaurs dominated the daytime economy, our mammalian ancestors probably only managed to survive at all because they found ways of scraping a living at night. Only after the mysterious mass extinction of the dinosaurs about 65 million years ago were our ancestors able to emerge into the daylight in any substantial numbers.

B Bats have an engineering problem: how to find their way and find their prey in the absence of light. Bats are not the only creatures to face this difficulty today. Obviously the night-flying insects that they prey on must find their way about somehow. Deep-sea fish and whales have little or no light by day or by night. Fish and dolphins that live in extremely muddy water cannot see because, although there is light, it is obstructed and scattered by the dirt in the water Plenty of other modern animals make their living in conditions where seeing is difficult or impossible.

C Given the questions of how to manoeuvre in the dark, what solutions might an engineer consider? The first one that might occur to him is to manufacture light, to use a lantern or a searchlight. Fireflies and some fish (usually with the help of bacteria) have the power to manufacture their own light, but the process seems to consume a large amount of energy. Fireflies use their light for attracting mates.This doesn't require a prohibitive amount of energy: a male's tiny pinprick of light can be seen by a female from some distance on a dark night, since her eyes are exposed directly to the light source itself. However using light to find one's own way around requires vastly more energy, since the eyes have to detect the tiny fraction of the light that bounces off each part of the scene. The light source must therefore be immensely brighter if it is to be used as a headlight to illuminate the path, than if it is to be used as a signal to others. In any event, whether or not the reason is the energy expense, it seems to be the case that, with the possible exception of some weird deep-sea fish, no animal apart from man uses manufactured light to find its way about.

D What else might the engineer think of? Well, blind humans sometimes seem to have an uncanny sense of obstacles in their path. It has been given the name 'facial vision', because blind people have reported that it feels a bit like the sense of touch, on the face. One report tells of a totally blind boy who could ride his tricycle at good speed round the block near his home, using facial vision. Experiments showed that, in fact, facial vision is nothing to do with touch or the front of the face, although the sensation may be referred to the front of the face, like the referred pain in a phantom limb.The sensation of facial vision, it turns out, really goes in through the ears.

Blind people, without even being aware of the fact, are actually using echoes of their own footsteps and of other sounds, to sense the presence of obstacles. Before this was discovered, engineers had already built instruments to exploit the principle, for example to measure the depth of the sea under a ship. After this technique had been invented, it was only a matter of time before weapons designers adapted it for the detection of submarines. Both sides in the Second World War relied heavily on these devices, under such codenames as Asdic (British) and Sonar (American), as well as Radar (American) or RDF (British), which uses radio echoes rather than sound echoes.

E The Sonar and Radar pioneers didn't know it then, but all the world now knows that bats, or rather natural selection working on bats, had perfected the system tens of millions of years earlier; and their radar' achieves feats of detection and navigation that would strike an engineer dumb with admiration. It is technically incorrect to talk about bat 'radar', since they do not use radio waves. It is sonar. But the underlying mathematical theories of radar and sonar are very similar; and much of our scientific understanding of the details of what bats are doing has come from applying radar theory to them.The American zoologist Donald Griffin, who was largely responsible for the discovery of sonar in bats, coined the term 'écholocation' to cover both sonar and radar, whether used by animals or by human instruments.

Questions 1-5

Reading Passage has five paragraphs, A-E.

Which paragraph contains the following information?

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

NB You may use any letter more than once.

1 [ ] examples of wildlife other than bats which do not rely on vision to navigate by

2 [ ] how early mammals avoided dying out

3 [ ] why bats hunt in the dark

4 [ ] how a particular discovery has helped our understanding of bats

5 [ ] early military uses of echolocation

Questions 6-9

Complete the summary below.

Choose ONE WORD ONLY from the passage for each answer.

Write your answers in boxes 6-9 on your answer sheet.

Facial Vision

Blind people report that so-called 'facial vision' is comparable to the sensation of touch on the face. In fact, the sensation is more similar to the way in which pain from a 6 [ ] arm or leg might be felt. The ability actually comes from perceiving 7 [ ] through the ears. However, even before this was understood, the principle had been applied in the design of instruments which calculated the 8 [ ] of the seabed. This was followed by a wartime application in devices for finding 9 [ ]

Questions 10-13

Complete the sentences below.

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

Write your answers in boxes 10-13 on your answer sheet.

10 Long before the invention of radar, [ ] had resulted in a sophisticated radar-like system in bats.

11 Radar is an inaccurate term when referring to bats because [ ] are not used in their navigation system.

12 Radar and sonar are based on similar [ ]

13 The word 'echolocation' was first used by someone working as a……..

Reading Passage 2

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

Questions 14-20

Reading Passage has seven paragraphs, A-H.

Choose the correct heading for paragraphs A and C-H from the list of headings below.

Write the correct number, i-xi, in boxes 1-7 on your answer sheet.

List of Headings

i Scientists' call for a revision of policy

ii An explanation for reduced water use

iii How a global challenge was met

iv Irrigation systems fall into disuse

v Environmental effects

vi The financial cost of recent technological improvements

vii The relevance to health

viii Addressing the concern over increasing populations

ix A surprising downward trend in demand for water

x The need to raise standards

xi A description of ancient water supplies

14 Paragraph A [ ]

Example	**Answer**
Paragraph B	**iii**

15 Paragraph C [ ]

16 Paragraph D [ ]

17 Paragraph E [ ]

18 Paragraph F [ ]

19 Paragraph G [ ]

20 Paragraph H [ ]

Making Every Drop Count

A The history of human civilisation is entwined with the history of the ways we have learned to manipulate water resources. As towns gradually expanded, water was brought from increasingly remote sources, leading to sophisticated engineering efforts such as dams and aqueducts. At the height of the Roman Empire, nine major systems, with an innovative layout of pipes and well-built sewers, supplied the occupants of Rome with as much water per person as is provided in many parts of the industrial world today.

B During the industrial revolution and population explosion of the 19th and 20th centuries, the demand for water rose dramatically. Unprecedented construction of tens of thousands of monumental engineering projects designed to control floods, protect clean water supplies, and provide water for irrigation and hydropower brought great benefits to hundreds of millions of people. Food production has kept pace with soaring populations mainly because of the expansion of artificial irrigation systems that make possible the growth of 40 % of the world's food. Nearly one fifth of all the electricity generated worldwide is produced by turbines spun by the power of falling water.

C Yet there is a dark side to this picture: despite our progress, half of the world's population still suffers, with water services inferior to those available to the ancient Greeks and Romans. As the United Nations report on access to water reiterated in November 2001, more than one billion people lack access to clean drinking water; some two and a half billion do not have adequate sanitation services. Preventable water-related diseases kill an estimated 10,000 to 20,000 children every day, and the latest evidence suggests that we are falling behind in efforts to solve these problems.

D The consequences of our water policies extend beyond jeopardising human health. Tens of millions of people have been forced to move from their homes - often with little warning or compensation - to make way for the reservoirs behind dams. More than 20 % of all freshwater fish species are now threatened or endangered because dams and water withdrawals have destroyed the free-flowing river ecosystems where they thrive. Certain irrigation practices degrade soil quality and reduce agricultural productivity. Groundwater aquifers* are being pumped down faster than they are naturally replenished in parts of India, China, the USA and elsewhere. And disputes over shared water resources have led to violence and continue to raise local, national and even international tensions.

*underground stores of water

E At the outset of the new millennium, however, the way resource planners think about water is beginning to change. The focus is slowly shifting back to the provision of basic human and environmental needs as top priority - ensuring 'some for all,' instead of 'more for some'. Some water experts are now demanding that existing infrastructure be used in smarter ways rather than building new facilities, which is increasingly considered the option of last, not first, resort. This shift in philosophy has not been universally accepted, and it comes with strong opposition from some established water organisations. Nevertheless, it may be the only way to address successfully the pressing problems of providing everyone with clean water to drink, adequate water to grow food and a life free from preventable water-related illness.

F Fortunately - and unexpectedly - the demand for water is not rising as rapidly as some predicted. As a result, the pressure to build new water infrastructures has diminished over the past two decades. Although population, industrial output and economic productivity have continued to soar in developed nations, the rate at which people withdraw water from aquifers, rivers and lakes has slowed. And in a few parts of the world, demand has actually fallen.

G What explains this remarkable turn of events? Two factors: people have figured out how to use water more efficiently, and communities are rethinking their priorities for water use. Throughout the first three-quarters of the 20th century, the quantity of freshwater consumed per person doubled on average; in the USA, water withdrawals increased tenfold while the population quadrupled. But since 1980, the amount of water consumed per person has actually decreased, thanks to a range of new technologies that help to conserve water in homes and industry. In 1965, for instance, Japan used approximately 13 million gallons* of water to produce $1 million of commercial output; by 1989 this had dropped to 3.5 million gallons (even accounting for inflation) - almost a quadrupling of water productivity. In the USA, water withdrawals have fallen by more than 20 % from their peak in 1980.

H On the other hand, dams, aqueducts and other kinds of infrastructure will still have to be built, particularly in developing countries where basic human needs have not been met. But such projects must be built to higher specifications and with more accountability to local people and their environment than in the past. And even in regions where new projects seem warranted, we must find ways to meet demands with fewer resources, respecting ecological criteria and to a smaller budget.

Questions 21-26

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

In boxes 8-13 on your answer sheet, write

YES if the statement agrees with the claims of the writer

NO if the statement contradicts the claims of the writer

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

21 [ ] Water use per person is higher in the industrial world than it was in Ancient Rome.

22 [ ] Feeding increasing populations is possible due primarily to improved irrigation systems.

23 [ ] Modern water systems imitate those of the ancient Greeks and Romans.

24 [ ] Industrial growth is increasing the overall demand for water.

25 [ ] Modern technologies have led to a reduction in domestic water consumption.

26 [ ] In the future, governments should maintain ownership of water infrastructures.

Passage 3

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

EDUCATING PSYCHE

Educating Psyche by Bernie Neville is a book which looks at radical new approaches to learning, describing the effects of emotion, imagination and the unconscious on learning. One the theory discussed in the book is that proposed by George Lozanov, which focuses on the power of suggestion.

Lozanov's instructional technique is based on the evidence that the connections made in the brain through unconscious processing (which he calls non-specific mental reactivity) are more durable than those mad through conscious processing. Besides the laboratory evidence for this, we know from our experience that we often remember what we have perceived peripherally, long after we have forgotten what we set out to learn if we think of a book we studied months or years ago, we will find it easier to recall peripheral details. The colour, the binding, the typeface, the table at the library where we sat while studying it than the content on which were concentrating If we think of a lecture we listened to with great concentration, we will recall the lecturer's appearance and mannerisms, our place in the auditorium, the failure of the air-conditioning, much more easily than the ideas we went to learn. Even if these peripheral details are a bit elusive, they come back readily in hypnosis or when we relive the event imaginatively, as in psychodrama. The details of the content of the lecture, on the other hand, seem to have gone forever.

This phenomenon can be partly attributed to the common counterproductive approach to study (making extreme efforts to memorize, tensing muscles, inducing fatigue), but it also simply reflects the way the brain functions. Lozanov, therefore, made indirect instruction (suggestion) central to his teaching system. In suggestopedia, as he called his method, consciousness is shifted away from the curriculum to focus on something peripheral. The curriculum then becomes peripheral and is delta with by the reserve capacity of the brain.

The suggestopedic approach to foreign language learning provides a good illustration. In its most recent variant (1980), it consists of the reading of vocabulary and text while the class is listening to music. The first session is in two parts. In the first part, the music is classical (Mozart, Beethoven, Brahms) and the teacher reads the text slowly and solemnly, with attention to the dynamics of the music. The students follow the text in their books. This is followed by several minutes of silence. In the second part, they listen to baroque music (Bach, Corelli, Handel) while the teacher reads the text in a normal speaking voice During this time they have their books closed During the whole of this session, their attention is passive;.. they listen to the music but make no attempt to learn the material.

Beforehand, the students have been carefully prepared for the language learning experience. Through meeting with the staff and satisfied students they develop an expectation that learning will be easy and pleasant and that they will successfully learn several hundred words of the foreign language during the class. In a preliminary talk, the teacher introduces them to the material to be covered but does not 'teach' it. Likewise, the students are instructed not to try to learn it during this introduction.

Some hours after the two-part session, there is a follow-up class at which the students are stimulated to recall the material presented. Once again the approach is indirect. The students do not focus their attention on trying to remember the vocabulary but focus on using the language to communicate (e.g. through games or improvised dramatizations). Such methods are not unusual in language teaching. What is distinctive in the suggestopedic method is that they are devoted entirely to assisting recall. The 'learning' of the material is assumed to be automatic and effortless, accomplished while

listening to music. The teacher's task is to assist the students to apply what they have learned paraconsciously, and in doing so to make it easily accessible to consciousness. Another difference from conventional teaching is the evidence that students can regularly learn 1000 new words of foreign language during a suggestopedic session, as well as grammar and idiom.

Lozanov experimented with teaching by direct suggestion during sleep, hpynossis and trance stages, but found such procedure unnecessary. Hypnosis, Yoga, Silva mind-control, religious ceremonies and faith healing are all associated with successful suggestion, but none of their techniques seems to be essential to it. Such rituals may be seen as placebos. Lozanov acknowledges that the ritual surrounding suggestion in his own system is also a placebo, but maintains that with such a placebo people are unable to or afraid to tap the reserve capacity of their brains. Like any placebo, it must be dispensed with authority to be effective. Just as a doctor calls on the full power of autocratic suggestion by insisting that patient takes precisely this white capsule precisely three times a day before meals, Lozanov is categoric in insisting that suggestopedic session be conducted exactly in that manner designated, by trained and accredited suggestopedic teachers. White suggestopedia has gained some notoriety through success in the teaching of modern languages, few teachers are able to emulate the spectacular results of Lozanov and his associates. We can, perhaps, attribute mediocre results to and inadequate placebo effect. The students have not developed the appropriate mindset. They are often not motivated to learn through this method. They do not have enough 'faith'. They do not see it as 'real teaching', especially as it does not seem to involve the 'work' they have learned to believe is essential to learning.

Questions 27-30

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

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

27 The book Educating Psyche is mainly concerned with

A. the power of suggestion in learninng
B. a particular technique for leaning based on emotions.
C. the effects of emotion on the imagination and the unconscious.
D. ways of learning which are not traditional.

28 Lozanov's theory claims that then we try to remember things,

A. unimportant details are the easiest to recall.
B. concentrating hard produces the best results.
C. the most significant facts are most easily recalled.
D. peripheral vision is not important.

29 In this passage, the author uses the examples of a book and a lecture to illustrate that

A. both these are important for developing concentration.
B. his theory about methods of learning is valid.
C. reading is a better technique for learning than listening.
D. we can remember things more easily under hypnosis.

30 Lozanov claims that teachers should train students to

A. memorise details of the curriculum.
B. develop their own sets of indirect instructions.
C. think about something other than the curriculum content.
D. avoid overloading the capacity of the brain

.

Questions 31-36

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

In boxes 31-36 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

31. In the example of suggestopedic teaching in the fourth paragraph, the only variable that changes is the music.
32. Prior to the suggestopedia class, students are made aware that the language experience will be demanding.
33. In the follow-up class, the teaching activities are similar to those used in conventional classes.
34. As an indirect benefit, students notice improvements in their memory.
35. Teachers say they prefer suggestopedia to traditional approaches to language teaching.
36. Students in a suggestopedia class retain more new vocabulary than those in ordinary classes

Questions 37-40

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

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

Sugestopedia uses a less direct method of suggestion than other techniques such as hypnosis. However, Lozanov admits that a certain amount of 37..... is necessary in order to convince students, even if this is just a 38..... Furthermore, if the method is to succeed, teachers must follow a set procedure. Although Lozanov's method has become quite 39....., the result of most other teachers using this method have been 40.....

A spectacular
B teaching
C lesson
D authoritarian
E unpopular
F ritual
G unspectacular
H placebo
I involved
J appropriate
K well known

Test

Answer Table

1. B
2. A
3. A
4. E
5. D.
6. phantom
7. echoes/obstacles
8. depth
9. submarines
10. natural selection
11. radio waves/echoes
12. mathematical theories
13. zoologist
14 xi
15 vii
16 v
17 i
18 ix
19 ii
20 x
21 NO
22 YES
23 NOT GIVEN
24 NO
25 YES
26 NOT GIVEN
27 D
28 A
29 B
30 C
31 FALSE
32 FALSE
33 TRUE
34 NOT GIVEN
35 NOT GIVEN
36 TRUE
37 F
38 H
39 K
40 G

Vocab

Let's go bats

1. obstacles- a thing that obstructs progress(problem)
2. exploited- make use of someone unsafe
3. nocturnal- done or active at night
4. vision- the ability to see
5. limb- an arm leg or wing
6. aqueducts- a structure carrying water across country
7. sophisticated- high developed and complex
8. compensation- give a payment to reduce the bad effect of loss, injury
9. unconscious- unaware
10. suggestopedia - every information given
11. notoriety- famous for something bad
12. spectacular- very impressive or dramatic
13. authoritarian- demanding strict obedience to authority

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

Indoor Pollution

Since the early eighties we have been only too aware of the devastating effects of large-scale environmental pollution. Such pollution is generally the result of poor government planning in many developing nations or the short-sighted, selfish policies of the already industrialised countries which encourage a minority of the world's population to squander the majority of its natural resources.

While events such as the deforestation of the Amazon jungle or the nuclear disaster in Chernobyl continue to receive high media exposure, as do acts of environmental sabotage, it must be remembered that not all pollution is on this grand scale. A large proportion of the world's pollution has its source much closer to home. The recent spillage of crude oil from an oil tanker accidentally discharging its cargo straight into Sydney Harbour not only caused serious damage to the harbour foreshores but also created severely toxic fumes which hung over the suburbs for days and left the angry residents wondering how such a disaster could have been allowed to happen.

Avoiding pollution can be a fulltime job. Try not to inhale traffic fumes; keep away from chemical plants and building-sites; wear a mask when cycling. It is enough to make you want to stay at home. But that, according to a growing body of scientific evidence, would also be a bad idea. Research shows that levels of pollutants such as hazardous gases, particulate matter and other chemical 'nasties' are usually higher indoors than out, even in the most polluted cities. Since the average American spends 18 hours indoors for every hour outside, it looks as though many environmentalists may be attacking the wrong target.

The latest study, conducted by two environmental engineers, Richard Corsi and Cynthia Howard-Reed, of the University of Texas in Austin, and published in Environmental Science and Technology, suggests that it is the process of keeping clean that may be making indoor pollution worse. The researchers found that baths, showers, dishwashers and washing machines can all be significant sources of indoor pollution, because they extract trace amounts of chemicals from the water that they use and transfer them to the air.

Nearly all public water supplies contain very low concentrations of toxic chemicals, most of them left over from the otherwise beneficial process of chlorination. Dr. Corsi wondered whether they stay there when water is used, or whether they end up in the air that people breathe. The team conducted a series of experiments in which known quantities of five such chemicals were mixed with water and passed through a dishwasher, a washing machine, a shower head inside a shower stall or a tap in a bath, all inside a specially designed chamber. The levels of chemicals in the effluent water and in the air extracted from the chamber were then measured to see how much of each chemical had been transferred from the water into the air.

The degree to which the most volatile elements could be removed from the water, a process known as chemical stripping, depended on a wide range of factors, including the volatility of the chemical, the temperature of the water and the surface area available for transfer. Dishwashers were found to be particularly effective: the high-temperature spray, splashing against the crockery and cutlery, results in a nasty plume of toxic chemicals that escapes when the door is opened at the end of the cycle.

In fact, in many cases, the degree of exposure to toxic chemicals in tap water by inhalation is comparable to the exposure that would result from drinking the stuff. This is significant because many people are so concerned about water-borne pollutants that they drink only bottled water, worldwide sales of which are forecast to reach $72 billion by next year.

D. Corsi's results suggest that they are being exposed to such pollutants anyway simply by breathing at home.

The aim of such research is not, however, to encourage the use of gas masks when unloading the washing. Instead, it is to bring a sense of perspective to the debate about pollution. According to Dr Corsi, disproportionate effort is wasted campaigning against certain forms of outdoor pollution, when there is as much or more cause for concern indoors, right under people's noses.

Using gas cookers or burning candles, for example, both result in indoor levels of carbon monoxide and particulate matter that are just as high as those to be found outside, amid heavy traffic. Overcrowded classrooms whose ventilation systems were designed for smaller numbers of children frequently contain levels of carbon dioxide that would be regarded as unacceptable on board a submarine. 'New car smell' is the result of high levels of toxic chemicals, not cleanliness. Laser printers, computers, carpets and paints all contribute to the noxious indoor mix.

The implications of indoor pollution for health are unclear. But before worrying about the problems caused by large-scale industry, it makes sense to consider the small-scale pollution at home and welcome international debate about this.

Scientists investigating indoor pollution will gather next month in Edinburgh at the Indoor Air conference to discuss the problem. Perhaps unwisely, the meeting is being held indoors

SECTION 1: QUESTIONS 1-13

Questions 1-6

Choose the appropriate letters A-D and write them in boxes 1-6 on your answer sheet.

1 In the first paragraph, the writer argues that pollution

A ☐ has increased since the eighties.

B ☐ is at its worst in industrialised countries.

C ☐ results from poor relations between nations.

D ☐ is caused by human self-interest.

2 The Sydney Harbour oil spill was the result of a

A ☐ ship refuelling in the harbour.

B ☐ tanker pumping oil into the sea.

C ☐ collision between two oil tankers.

D ☐ deliberate act of sabotage.

3 In the 3rd paragraph the writer suggests that

A ☐ people should avoid working in cities.

B ☐ Americans spend too little time outdoors.

C ☐ hazardous gases are concentrated in industrial suburbs.

D ☐ there are several ways to avoid city pollution.

4 The Corsi research team hypothesised that

A ☐ toxic chemicals can pass from air to water.

B ☐ pollution is caused by dishwashers and baths.

C ☐ city water contains insufficient chlorine.

D ☐ household appliances are poorly designed

5 As a result of their experiments, Dr Corsi's team found that

A ☐ dishwashers are very efficient machines.

B ☐ tap water is as polluted as bottled water.

C ☐ indoor pollution rivals outdoor pollution.

D ☐ gas masks are a useful protective device.

6 Regarding the dangers of pollution, the writer believes that

A ☐ there is a need for rational discussion.

B ☐ indoor pollution is a recent phenomenon.

C ☐ people should worry most about their work environment.

D ☐ industrial pollution causes specific diseases.

Questions 7-13

Reading Passage 1 describes a number of cause and effect relationships.

Match each Cause (Questions 7-13) in List A with its Effect (A-J) in List B.

Write the appropriate letters (A-J) in boxes 7-13 on your answer sheet.

List A: CAUSES

A The focus of pollution moves to the home.

B The levels of carbon monoxide rise.

C The world's natural resources are unequally shared.

D People demand an explanation.

E Environmentalists look elsewhere for an explanation.

F Chemicals are effectively stripped from the water.

G A clean odour is produced.

H Sales of bottled water increase.

I The levels of carbon dioxide rise.

J The chlorine content of drinking water increased.

7 [ ] Industrialised nations use a lot of energy.

8 [ ] Oil spills into the sea.

9 [ ] The researchers publish their findings.

10 [ ] Water is brought to a high temperature.

11 [ ] People fear pollutants in tap water.

12 [ ] Air conditioning systems are inadequate.

13 [ ] Toxic chemicals are abundant in new

PASSAGE 2

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

ROBOTS

Since the dawn of human ingenuity, people have devised ever more cunning tools to cope with work that is dangerous, boring, onerous, or just plain nasty. That compulsion has culminated in robotics - the science of conferring various human capabilities on machines.

A The modern world is increasingly populated by quasi-intelligent gizmos whose presence we barely notice but whose creeping ubiquity has removed much human drudgery. Our factories hum to the rhythm of robot assembly arms. Our banking is done at automated teller terminals that thank us with rote politeness for the transaction. Our subway trains are controlled by tireless robo- drivers. Our mine shafts are dug by automated moles, and our nuclear accidents - such as those at Three Mile Island and Chernobyl - are cleaned up by robotic muckers fit to withstand radiation.

Such is the scope of uses envisioned by Karel Capek, the Czech playwright who coined the term 'robot' in 1920 (the word 'robota' means 'forced labor' in Czech). As progress accelerates, the experimental becomes the exploitable at record pace.

B Other innovations promise to extend the abilities of human operators. Thanks to the incessant miniaturisation of electronics and micromechanics, there are already robot systems that can perform some kinds of brain and bone surgery with submillimeter accuracy - far greater precision than highly skilled physicians can achieve with their hands alone. At the same time, techniques of long-distance control will keep people even farther from hazard. In 1994 a ten- foot-tall NASA robotic explorer called Dante, with video-camera eyes and with spiderlike legs, scrambled over the menacing rim of an Alaskan volcano while technicians 2,000 miles away in California watched the scene by satellite and controlled Dante's descent.

C But if robots are to reach the next stage of labour-saving utility, they will have to operate with less human supervision and be able to make at least a few decisions for themselves - goals that pose a formidable challenge. 'While we know how to tell a robot to handle a specific error,' says one expert, 'we can't yet give a robot enough common sense to reliably interact with a dynamic world.' Indeed the quest for true artificial intelligence (AI) has produced very mixed results. Despite a spasm of initial optimism in the 1960s and 1970s, when it appeared that transistor circuits and microprocessors might be able to perform in the same way as the human brain by the 21st century, researchers lately have extended their forecasts by decades if not centuries.

D What they found, in attempting to model thought, is that the human brain's roughly one hundred billion neurons are much more talented - and human perception far more complicated - than previously imagined. They have built robots that can recognise the misalignment of a machine panel by a fraction of a millimeter in a controlled factory environment. But the human mind can glimpse a rapidly changing scene and immediately disregard the 98 per cent that is irrelevant, instantaneously focusing on the woodchuck at the side of a winding forest road or the single suspicious face in a tumultuous crowd. The most advanced computer systems on Earth can't approach that kind of ability, and neuroscientists still don't know quite how we do it.

E Nonetheless, as information theorists, neuroscientists, and computer experts pool their talents, they are finding ways to get some lifelike intelligence from robots. One method renounces the linear, logical structure of conventional electronic circuits in favour of the messy, ad hoc arrangement of a real brain's neurons. These 'neural networks' do not have to be programmed. They can 'teach' themselves by a system of feedback signals that reinforce electrical pathways that produced correct responses and, conversely, wipe out connections that produced errors. Eventually the net wires itself into a system that can pronounce certain words or distinguish certain shapes.

F In other areas researchers are struggling to fashion a more natural relationship between people and robots in the expectation that some day machines will take on some tasks now done by humans in, say, nursing homes. This is particularly important in Japan, where the percentage of elderly citizens is rapidly increasing. So experiments at the Science University of Tokyo have created a 'face robot' - a life-size, soft plastic model of a female head with a video camera imbedded in the left eye - as a prototype. The researchers' goal is to create robots that people feel comfortable around. They are concentrating on the face because they believe facial expressions are the most important way to transfer emotional messages. We read those messages by interpreting expressions to decide whether a person is happy, frightened, angry, or nervous. Thus the Japanese robot is designed to detect emotions in the person it is 'looking at' by sensing changes in the spatial arrangement of the person's eyes, nose, eyebrows, and mouth. It compares those configurations with a database of standard facial expressions and guesses the emotion. The robot then uses an ensemble of tiny pressure pads to adjust its plastic face into an appropriate emotional response.

G Other labs are taking a different approach, one that doesn't try to mimic human intelligence or emotions. Just as computer design has moved away from one central mainframe in favour of myriad individual workstations - and single processors have been replaced by arrays of smaller units that break a big problem into parts that are solved simultaneously - many experts are now investigating whether swarms of semi-smart robots can generate a collective intelligence that is greater than the sum of its parts. That's what beehives and ant colonies do, and several teams are betting that legions of mini-critters working together like an ant colony could be sent to explore the climate of planets or to inspect pipes in dangerous industrial situations.

SECTION 2: QUESTIONS 14-26

Questions 14-19

Reading Passage 2 has seven **paragraphs A-G.**
From the list of headings below choose the most suitable heading for each paragraph.
Write the appropriate numbers (i-x) in boxes 14-19 on your answer sheet.

	List of Headings
i	Some success has resulted from observing how the brain functions.
ii	Are we expecting too much from one robot?
iii	Scientists are examining the humanistic possibilities.
iv	There are judgements that robots cannot make.
v	Has the power of robots become too great?
vi	Human skills have been heightened with the help of robotics.
vii	There are some things we prefer the brain to control.
viii	Robots have quietly infiltrated our lives.
ix	Original predictions have been revised.
x	Another approach meets the same result.

14 [ ] Paragraph A

15 [ ] Paragraph B

16 [ ] Paragraph C

17 [ ] Paragraph D

18 [ ] Paragraph E

19 [ ] Paragraph F

Example **Answer**
Paragraph G **ii**

Questions 20-24

Do the following statements agree with the information given in Reading Passage 2? In boxes 20-24 on your answer sheet write

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

20 [ ] Karel Capek successfully predicted our current uses for robots.

21 [ ] Lives were saved by the NASA robot, Dante.

22 [ ] Robots are able to make fine visual judgements.

23 [ ] The internal workings of the brain can be replicated by robots.

24 [ ] The Japanese have the most advanced robot systems.

Questions 25-27

Complete the summary below with words taken from paragraph F.
Use NO MORE THAN THREE WORDS for each answer.
Write your answers **in boxes 25-27 on** your answer sheet.

The prototype of the Japanese 'face robot' observes humans through a 25 [ ] which is planted in its head. It then refers to a 26 [ ] of typical 'looks' that the human face can have, to decide what emotion the person is feeling. To respond to this expression, the robot alters it's own expression using a number of 27 [ ]

PASSAGE 3

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

SAVING LANGUAGE

For the first time, linguists have put a price on language. To save a language from extinction isn't cheap - but more and more people are arguing that the alternative is the death of communities

There is nothing unusual about a single language dying. Communities have come and gone throughout history, and with them their language. But what is happening today is extraordinary, judged by the standards of the past. It is language extinction on a massive scale. According to the best estimates, there are some 6,000 languages in the world. Of these, about half are going to die out in the course of the next century: that's 3,000 languages in 1,200 months. On average, there is a language dying out somewhere in the world every two weeks or so.

How do we know? In the course of the past two or three decades, linguists all over the world have been gathering comparative data. If they find a language with just a few speakers left, and nobody is bothering to pass the language on to the children, they conclude that language is bound to die out soon. And we have to draw the same conclusion if a language has less than 100 speakers. It is not likely to last very long. A 1999 survey shows that 97 per cent of the world's languages are spoken by just four per cent of the people.

It is too late to do anything to help many languages, where the speakers are too few or too old, and where the community is too busy just trying to survive to care about their language. But many languages are not in such a serious position. Often, where languages are seriously endangered, there are things that can be done to give new life to them. It is called revitalisation.

Once a community realises that its language is in danger, it can start to introduce measures which can genuinely revitalise. The community itself must want to save its language. The culture of which it is a part must need to have a respect for minority languages. There needs to be funding, to support courses, materials, and teachers. And there need to be linguists, to get on with the basic task of putting the language down on paper. That's the bottom line: getting the language documented - recorded, analysed, written down. People must be able to read and write if they and their language are to have a future in an increasingly computer- literate civilisation.

But can we save a few thousand languages, just like that? Yes, if the will and funding were available. It is not cheap, getting linguists into the field, training local analysts, supporting the community with language resources and teachers, compiling grammars and dictionaries, writing materials for use in schools. It takes time, lots of it, to revitalise an endangered language. Conditions vary so much that it is difficult to generalise, but a figure of $ 100,000 a year per language cannot be far from the truth. If we devoted that amount of effort over three years for each of 3,000 languages, we would be talking about some $900 million.

There are some famous cases which illustrate what can be done. Welsh, alone among the Celtic languages, is not only stopping its steady decline towards extinction but showing signs of real growth. Two Language Acts protect the status of Welsh now, and its presence is increasingly in evidence wherever you travel in Wales.

On the other side of the world, Maori in New Zealand has been maintained by a system of so- called 'language nests', first introduced in 1982. These are organisations which provide children under five with a domestic setting in which they are intensively exposed to the language. The staff are all Maori speakers from the local community. The hope is that the children will keep their Maori skills alive after leaving the nests, and that as they grow older they will in turn become role models to a new generation of young children. There are cases like this all over the world. And when the reviving language is associated with a degree of political autonomy, the growth can be especially striking, as shown by Faroese, spoken in the Faroe Islands, after the islanders received a measure of autonomy from Denmark.

In Switzerland, Romansch was facing a difficult situation, spoken in five very different dialects, with small and diminishing numbers, as young people left their community for work in the German-speaking cities. The solution here was the creation in the 1980s of a unified written language for all these dialects. Romansch Grischun, as it is now called, has official status in parts of Switzerland, and is being increasingly used in spoken form on radio and television.

A language can be brought back from the very brink of extinction. The Ainu language of Japan, after many years of neglect and repression, had reached a stage where there were only eight fluent speakers left, all elderly. However, new government policies brought fresh attitudes and a positive interest in survival. Several 'semispeakers' - people who had become unwilling to speak Ainu because of the negative attitudes by Japanese speakers - were prompted to become active speakers again. There is fresh interest now and the language is more publicly available than it has been for years.

If good descriptions and materials are available, even extinct languages can be resurrected. Kaurna, from South Australia, is an example. This language had been extinct for about a century, but had been quite well documented. So, when a strong movement grew for its revival, it was possible to reconstruct it. The revised language is not the same as the original, of course. It lacks the range that the original had, and much of the old vocabulary. But it can nonetheless act as a badge of present-day identity for its people. And as long as people continue to value it as a true marker of their identity, and are prepared to keep using it, it will develop new functions and new vocabulary, as any other living language would do.
It is too soon to predict the future of these revived languages, but in some parts of the world they are attracting precisely the range of positive attitudes and grass roots support which are the preconditions for language survival. In such unexpected but heart-warming ways might we see the grand total of languages in the world minimally increased.

SECTION 3: QUESTIONS 27-40

Questions 28-32

Do the following statements agree with the views of the writer in Reading Passage 3?
In boxes 28-32 on your answer sheet write

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

28 The rate at which languages are becoming extinct has increased.

29 Research on the subject of language extinction began in the 1990s.

30 In order to survive, a language needs to be spoken by more than 100 people.

31 Certain parts of the world are more vulnerable than others to language extinction.

32 Saving language should be the major concern of any small community whose language is under threat.

Questions 33-35

The list below gives some of the factors that are necessary to assist the revitalisation of a language within a community.
Which THREE of the factors are mentioned by the writer of the text?
Write the appropriate letters A-G in boxes 33-35 on your answer sheet.

A ☐ the existence of related languages

B ☐ support from the indigenous population

C ☐ books tracing the historical development of the language

D ☐ on-the-spot help from language experts

E ☐ a range of speakers of different ages

F ☐ formal education procedures

G ☐ a common purpose for which the language is required

Questions 36-40

Match the languages A-F with the statements below (Questions 36-40) which describe how a language was saved.
Write your answers in boxes 36-40 on your answer sheet.

A	Welsh
B	Maori
C	Faroese
D	Romansch
E	Ainu
F	Kauma

36 The region in which the language was spoken gained increased independence.

37 People were encouraged to view the language with less prejudice.

38 Language immersion programmes were set up for sectors of the population.

39 A merger of different varieties of the language took place.

40 Written samples of the language permitted its revitalisation.

TEST READING Answer Keys:

1 D
2 B
3 D
4 B
5 C
6 A
7 C
8 D
9 A
10 F
11 H
12 I
13 G
14 viii
15 vi
16 ix
17 iv
18 i
19 iii
20 YES
21 NOT GIVEN
22 YES
23 NO
24 NOT GIVEN
25 video camera
26 database
27(tiny/small) pressure pads
28 YES
29 NO
30 YES
31 NOT GIVEN
32 NO
33 35 B,D,F
36 C
37 E
38 B
39 D
40 F

VOCABULARY OF Reading- Indoor Pollution

1)Devastating- Highly Destructive Or Damaging
2)Squander- Waste In A Reckless And Foolish Manner
3)Suburbs- An Outlying District Of A City, Especially, A Residential
4)Hazardous- Risky, Dangerous
5)Nastier- An Unpleasant Or Harmful Person
6)Effluent- Liquid Waste Or Sewage Discharged Into River
7)Plume- A Long, Soft Feather
8)Ventilation- The Provision Of Fresh Air
9)Ingenuity- The Quality Of Being Clear
10) Culminated- Reach A Climax
11) Ubiquity- Being Very Common
12) Envisioned- Imagine As A Future Positivity
13) Formidable- Intense Or Capable
14) Spasm- Convulsive Movement

Test READING

PASSAGE 1

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

Tackling Obesity in the Western World

A Obesity is a huge problem in many Western countries and one which now attracts considerable medical interest as researchers take up the challenge to find a 'cure' for the common condition of being seriously overweight. However, rather than take responsibility for their weight, obese people have often sought solace in the excuse that they have a slow metabolism, a genetic hiccup which sentences more than half the Australian population (63% of men and 47% of women) to a life of battling with their weight. The argument goes like this: it doesn't matter how little they eat, they gain weight because their bodies break down food and turn it into energy more slowly than those with a so-called normal metabolic rate.

B 'This is nonsense,' says Dr Susan Jebb from the Dunn Nutrition Unit at Cambridge in England. Despite the persistence of this metabolism myth, science has known for several years that the exact opposite is in fact true. Fat people have faster metabolisms than thin people. 'What is very clear,' says Dr Jebb, 'is that overweight people actually burn off more energy. They have more cells, bigger hearts, bigger lungs and they all need more energy just to keep going.'

C It took only one night, spent in a sealed room at the Dunn Unit to disabuse one of their patients of the beliefs of a lifetime: her metabolism was fast, not slow. By sealing the room and measuring the exact amount of oxygen she used, researchers were able to show her that her metabolism was not the culprit. It wasn't the answer she expected and probably not the one she wanted but she took the news philosophically.

D Although the metabolism myth has been completely disproved, science has far from discounted our genes as responsible for making us whatever weight we are, fat or thin. One of the world's leading obesity researchers, geneticist Professor Stephen O'Rahilly, goes so far as to say we are on the threshold of a complete change in the way we view not only morbid obesity, but also everyday overweight. Prof. O'Rahilly's groundbreaking work in Cambridge has proven that obesity can be caused by our genes. 'These people are not weak- willed, slothful or lazy,' says Prof. O'Rahilly, 'They have a medical condition due to a genetic defect and that causes them to be obese.'

E In Australia, the University of Sydney's Professor Ian Caterson says while major genetic defects may be rare, many people probably have minor genetic variations that combine to dictate weight and are responsible for things such as how much we eat, the amount of exercise we do and the amount of energy we need. When you add up all these little variations, the result is that some people are genetically predisposed to putting on weight. He says while the fast/slow metabolism debate may have been settled, that doesn't mean some other subtle change in the metabolism gene won't be found in overweight people. He is confident that science will, eventually, be able to 'cure' some forms of obesity but the only effective way for the vast majority of overweight and obese people to lose weight is a change of diet and an increase in exercise.

F Despite the $500 million a year Australians spend trying to lose weight and the $830 million it costs the community in health care, obesity is at epidemic proportions here, as it is in all Western nations. Until recently, research and treatment for obesity had concentrated on behaviour modification, drugs to decrease appetite and surgery. How the drugs worked was often not understood and many caused severe side effects and even death in some patients. Surgery for obesity has also claimed many lives.

G It has long been known that a part of the brain called the hypothalamus is responsible for regulating hunger, among other things. But it wasn't until 1994 that Professor Jeffery Friedman from Rockerfeller University in the US sent science in a new direction by studying an obese mouse. Prof. Friedman found that unlike its thin brothers, the fat mouse did not produce a hitherto unknown hormone called leptin. Manufactured by the fat cells, leptin acts as a messenger, sending signals to the hypothalamus to turn off the appetite. Previously, the fat cells were thought to be responsible simply for storing fat. Prof. Friedman gave the fat mouse leptin and it lost 30% of its body weight in two weeks.

H On the other side of the Atlantic, Prof. O'Rahilly read about this research with great excitement. For many months two blood samples had lain in the bottom of his freezer, taken from two extremely obese young cousins. He hired a doctor to develop a test for leptin in human blood, which eventually resulted in the discovery that neither of the children's blood contained the hormone. When one cousin was given leptin, she lost a stone in weight and Prof. O'Rahilly made medical history. Here was the first proof that a genetic defect could cause obesity in humans. But leptin deficiency turned out to be an extremely rare condition and there is a lot more research to be done before the 'magic' cure for obesity is ever found.

SECTION 1: QUESTIONS 1-13

Questions 1-8

Reading Passage 1 has seven paragraphs A-H.

From the list of headings below choose the most suitable heading for each paragraph.

Write the appropriate numbers (i-xi) in boxes 1-8 on your answer sheet.

	List of Headings
i	Obesity in animals
ii	Hidden dangers
iii	Proof of the truth
iv	New perspective on the horizon
v	No known treatment
vi	Rodent research leads the way
vii	Expert explains energy requirements of obese people
viii	A very uncommon complaint
ix	Nature or nurture
x	Shifting the blame
xi	Lifestyle change required despite new findings

Paragraph A 1

Paragraph B 2

Paragraph C 3

Paragraph D 4

Paragraph E 5

Paragraph F 6

Paragraph G 7

Paragraph H 8

Questions 9-13

Complete the summary of Reading Passage 1 (Questions 9-13) using words from the box.
Choose your answers **in boxes 9-13** on your answer sheet.

OBESITY

Example

People with a weight problem often try to deny responsibility.

They do this by seeking to blame their 9 _____ for the fact that they are overweight and erroneously believe that they use 10 _____ energy than thin people to stay alive. However, recent research has shown that a 11 _____ problem can be responsible for obesity as some people seem programmed to 12 _____ more than others. The new research points to a shift from trying to change people's 13 _____ to seeking an answer to the problem in the laboratory.

PASSAGE 2

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

Wheel of Fortune

Emma Duncan discusses the potential effects on the entertainment industry of the digital revolution

A Since moving pictures were invented a century ago, a new way of distributing entertainment to consumers has emerged about once every generation. Each such innovation has changed the industry irreversibly; each has been accompanied by a period of fear mixed with exhilaration. The arrival of digital technology, which translates music, pictures and text into the zeros and ones of computer language, marks one of those periods.

B This may sound familiar, because the digital revolution, and the explosion of choice that would go with it, has been heralded for some time. In 1992, John Malone, chief executive of TCI, an American cable giant, welcomed the '500-channel universe'. Digital television was about to deliver everything except pizzas to people's living rooms. When the entertainment companies tried out the technology, it worked fine - but not at a price that people were prepared to pay.

C Those 500 channels eventually arrived but via the Internet and the PC rather than through television. The digital revolution was starting to affect the entertainment business in unexpected ways. Eventually it will change every aspect of it, from the way cartoons are made to the way films are screened to the way people buy music. That much is clear. What nobody is sure of is how it will affect the economics of the business.

D New technologies always contain within them both threats and opportunities. They have the potential both to make the companies in the business a great deal richer, and to sweep them away. Old companies always fear new technology. Hollywood was hostile to television, television terrified by the VCR. Go back far enough, points out Hal Varian, an economist at the University of California at Berkeley, and you find publishers complaining that 'circulating libraries' would cannibalise their sales. Yet whenever a new technology has come in, it has made more money for existing entertainment companies. The proliferation of the means of distribution results, gratifyingly, in the proliferation of dollars, pounds, pesetas and the rest to pay for it.

E All the same, there is something in the old companies' fears. New technologies may not threaten their lives, but they usually change their role. Once television became widespread, film and radio stopped being the staple form of entertainment. Cable television has undermined the power of the broadcasters. And as power has shifted the movie studios, the radio companies and the television broadcasters have been swallowed up. These days, the grand old names of

entertainment have more resonance than power. Paramount is part of Viacom, a cable company; Universal, part of Seagram, a drinks-and-entertainment company; MGM, once the roaring lion of Hollywood, has been reduced to a whisper because it is not part of one of the giants. And RCA, once the most important broadcasting company in the world, is now a recording label belonging to Bertelsmann, a large German entertainment company.

F Part of the reason why incumbents got pushed aside was that they did not see what was coming. But they also faced a tighter regulatory environment than the present one. In America, laws preventing television broadcasters from owning programme companies were repealed earlier this decade, allowing the creation of vertically integrated businesses. Greater freedom, combined with a sense of history, prompted the smarter companies in the entertainment business to re-invent themselves. They saw what happened to those of their predecessors who were stuck with one form of distribution.

So, these days, the powers in the entertainment business are no longer movie studios, or television broadcasters, or publishers; all those businesses have become part of bigger businesses still, companies that can both create content and distribute it in a range of different ways.

G Out of all this, seven huge entertainment companies have emerged - Time Warner, Walt Disney, Bertelsmann, Viacom, News Corp, Seagram and Sony. They cover pretty well every bit of the entertainment business except pornography. Three are American, one is Australian, one Canadian, one German and one Japanese. 'What you are seeing', says Christopher Dixon, managing director of media research at PaineWebber, a stockbroker, 'is the creation of a global oligopoly.

It happened to the oil and automotive businesses earlier this century; now it is happening to the entertainment business.' It remains to be seen whether the latest technology will weaken those great companies, or make them stronger than ever.

SECTION 2: QUESTIONS 14-26

Questions 14-21

Reading Passage 2 has seven paragraphs A-G.

Which paragraph mentions the following (Questions 14-21)?

Write the appropriate letters (A-G) in boxes 14-21 on your answer sheet.

NB Some of the paragraphs will be used more than once.

14 [ ] the contrasting effects that new technology can have on existing business

15 [ ] the fact that a total transformation is going to take place in the future in the delivery of all forms of entertainment

16 [ ] the confused feelings that people are known to have experienced in response to technological innovation

17 [ ] the fact that some companies have learnt from the mistakes of others

18 [ ] the high cost to the consumer of new ways of distributing entertainment

19 [ ] uncertainty regarding the financial impact of wider media access

20 [ ] the fact that some companies were the victims of strict government policy

21 [ ] the fact that the digital revolution could undermine the giant entertainment companies

Questions 22-25

The writer refers to various individuals and companies in the reading passage.

Match the people or companies (A-E) with the points made in Questions 22-25 about the introduction of new technology.

A	John Malone
B	Hal Valarian
C	MGM
D	Walt Disney
E	Christopher Dixon

Write the appropriate letter (A-E) in boxes 22-25 on your answer sheet.

22 [ ] Historically, new forms of distributing entertainment have alarmed those well-established in the business.

23 [ ] The merger of entertainment companies follows a pattern evident in other industries.

24 [ ] Major entertainment bodies that have remained independent have lost their influence.

25 [ ] News of the most recent technological development was published some years ago.

Questions 26-27

Choose the appropriate letters A-D and write them in boxes 26-27 on your answer sheet.

26 How does the writer put across his views on the digital revolution?

A ☐ by examining the forms of media that will be affected by it

B ☐ by analysing the way entertainment companies have reacted to it

C ☐ by giving a personal definition of technological innovation

D ☐ by drawing comparisons with other periods of technological innovation

27 Which of the following best summarises the writer's views in Reading Passage 2?

A ☐ The public should cease resisting the introduction of new technology.

B ☐ Digital technology will increase profits in the entertainment business.

C ☐ Entertainment companies should adapt to technological innovation.

D ☐ Technological change only benefits big entertainment companies.

PASSAGE 3

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

Nurturing talent within the family

What do we mean by being 'talented' or 'gifted'? The most obvious way is to look at the work someone does and if they are capable of significant success, label them as talented. The purely quantitative route - 'percentage definition' - looks not at individuals, but at simple percentages, such as the top five per cent of the population, and labels them - by definition - as gifted. This definition has fallen from favour, eclipsed by the advent of IQ tests, favoured by luminaries such as Professor Hans Eysenck, where a series of written or verbal tests of general intelligence leads to a score of intelligence.

The IQ test has been eclipsed in turn. Most people studying intelligence and creativity in the new millennium now prefer a broader definition, using a multifaceted approach where talents in many areas are recognised rather than purely concentrating on academic achievement. If we are therefore assuming that talented, creative or gifted individuals may need to be assessed across a range of abilities, does this mean intelligence can run in families as a genetic or inherited tendency? Mental dysfunction - such as schizophrenia - can, so is an efficient mental capacity passed on from parent to child?

Animal experiments throw some light on this question, and on the whole area of whether it is genetics, the environment or a combination of the two that allows for intelligence and creative ability. Different strains of rats show great differences in intelligence or 'rat reasoning'. If these are brought up in normal conditions and then mn through a maze to reach a food goal, the 'bright' strain make far fewer wrong turns that the 'dull' ones. But if the environment is made dull and boring the number of errors becomes equal. Return the rats to an exciting maze and the discrepancy returns as before - but is much smaller. In other words, a dull rat in a stimulating environment will almost do as well as a bright rat who is bored in a normal one. This principle applies to humans too - someone may be born with innate intelligence, but their environment probably has the final say over whether they become creative or even a genius.

Evidence now exists that most young children, if given enough opportunities and encouragement, are able to achieve significant and sustainable levels of academic or sporting prowess. Bright or creative children are often physically very active at the same time, and so may receive more parental attention as a result - almost by default - in order to ensure their safety. They may also talk earlier, and this, in turn, breeds parental interest. This can sometimes cause problems with other siblings who may feel jealous even though they themselves may be bright. Their creative talents may be undervalued and so never come to fruition. Two themes seem to run through famously creative families as a result. The first is that the parents were able to identify the talents of each child, and nurture and encourage these accordingly but in an even-handed manner. Individual differences were encouraged, and friendly sibling rivalry was not seen as a particular problem. If the father is, say, a famous actor, there is no undue pressure for his children to follow him onto the boards, but instead their chosen interests are encouraged. There need not even by any obvious talent in such a family since there always needs to be someone who sets the family career in motion, as in the case of the Sheen acting dynasty.

Martin Sheen was the seventh of ten children born to a Spanish immigrant father and an Irish mother. Despite intense parental disapproval he turned his back on entrance exams to university and borrowed cash from a local priest to start a fledgling acting career. His acting successes in films such as Badlands and Apocalypse Now made him one of the most

highly-regarded actors of the 1970s. Three sons - Emilio Estevez, Ramon Estevez and Charlie Sheen - have followed him into the profession as a consequence of being inspired by his motivation and enthusiasm.
A stream seems to run through creative families. Such children are not necessarily smothered with love by their parents. They feel loved and wanted, and are secure in their home, but are often more surrounded by an atmosphere of work and where following a calling appears to be important. They may see from their parents that it takes time and dedication to be master of a craft, and so are in less of a hurry to achieve for themselves once they start to work

The generation of creativity is complex: it is a mixture of genetics, the environment, parental teaching and luck that determines how successful or talented family members are. This last point - luck - is often not mentioned where talent is concerned but plays an undoubted part. Mozart, considered by many to be the finest composer of all time, was lucky to be living in an age that encouraged the writing of music. He was brought up surrounded by it, his father was a musician who encouraged him to the point of giving up his job to promote his child genius, and he learnt musical composition with frightening speed - the speed of a genius. Mozart himself simply wanted to create the finest music ever written but did not necessarily view himself as a genius - he could write sublime music at will, and so often preferred to lead a hedonistic lifestyle that he found more exciting than writing music to order.

Albert Einstein and Bill Gates are two more examples of people whose talents have blossomed by virtue of the times they were living in. Einstein was a solitary, somewhat slow child who had affection at home but whose phenomenal intelligence emerged without any obvious parental input. This may have been partly due to the fact that at the start of the 20th Century a lot of the Newtonian laws of physics were being questioned, leaving a fertile ground for ideas such as his to be developed. Bill Gates may have had the creative vision to develop Microsoft, but without the new computer age dawning at the same time he may never have achieved the position on the world stage he now occupies.

SECTION 3: QUESTIONS 27-40

Questions 28-29

Complete the notes, which show how the approaches to defining 'talent*have changed.
Choose ONE or TWO WORDS from the passage for each answer
Write your answers in boxes 28-29 on your answer sheet.

'percentage definition'

↓

28 _____

↓

29 _____

↓

Questions 30-32

Which THREE of the following does the writer regard as a feature of creative families?
Write the appropriate letters A-F in boxes 30-32 on your answer sheet.

A ☐ a higher than average level of parental affection

B ☐ competition between brothers and sisters

C ☐ parents who demonstrate vocational commitment

D ☐ strong motivation to take exams and attend university

E ☐ a patient approach to achieving success

F ☐ the identification of the most talented child in the family

Questions 33-34

Choose the appropriate letters A—D and write them in boxes 33-34 on your answer sheet.
33 The rat experiment was conducted to show that

A ☐ certain species of rat are more intelligent than others.

B ☐ intelligent rats are more motivated than 'dull' rats.

C ☐ a rat's surroundings can influence its behaviour.

D ☐ a boring environment has little impact on a 'bright' rat.

34 The writer cites the story of Martin Sheen to show that

A ☐ he was the first in a creative line.

B ☐ his parents did not have his creative flair.

C ☐ became an actor without proper training.

D ☐ his sons were able to benefit from his talents.

Questions 35-39

Do the following statements agree with the claims of the writer in Reading Passage 3?
In boxes 35-39 on your answer sheet write

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

35 [ ] Intelligence tests have now been proved to be unreliable.

36 [ ] The brother or sister of a gifted older child may fail to fulfil their own potential.

37 [ ] The importance of luck in the genius equation tends to be ignored.

38 [ ] Mozart was acutely aware of his own remarkable talent.

39 [ ] Einstein and Gates would have achieved success in any era.

Question 40

From the list below choose the most suitable title for the whole of Reading Passage 3.
Write the appropriate letter A-D in box 40 on your answer sheet.

40 [ ]

A	Geniuses in their time
B	Education for the gifted
C	Revising the definition of intelligence
D	Nurturing talent within the family

TEST READING Answer Keys:

1 x
2 vii
3 iii
4 iv
5 xi
6 ii
7 vi
8 viii
9 metabolism
10 less
11 genetic
12 consume
13 behaviour
14 D
15 C
16 A
17 F
18 B
19 C
20 F
21 G
22 B
23 E
24 C
25 A
26 D
27 C
28 IQ/intelligence
29 multi-faceted approach
30 32 B,C,E
33 C
34 A
35 NOT GIVEN
36 YES
37 YES
38 NO
39 NO
40 D

A Vocabulary of Reading – Tackling Obesity in the Western World

1. Disabuse-Influence Someone Than An Idea Or Belief Is Mistaken
2. Persistence- Determination ,Patience
3. Epidemic- Widespread Occurrence Of An Infectious Disease In A Community At A Particular Time
4. Exhilaration- A Feeling Of Excitement ,Happiness
5. Proliferation- Growth, Spread, Multiplication
6. Gratifyingly- Giving Pleasure Or Satisfaction
7. Incumbents- Holder,Bearer,Occupant
8. Multifaceted- Having Many Sides
9. Dysfunction- Abnormality, Impairment
10. Discrepancy- An Illogical Or Surprising Lack Of Compatibility
11. Hedonistic- Engaged In The Pursuit Of Pleasure
12. Fledgling-Beginning, Young, Immature

TEST READING
READING PASSAGE 1
You should spend about **20 minutes on Questions 1-13** which are based on **Reading Passage 1** below
Ants Could Teach Ants
The ants are tiny and usually nest between rocks in the south coast of England. Transformed into research subjects at the University of Bristol, they raced along a tabletop foraging for food -and then, remarkably, returned to guide others. Time and again, followers trailed behind leaders, darting this way and that along the route, presumably to memorize land- marks. Once a follower got its bearings, it tapped the leader with its antennae, prompting the lesson to literally proceed to the next step. The ants were only looking for food but the researchers said the careful way the leaders led followers -thereby turning them into leaders in their own right -marked the Temnothorax albipennis ant as the very first example of a non-human animal exhibiting teaching behavior.
"Tandem running is an example of teaching, to our knowledge the first in a non-human animal, that involves bidirectional feedback between teacher and pupil," remarks Nigel Franks, professor of animal behavior and ecology, whose paper on the ant educators was published last week in the journal Nature.
No sooner was the paper published, of course, than another educator questioned it. Marc Hauser, a psychologist and biologist and one of the scientists who came up with the definition of teaching, said it was unclear whether the ants had learned a new skill or merely acquired new information.
Later, Franks took a further study and found that there were even races between leaders. With the guidance of leaders, ants could find food faster. But the help comes at a cost for the leader, who normally would have reached the food about four times faster if not hampered by a follower. This means the hypothesis that the leaders deliberately slowed down in order to pass the skills on to the followers seems potentially valid. His ideas were advocated by the students who carried out the video project with him.
Opposing views still arose, however. Hauser noted that mere communication of information is commonplace in the animal world. Consider a species, for example, that uses alarm calls to warn fellow members about the presence of a predator. Sounding the alarm can be costly, because the animal may draw the attention of the predator to itself. But it allows others to flee to safety. “Would you call this teaching?” wrote Hauser. “The caller incurs a cost. The naive animals gain a benefit and new knowledge that better enables them to learn about the predator’s location than if the caller had not called. This happens throughout the animal kingdom, but we don’t call it teaching, even though it is clearly transfer of information.”
Tim Caro, a zoologist, presented two cases of animal communication. He found that cheetah mothers that take their cubs along on hunts gradually allow their cubs to do more of the hunting -going, for example, from killing a gazelle and allowing young cubs to eat to merely tripping the gazelle and letting the cubs finish it off. At one level, such behavior might be called teaching -except the mother was not really teaching the cubs to hunt but merely facilitating various stages of learning. In another instance, birds watching other birds using a stick to locate food such as insects and so on, are observed to do the same thing themselves while finding food late

Psychologists study animal behavior in part to understand the evolutionary roots of human behavior, Hauser said. The challenge in understanding whether other animals truly teach one another, he added, is that human teaching involves a “theory of mind” -teachers are aware that students don’t know something. He questioned whether Franks’s leader ants really knew that the follower ants were ignorant. Could they simply have been following an instinctive rule to proceed when the followers tapped them on the legs or abdomen? And did leaders that led the way to food -only to find that it had been removed by the experimenter -incur the wrath of followers? That, Hauser said, would suggest that the follower ant actually knew the leader was more knowledgeable and not merely following an instinctive routine itself.
The controversy went on, and for a good reason. The occurrence of teaching in ants, if proven to be true, indicates that teaching can evolve in animals with tiny brains. It is probably the value of information in social animals that determines when teaching will evolve rather than the constraints of brain size.
Bennett Galef Jr., a psychologist who studies animal behavior and social learning at McMaster University in Canada, maintained that ants were unlikely to have a “theory of mind” -meaning that leader and followers may well have been following instinctive routines that were not based on an understanding of what was happening in another ant’s brain. He warned that scientists may be barking up the wrong tree when they look not only for examples of human like behavior among other animals but human like thinking that underlies such behavior. Animals may behave in ways similar to humans without a similar cognitive system, he said, so the behavior is not necessarily a good guide into how humans came to think the way they do.

SECTION 1: QUESTION 1-13

Questions 1-5

*Look at the following statements (Questions **1-5**) and the list of people in the box below.*
*Match each statement with the correct person, **A, B, C** or **D**.*
*Write the correct letter, **A, B, C** or **D**, in boxes **1-5** on your answer sheet.*
NB You may use any letter **more than once**.

1 [ ] Animals could use objects to locate food.
2 [ ] Ants show two-way, interactive teaching behaviors.
3 [ ] It is risky to say ants can teach other ants like human beings do.
4 [ ] Ant leadership makes finding food faster.
5 [ ] Communication between ants is not entirely teaching.

A	Nigel Franks
B	Marc Hauser
C	Tim Caro
D	Bennett Galef Jr.

Questions 6-9

*Choose **FOUR** letters, **A-H***
*Write your answers in boxes **6-9** on your answer sheet.*
*Which **FOUR** of the following behaviors of animals are mentioned in the passage?*

- **A** ☐ touch each other with antenna
- **B** ☐ alert others when there is danger
- **C** ☐ escape from predators
- **D** ☐ protect the young
- **E** ☐ hunt food for the young
- **F** ☐ fight with each other
- **G** ☐ use tools like twigs
- **H** ☐ feed on a variety of foods

Questions 10-13

Do the following statements agree with the claims of the writer in Reading Passage 1?
*In boxes **10-13** on your answer sheet, write*

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

10 [ ] Ants' tandem running involves only one-way communication.
11 [ ] Franks's theory got many supporters immediately after publicity.
12 [ ] Ants' teaching behavior is the same as that of human.
13 [ ] Cheetah share hunting gains to younger ones

READING PASSAGE 2

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

The Development of Plastics

When rubber was first commercially produced in Europe during the nineteenth century, it rapidly became a very important commodity, particularly in the fields of transportation and electricity. However, during the twentieth century a number of new synthetic materials, called plastics, superseded natural rubber in all but a few applications.

Rubber is a polymer—a compound containing large molecules that are formed by the bonding of many smaller, simpler units, repeated over and over again. The same bonding principle—polymerization—underlies the creation of a huge range of plastics by the chemical industry.

The first plastic was developed as a result of a competition in the USA. In the 1860s, $10,000 was offered to anybody who could replace ivory—supplies of which were declining—with something equally good as a material for making billiard balls. The prize was won by John Wesley Hyatt with a material called celluloid. Celluloid was made by dissolving cellulose, a carbohydrate derived from plants, in a solution of camphor dissolved in ethanol. This new material rapidly found uses in the manufacture of products such as knife handles, detachable collars and cuffs, spectacle frames and photographic film. Without celluloid, the film industry could never have got off the ground at the end of the 19th century.

Celluloid can be repeatedly softened and reshaped by heat, and is known as a thermoplastic. In 1907, Leo Baekeland, a Belgian chemist working in the USA, invented a different kind of plastic, by causing phenol and formaldehyde to react together. Baekeland called the material Bakelite, and it was the first of the thermosets—plastics that can be cast and moulded while hot, but cannot be softened by heat and reshaped once they have set. Bakelite was a good insulator, and

was resistant to water, acids and moderate heat. With these properties it was soon being used in the manufacture of switches, household items such as knife handles, and electrical components for cars.
Soon chemists began looking for other small molecules that could be strung together to make polymers. In the 1930s British chemists discovered that the gas ethylene would polymerize under heat and pressure to form a thermoplastic they called polythene. Polypropylene followed in the 1950s. Both were used to make bottles, pipes and plastic bags. A small change in the starting material—replacing a hydrogen atom in ethylene with a chlorine atom—produced PVC (polyvinyl chloride), a hard, fireproof plastic suitable for drains and gutters. And by adding certain chemicals, a soft form of PVC could be produced, suitable as a substitute for rubber in items such as waterproof clothing. A closely related plastic was Teflon, or PTFE (polytetrafluoroethylene). This had a very low coefficient of friction, making it ideal for bearings, rollers, and non-stick frying pans. Polystyrene, developed during the 1930s in Germany, was a clear, glass-like material, used in food containers, domestic appliances and toys. Expanded polystyrene—a white, rigid foam—was widely used in packaging and insulation. Polyurethanes, also developed in Germany, found uses as adhesives, coatings, and—in the form of rigid foams—as insulation materials. They are all produced from chemicals derived from crude oil, which contains exactly the same elements—carbon and hydrogen—as many plastics.
The first of the man-made fibres, nylon, was also created in the 1930s. Its inventor was a chemist called Wallace Carothers, who worked for the Du Pont company in the USA. He found that under the right conditions, two chemicals—hexamethylenediamine and adipic acid—would form a polymer that could be pumped out through holes and then stretched to form long glossy threads that could be woven like silk. Its first use was to make parachutes for the US armed forces in World War H. In the post-war years nylon completely replaced silk in the manufacture of stockings. Subsequently many other synthetic fibres joined nylon, including Orion, Acrilan and Terylene. Today most garments are made of a blend of natural fibres, such as cotton and wool, and man-made fibres that make fabrics easier to look after.
The great strength of plastic is its indestructibility. However, this quality is also something of a drawback: beaches all over the world, even on the remotest islands, are littered with plastic bottles that nothing can destroy. Nor is it very easy to recycle plastics, as different types of plastic are often used in the same items and call for different treatments. Plastics can be made biodegradable by incorporating into their structure a material such as starch, which is attacked by bacteria and causes the plastic to fall apart. Other materials can be incorporated that gradually decay in sunlight—although bottles made of such materials have to be stored in the dark, to ensure that they do not disintegrate before they have been used.

SECTION 2: QUESTIONS 14-26

Questions 14-20

Complete the table below
*Choose **NO MORE THAN THREE WORDS** from the passages for each answer*
*Write your answer in boxes **14-20** on your answer sheet.*

Name of plastic	Date of invention	Original region	Property	Common use
Celluloid	1860s	US		14
15	1907	US	Can be cast and moulded but cannot be softened by heat	16 household items and car parts
Polythene	1930	17		Bottles
Rigid PVC			18	
Polystyrene	1930s	Germany	19	Food container
Polyurethanes		Germany	20 foams	Adhesives, coatings and insulation

Questions 21-26

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

*In boxes **21-26** on your answer sheet write*

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

21 [ ] The chemical structure of plastic is very different from that of rubber.

22 [ ] John Wesley was a famous chemist.

23 [ ] Celluloid and Bakelite react to heat in the same way.

24 [ ] The mix of different varieties of plastic can make the recycling more difficult.

25 [ ] Adding starch into plastic can make plastic more durable.

26 [ ] Some plastic containers have to be preserved in special conditions.

READING PASSAGE 3

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

Global Warming in New Zealand

For many environmentalists, the world seems to be getting warmer. As the nearest country of South Polar Region, New Zealand has maintained an upward trend in its average temperature in the past few years. However, the temperature in New Zealand will go up 4oC in the next century while the polar region will go up more than 6oC. The different pictures of temperature stem from its surrounding ocean which acts like the air conditioner. Thus New Zealand is comparatively fortunate.

Scientifically speaking, this temperature phenomenon in New Zealand originated from what researchers call “SAM” (Southern Annular Mode), which refers to the wind belt that circles the Southern Oceans including New Zealand and Antarctica. Yet recent work has revealed that changes in SAM in New Zealand have resulted in a weakening of moisture during the summer, and more rainfall in other seasons. A bigger problem may turn out to be heavier droughts for agricultural activities because of more water loss from soil, resulting in poorer harvest before winter when the rainfall arrive too late to rescue.

Among all the calamities posed be drought, moisture deficit ranks the first. Moisture deficit is the gap between the water plants need during the growing season and the water the earth can offer. Measures of moisture deficit were at their highest since the 1970s in New Zealand. Meanwhile, ecological analyses clearly show moisture deficit is imposed at different growth stage of crops. If moisture deficit occurs around a crucial growth stage, it will cause about 22% reduction in grain yield as opposed to moisture deficit at vegetative phase.

Global warming is not only affecting agriculture production. When scientists say the country’s snow pack and glaciers are melting at an alarming rate due to global warming, the climate is putting another strain on the local places. For example, when the development of global warming is accompanied by the falling snow line, the local skiing industry comes into a crisis. The snow line may move up as the temperature goes up, and then the snow at the bottom will melt earlier. Fortunately, it is going to be favorable for the local skiing industry to tide over tough periods since the quantities of snowfall in some areas are more likely to increase.

What is the reaction of glacier region? The climate change can be reflected in the glacier region in southern New Zealand or land covered by ice and snow. The reaction of a glacier to a climatic change involves a complex chain of processes. Over time periods of years to several decades, cumulative changes in mass balance cause volume and thickness changes, which will affect the flow of ice via altered internal deformation and basal sliding. This dynamic reaction finally leads to glacier length changes, the advance or retreat of glacier tongues. Undoubtedly, glacier mass balance is a more direct signal of annual atmospheric conditions.

The latest research result of National Institute of Water and Atmospheric (NIWA) Research shows that glaciers line keeps moving up because of the impacts of global warming. Further losses of ice can be reflected in Mt. Cook Region. By 1996, a 14 km long sector of the glacier had melted down forming a melt lake (Hooker Lake) with a volume. Melting of the glacier front at a rate of 40 m/yr will cause the glacier to retreat at a rather uniform rate. Therefore, the lake will continue to grow until it reaches the glacier bed.

A direct result of the melting glaciers is the change of high tides the serves the main factor for sea level rise. The trend of sea level rise will bring a threat to the groundwater system for its hyper-saline groundwater and then pose a possibility to

decrease the agricultural production. Many experts believe that the best way to counter this trend is to give a longer-term view of sea level change in New Zealand. Indeed, the coastal boundaries need to be upgraded and redefined.

There is no doubt that global warming has affected New Zealand in many aspects. The emphasis on the global warming should be based on the joints efforts of local people and experts who conquer the tough period. For instance, farmers are taking a long term, multi-generational approach to adjust the breeds and species according to the temperature. Agriculturists also find ways to tackle the problems that may bring to the soil. In broad terms, going forward, the systemic resilience that's been going on a long time in the ecosystem will continue.

How about animals' reaction? Experts have surprisingly realized that animals have unconventional adaptation to global warming. A study has looked at sea turtles on a few northern beaches in New Zealand and it is very interesting to find that sea turtles can become male or female according to the temperature. Further researches will try to find out how rising temperatures would affect the ratio of sex reversal in their growth. Clearly, the temperature of the nest plays a vital role in the sexes of the baby turtles.

Tackling the problems of global warming is never easy in New Zealand, because records show the slow process of global warming may have a different impact on various regions. For New Zealand, the emission of carbon dioxide only accounts for 0.5% of the world's total, which has met the governmental standard.

However, New Zealand's effort counts only a tip of the iceberg. So far, global warming has been a world issue that still hangs in an ambiguous future

SECTION 3: QUESTIONS 27-40

Questions 27-32

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

Write the correct letter in boxes 27-32 on your answer sheet.

27 What is the main idea of the first paragraph?

- A The temperature in the polar region will increase less than that in New Zealand in the next century.
- B The weather and climate of New Zealand is very important to its people because of its close location to the polar region.
- C The air condition in New Zealand will maintain a high quality because of the ocean.
- D The temperature of New Zealand will increase less than that of other region in the next 100 years because it is surrounded by sea

28 What is one effect of the wind belt that circles the Southern Oceans?

- A New Zealand will have more moisture in winds in summer.
- B New Zealand needs to face droughts more often in hotter months in a year.
- C Soil water will increase as a result of weakening moisture in the winds
- D Agricultural production will be reduced as a result of more rainfall in other seasons

29 What does "moisture deficit" mean to the grain and crops?

- A The growing condition will be very tough for crops.
- B The growing season of some plants can hardly be determined.
- C There will be a huge gap between the water plants needed and the water the earth can offer.
- D The soil of the grain and crops in New Zealand reached its lowest production since 1970s.

30 What changes will happen to skiing industry due to the global warming phenomenon?

- A The skiing station may lower the altitude of skiing
- B Part of the skiing station needs to move to the north.
- C The snowfall may increase in part of skiing station.
- D The local skiing station may likely to make a profit because of the snowfall increase.

31 Cumulative changes over a long period of time in mass balance will lead to

- A Alterations is the volume and thickness of glaciers.
- B Faster changes in internal deformation and basal sliding.
- C Larger length of glaciers.
- D Retreat of glacier tongues as a result of change in annual atmospheric conditions.

32 Why does the writer mention NIWA in the sixth paragraph?

- A To use a particular example to explain the effects brought by glacier melting.
- B To emphasize the severance of the further loss of ice in Mt. Cook Region.
- C To alarm the reader of melting speed of glaciers at a uniform rate.
- D To note the lake in the region will be disappear when it reach the glacier bed.

Questions 33-35

Complete the summary below.

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

*Write your answer in boxes **33-35** on your answer sheet.*

Research date shows that sea level has a closely relation with the change of climate. The major reason for the increase in sea level is connected with 33 _____. The increase in sea level is also said to have a threat to the underground water system, the destruction of which caused by rise of sea level will lead to a high probability of reduction in 34 _____. In the long run, New Zealand may have to improve the 35 _____ if they want to diminish the effect change in sea levels.

Questions 36-40

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

*In boxes **36-40** on your answer sheet write*

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

36 _____ Farmers are less responsive to climate change than agriculturists.

37 _____ Agricultural sector is too conservative and resistant to deal with climate change.

38 _____ Turtle is vulnerable to climate change.

39 _____ The global warming is going slowly, and it may have different effects on different areas in New Zealand.

40 _____ New Zealand must cut carbon dioxide emission if they want to solve the problem of global warming.

TEST Answer Keys:

- 1 C
- 2 A
- 3 D
- 4 A
- 5 B
- 6-9 A,B,E,G
- 10 NO
- 11 NOT GIVEN
- 12 NOT GIVEN
- 13 YES
- 14 photographic film
- 15 Bakelite
- 16 switches
- 17 Britain/UK
- 18 fireproof
- 19 clear and glass-like
- 20 rigid
- 21 FALSE
- 22 NOT GIVEN
- 23 FALSE
- 24 NOT GIVEN
- 25 FALSE
- 26 NOT GIVEN
- 27 D
- 28 B
- 29 A
- 30 C
- 31 A
- 32 A
- 33 high tides
- 34 agricultural production
- 35 coastal boundaries
- 36 NOT GIVEN
- 37 NOT GIVEN
- 38 NO
- 39 YES
- 40 NO

Vocab

Reading- <u>ants could teach ants</u>

1. Presumably- probably
2. Bidirectional- functioning in two directions
3. Deliberately- intentionally, consciously
4. Flee- escape
5. Superseded- replace, displace
6. Constraints- limitations
7. Derive- obtain,acquire
8. Indestructible- impossible to destroy or break
9. Deficit- deficiency,shortage
10. Resilience-the capacity to recover quickly from difficulties
11. Ambiguous- debatable, arguable
12. Vulnerable- unsafe, unprotected

TEST READING
READING PASSAGE 1
You should spend about **20 minutes on Questions 1-13** which are based on **Reading Passage 1** below.
Computer games for Preschoolers Nintendo's Research and Design Process
Designing computer games for young children is a daunting task for game producers, who, for a long time, have concentrated on more "hard core" game fans. This article chronicles the design process and research involved in creating Nintendo DS for preschool gamers.
After speaking with our producers who have a keen interest in designing for the DS, we finally agreed on three key goals for our project. First, to understand the range of physical and cognitive abilities of preschoolers in the context of handheld system game play; second, to understand how preschool gamers interact with the DS, specifically how they control the different forms of play and game mechanics offered by the games presently on the market for this platform; third, to understand the expectation of preschooler's parents concerning the handheld systems as well as the purchase and play contexts within which game play occurs. The team of research decided that in-home ethnographies with preschoolers and their families would yield comprehensive database with which to give our producers more information and insights, so we start by conducting 26 in-home ethnographies in three markets across the United States: an East coast urban/suburban area, a West coast urban/suburban area, and a Midwest suburban/rural area.
The subject is this study included 15 girls and 11 boys ranging from 3 years and 3 months old to 5 years and 11 months old. Also, because previous research had shown the effects of older siblings on game play (demonstrated, for example, by more advanced motor coordination when using a computer mouse), households were employed to have a combination of preschoolers with and without elder peers. In order to understand both "experienced" and "new" preschool users of the platform, we divided the sample so that 13 families owned at least one Nintendo DS and the others did not. For those households that did not own a DS, one was brought to the interview for the kid to play. This allowed us to see both the instinctive and intuitive movements of the new players (and of the more experienced players when playing new games), as well as the learned movements of the more experienced players. Each of those interviews took about 60 to 120 minutes and included the preschooler, at least one parent, and often siblings and another caregiver.
Three kinds of information were collected after each interview. From any older siblings and the parents that were available, we gathered data about: the buying decisions surrounding game systems in the household, the family's typical game play patterns, levels of parental moderation with regard to computer gaming, and the most favorite games play by family members. We could also understand the ideology of gaming in these homes because of these in-home interviews: what types of spaces were used for game play, how the system were installed, where the handheld play occurred in the house (as well as on-the-go play), and the number and type of games and game systems owned. The most important is, we gathered the game-playing information for every single kid.
Before carrying out the interviews, the research team had closely discussed with the in-house game producers to create a list of game mechanics and problems tied to preschoolers' motor and cognitive capabilities that were critical for them to understand prior to writing the games. These ranged from general dexterity issues related to game controllers to the effectiveness of in-game instructions to specific mechanics in current games that the producers were interested in implementing for future preschool titles. During the interviews, the moderator gave specific guidance to the preschooler through a series of games, so that he or she could observe the interaction and probe both the preschooler and his or her parents on feelings, attitudes, and frustrations that arose in the different circumstances.
If the subject in the experiment had previous exposure to the DS system, he or she was first asked to play his or her favorite game on the machine. This gave the researchers information about current level of gaming skill related to the complexity of the chosen one, allowing them to see the child playing a game with mechanics he or she was already familiar with. Across the 26 preschoolers, the Nintendo DS selections scope were very broad, including New Super Mario Bros, Sonic Rush, Nintendogs, and Tony Hawk's Proving Ground. The interview observed the child play, noting preferences for game mechanic and motor interactions with device as well as the complexity level each game mechanic was for the tested subject. The researchers asked all of the preschoolers to play with a specific game in consultation with our producers, The Little Mermaid: Ariel's Undersea Adventure. The game was chosen for two major reasons. First, it was one of the few games on the market with characters that appeal to this young age group. Second, it incorporated a large variety of mechanics that highlighted the uniqueness of the DS platform, including using the microphone for blowing or singing.
The findings from this initial experiment were extensive. After reviewing the outcomes and discussing the implications for the game design with our internal game production team, we then outlined the designing needs and presented the findings

to a firm specializing in game design. We worked closely with those experts to set the game design for the two preschool-targeted DS games under development on what we had gathered.
As the two DS games went into the development process, a formative research course of action was set up. Whenever we developed new game mechanics, we brought preschoolers into our in-house utility lab to test the mechanics and to evaluate both their simplicity, and whether they were engaging. We tested either alpha or beta versions of different elements of the game, in addition to looking at overarching game structure. Once a full version of the DS game was ready, we went back into the field test with a dozen preschoolers and their parents to make sure that each of the game elements worked for the children, and that the overall objective of the game was understandable and the process was enjoyable for players. We also collected parent's feedback on whether they thought the game is appropriate, engaging, and worth the purchase.

SECTION 1: QUESTIONS 1-13

Questions 1-5

Complete the sentences below.
*Choose **ONE WORD ONLY** from the passage for each answer.*
*Write your answers in boxes **1-5** on your answer sheet.*

Exploratory Research Project

Main Objectives:

- Determine the relevant 1 _____ in the context
- Observe how preschoolers manage playing
- Investigate attitudes of 2 _____ towards games

Subjects:

- 26 children from different US 3 _____
- Age range: 3 years and 3 months to 5 years and 11 months
- Some children have older 4 _____
- Equal number of new and 5 _____ players
- Some households have Nintendo DS and some don't

Length of Interview:

1-2 hours

Questions 6-9

Do the following statements agree with the information given in Reading Passage?
*In boxes **6-9** on your answer sheet, write*

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

6 [ ] One area of research is how far mothers and fathers controlled children's playing after school.

7 [ ] The researchers are allowed a free access to the subject's houses.

8 [ ] The researchers regarded *The Little Mermaid: Ariel's Undersea Adventure* as likely appeal to preschoolers.

9 [ ] The Little Mermaid: Ariel's Undersea Adventure is operated entirely by hand controls.

Questions 10-13

Complete the flow-chart below.
*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*
*Write your answer in boxes **10-13** on your answer sheet.*

Using the results of the study

↓

Presentation of design requirements to a specialist 10 _____

↓

Testing the mechanics of two new games in the Nintendo lab (assess 11 _____ and interest)

↓

A 12 _____ of the games trailed be twelve children

↓

Collection of 13 _____ from parents

READING PASSAGE 2

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

The History of Pencil

The beginning of the story of pencils started with a lightning. Graphite, the main material for producing pencil, was discovered in 1564 in Borrowdale in England when a lightning struck a local tree during a thunder. Local people found out that the black substance spotted at the root of the unlucky tree was different from burning ash of wood. It was soft, thus left marks everywhere. Chemistry was barely out of its infancy at the time, so people mistook it for lead, equally black but much heavier. It was soon put to use by locals in marking their sheep for ownership and calculation.

Britain turns out to be major country where mines of graphite can be detected and developed. Even so, the first pencil was invented elsewhere. As graphite is soft, it requires some form of encasement. In Italy, graphite sticks were initially wrapped in string or sheepskin for stability, becoming perhaps the very first pencil in the world. Then around 1560, an Italian couple made what are likely the first blueprints for the modern, wood-encased carpentry pencil. Their version was a flat, oval, more compact type of pencil. Their concept involved the hollowing out of a stick of juniper wood. Shortly thereafter in 1662, a superior technique was discovered by German people: two wooden halves were carved, a graphite stick inserted, and the halves then glued together - essentially the same method in use to this day. The news of the usefulness of these early pencils spread far and wide, attracting the attention of artists all over the known world.

Although graphite core in pencils is still referred to as lead, modern pencils do not contain lead as the “lead” of the pencil is actually a mix of finely ground graphite and clay powders. This mixture is important because the amount of clay content added to the graphite depends on the intended pencil hardness, and the amount of time spent on grinding the mixture determines the quality of the lead. The more clay you put in, the higher hardness the core has. Many pencils across the world, and almost all in Europe, are graded on the European system. This system of naming used B for black and H for hard; a pencil’s grade was described by a sequence or successive Hs or Bs such as BB and BBB for successively softer leads, and HH and HHH for successively harder ones. Then the standard writing pencil is graded HB.

In England, pencils continue to be made from whole sawn graphite. But with the mass production of pencils, they are getting drastically more popular in many countries with each passing decade. As demands rise, appetite for graphite soars.

According to the United States Geological Survey (USGS), world production of natural graphite in 2012 was 1,100,000 tonnes, of which the following major exporters are: China, India, Brazil, North Korea and Canada. However, much in contrast with its intellectual application in producing pencils, graphite was also widely used in the military. During the reign of Elizabeth I, Borrowdale graphite was used as a refractory material to line moulds for cannonballs, resulting in rounder, smoother balls that could be fired farther, contributing to the strength of the English navy. This particular deposit of graphite was extremely pure and soft, and could easily be broken into sticks. Because of its military importance, this unique mine and its production were strictly controlled by the Crown.

That the United States did not use pencils in the outer space till they spent $1000 to make a pencil to use in zero gravity conditions is in fact a fiction. It is widely known that astronauts in Russia used grease pencils, which don’t have breakage problem. But it is also a fact that their counterparts in the United States used pencils in the outer space before real zero gravity pencil was invented. They preferred mechanical pencils, which produced fine line, much clearer than the smudgy lines left by the grease pencils that Russians favored. But the lead tips of these mechanical pencils broke often. That bit of graphite floating around the space capsule could get into someone’s eye, or even find its way into machinery or electronics, causing an electrical short or other problems. But despite the fact that the Americans did invent zero gravity pencils later, they stuck to mechanical pencils for many years.

Against the backcloth of a digitalized world, the prospect of pencils seems bleak. In reality, it does not. The application of pencils has by now become so widespread that they can be seen everywhere, such as classrooms, meeting rooms and art rooms, etc. A spectrum of users are likely to continue to use it into the future: students to do math works, artists to draw on sketch pads, waiters or waitresses to mark on order boards, make-up professionals to apply to faces, and architects to produce blue prints. The possibilities seem limitless.

SECTION 2: QUESTIONS 14-26

Questions 14-20

Complete the sentences below.

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

*Write your answers in boxes **14-20** on your answer sheet.*

Graphite was found under a 14 _____ in Borrowdale, it was dirty to use because it was 15 _____.

Ancient people used graphite to sign 16 _____

. People found graphite 17 _____ in Britain.

The first pencil was graphite wrapped in 18 _____ or animal skin.

Since graphite was too smooth, 19 _____ was added to make it harder.

Russian astronauts preferred 20 _____ pencils to write in the outer space.

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Question 21-26

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

*In boxes **21-26** on your answer sheet, write*

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

21 [ ] Italy is probably the first country of the whole world to make pencils.

22 [ ] Germany used various kinds of wood to make pencils.

23 [ ] Graphite makes a pencil harder and sharper.

24 [ ] In Britain, pencils are not produced any more.

25 [ ] American astronauts did not use pencil in outer space.

26 [ ] Pencils are unlikely to be used in the future.

READING PASSAGE 3

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

Motivating Drives

Scientists have been researching the way to get employees motivated for many years. This research in a relational study which builds the fundamental and comprehensive model for study. This is especially true when the business goal is to turn unmotivated teams into productive ones. But their researchers have limitations. It is like studying the movements of car without taking out the engine.

Motivation is what drives people to succeed and plays a vital role in enhancing an organizational development. It is important to study the motivation of employees because it is related to the emotion and behavior of employees. Recent studies show there are four drives for motivation. They are the drive to acquire, the drive to bond, the drive to comprehend and the drive to defend.

The Drive to Acquire

The drive to acquire must be met to optimize the acquire aspect as well as the achievement element. Thus the way that outstanding performance is recognized, the type of perks that is provided to polish the career path. But sometimes a written letter of appreciation generates more motivation than a thousand dollar check, which can serve as the invisible power to boost business engagement. Successful organizations and leaders not only need to focus on the optimization of physical reward but also on moving other levers within the organization that can drive motivation.

The Drive to Bond

The drive to bond is also key to driving motivation. There are many kinds of bonds between people, like friendship, family. In company, employees also want to be an essential part of company. They want to belong to the company. Employees will be motivated if they find personal belonging to the company. In the meantime, the most commitment will be achieved by the employee on condition that the force of motivation within the employee affects the direction, intensity and persistence of decision and behavior in company.

The Drive to Comprehend

The drive to comprehend motivates many employees to higher performance. For years, it has been known that setting stretch goals can greatly impact performance. Organizations need to ensure that the various job roles provide employees with simulation that challenges them or allow them to grow. Employees don't want to do meaningless things or monotonous job. If the job didn't provide them with personal meaning and fulfillment, they will leave the company.

The Drive to Defend

The drive to defend is often the hardest lever to pull. This drive manifests itself as a quest to create and promote justice, fairness, and the ability to express ourselves freely. The organizational lever for this basic human motivator is resource allocation. This drive is also met through an employee feeling connection to a company. If their companies are merged with another, they will show worries.

Two studies have been done to find the relations between the four drives and motivation. The article based on two studies was finally published in Harvard Business Review. Most authors' arguments have laid emphasis on four-drive theory and actual investigations. Using the results of the surveys which executed with employees from Fortune 500 companies and other two global businesses (P company and H company), the article mentions about how independent drives influence employees' behavior and how organizational levers boost employee motivation.
The studies show that the drive to bond is most related to fulfilling commitment, while the drive to comprehend is most related to how much effort employees spend on works. The drive to acquire can be satisfied by a rewarding system which ties rewards to performances, and gives the best people opportunities for advancement. For drive to defend, a study on the merging of P company and H company shows that employees in former company show an unusual cooperating attitude.
The key to successfully motivate employees is to meet all drives. Each of these drives is important if we are to understand employee motivation. These four drives, while not necessarily the only human drives, are the ones that are central to unified understanding of modern human life.

SECTION 3: QUESTIONS 27-40

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Questions 27-31

Choose the correct letter A, B, C or D

Write the correct letter in boxes 27-31 on your answer sheet.

27 According to the passage, what are we told about the study of motivation?

- A The theory of motivating employees is starting to catch attention in organizations in recent years.
- B It is very important for managers to know how to motivate their subordinates because it is related to the salary of employees.
- C Researchers have tended to be too theoretical to their study.
- D The goal of employee motivation is to increase the profit of organizations

28 What can be inferred from the passage about the study of people's drives?

- A Satisfying employees' drives can positively lead to the change of behavior.
- B Satisfying employees' drives will negatively affect their emotions.
- C Satisfying employees' drives can increase companies' productions.
- D Satisfying employees' drives will result in employees' outstanding performance.

29 According to paragraph three, in order to optimize employees' performance, are needed.

- A Drive to acquire and achievement element
- B Outstanding performance and recognition
- C Career fulfillment and a thousand dollar check
- D Financial incentive and recognition

30 According to paragraph five, how does "the drive to comprehend" help employees perform better?

- A It can help employees better understand the development of their organizations.
- B It can help employees feel their task in meaningful to their companies.
- C It can help employees set higher goals.
- D It can provide employees with repetitive tasks.

31 According to paragraph six, which of following is true about "drive to defend"?

- A Organizational resource is the most difficult to allocate.
- B It is more difficult to implement than the drive to comprehend.
- C Employees think it is very important to voice their own opinions.
- D Employees think it is very important to connect with a merged corporation.

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Questions 32-34

Choose THREE letters, A-F.

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

Which THREE of the following statements are true of study of drives?

- A Employees will be motivated if they feel belonged to the company.
- B If employees get an opportunity of training and development program, their motivation will be enhanced.
- C If employees' working goals are complied with organizational objectives, their motivation will be reinforced.
- D If employees' motivation in very low, companies should find a way to increase their salary as their first priority.
- E If employees find their work lacking challenging, they will leave the company.
- F Employees will worry if their company is sold.

Questions 35-40

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

In boxes 35-40 on your answer sheet, write

YES if the statement agrees with the views of the writer

NO if the statement contradicts the views of the writer

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

35 [ ] Increasing pay can lead to the high work motivation.

36 [ ] Local companies benefit more from global companies through the study.

37 [ ] Employees achieve the most commitment if their drive to comprehend is met.

38 [ ] The employees in former company presented unusual attitude toward the merging of two companies.

39 [ ] The two studies are done to analyze the relationship between the natural drives and the attitude of employees.

40 [ ] Rewarding system cause the company to lose profit.

TEST READING Answer Keys:

- 1 abilities
- 2 parents
- 3 markets
- 4 siblings/peers
- 5 experienced
- 6 NOT GIVEN
- 7 TRUE
- 8 TRUE
- 9 FALSE
- 10 firm
- 11 simplicity
- 12 full version
- 13 feedback
- 14 tree
- 15 soft
- 16 sheep
- 17 mines
- 18 string
- 19 clay
- 20 grease
- 21 TRUE
- 22 NOT GIVEN
- 23 FALSE
- 24 FALSE
- 25 FALSE
- 26 FALSE
- 27 C
- 28 A
- 29 D
- 30 B
- 31 C
- 3234 A,E,F
- 35 NO
- 36 NOT GIVEN
- 37 NO
- 38 YES
- 39 NO
- 40 NOT GIVEN

Vocab

Reading- Computer games for pre- scholars' Nintendo's research

1. Ethnographies- scientific description of people and culture with their customers
2. Intuitive- ability to understand or know something without any evidence
3. Extensive- covering or affecting a large area
4. Encasement- covering
5. Refractory- stubborn or unmanageable
6. Bleak- dull, cheerless
7. Optimize- rearrange or rewrite
8. Acquire- learn or develop
9. Persistence- the continued existence of something
10. Monotonous- repetitious, uninteresting

TEST READING

READING PASSAGE 1

You should spend about **20 minutes on Questions 1- 12**, which are based on **Reading Passage 1 below.**

MOUNT EVEREST AND HILLARY

Mount Everest, also known as Sagarmartha (Goddess of the Sky), is 8,348 metres tall, the highest mountain on earth above sea level. Formed about 60 million years ago and lying between Tibet and Nepal, Mount Everest appeals to climbers of every level, from novice to experienced climber. Each mountaineer pays a considerable amount of money to an experienced guide to help them achieve a successful climb. Everest was given its official English name in 1865 by the Royal Geographic Society upon recommendation of Andrew Waugh, the British Surveyor General of India at the time.

When Everest was officially announced as the world's highest mountain in 1852, it won interest from people all over the world, and the idea of climbing all (lie way to the summit was viewed as the ultimate feat. Nobody was able to climb Everest until 1920 when Tibet first opened its borders to outsiders, and between 1920 and 1952, seven major expeditions failed to reach the tip of Mount Everest, In fact, the mountain has a history of adversity and failure. With advances in climbing equipment in the last ten years or so, and more experienced guides, the fatality rates have dropped from 37% in 1990 to 4% in 2004. Nonetheless, the deadliest year in Mount Everest's history was 1996, when 19 people died near the summit.

In 1924, Mount Everest claimed the lives of its first two climbers. George Mallory and Andrew Irvine were two British climbers, attempting to reach the summit. The men were last seen heading for the top of the mountain until clouds surrounded Everest and they disappeared. Mallory's body was not seen again until 75 years on, in May of 1999, and Irvine's body is yet to be found. There is still no evidence as to whether these two men made it to the top or not, although disputes rages on, Those that believe the pair were the first; to climb Everest point to two specific points, firstly, Mallory's daughter has always said that Mallory carried a photograph of his wife on his person with the intention of leaving it on the summit when he reached it. This photo was not found on the body when it was discovered. Secondly, Mallory's snow' goggles were in his pocket when the body was found, indicating that he died at night. This implies that he and Irvine had made a push for the summit and were descending very late in the day. Given their known departure time and movements, had they not made the summit, it is unlikely that they would have still been out by nightfall.

The first time the actual peak of this monstrous mountain was reached was in 1953, in a combined effort by Sir Edmund Hillary and Tenzing Norgay. On the 29th of May that year, the duo conquered this epic mountain, standing at the highest point in the world for a brief 15 minutes. After a brief but fruitless search for evidence of the 1924 Mallory expedition, they buried a cross and some candy in the snow, taking a few photographs of the historic event. As Norgay had never operated a camera, there are no photographs of Hillary on top of the mountain, just shots of Norgay, and some additional photos looking down the mountain, ensuring evidence of their conquest and that the ascent was not faked.

When the news reached London on June 2nd, Sir Edmund Hillary was knighted in the Order of the British Empire and Norgay (a subject of the King of Nepal) was granted the George Medai by the UK, Sir Hillary turned to Antarctic exploration and led the New Zealand section of the Trans-Antarctic expedition from 1955 to 1958. In 1958, he took part in a mechanised expedition to the South Pole. Hillary continued to organise further mountain- climbing expeditions but, as the years passed, he became more and more concerned with the welfare of the Nepalese people. In the 1960s, he returned to Nepal, to aid in the development of the society, building clinics, hospitals and schools. After conquering Everest, Sir Edmund Hillary devoted most of his life to helping the Sherpa people of Nepal through the Himalayan Trust.

In January 2007, Sir Edmund Hillary went to Antarctica to commemorate the 50th anniversary of the founding of Scott Base. He flew to the station on 18 January 2007 with a delegation including the Prime Minister. On the 22nd of April 2007, while on a trip to Kathmandu, he was reported to have suffered a fall. There was no comment on the nature of his illness and lie did not immediately seek treatment. He was hospitalized after returning to New Zealand. Sadly, Sir Edmund Hillary died of a heart attack on the morning of January the 11th 2008. Hillary's life was marked by wonderful achievements, his giving nature, grand discovery, and excitement. But he was a humble man who did not admit to being the first man to reach the summit of Everest until long after 1386, well after the death of his climbing companion Tenzing Norgay.

The latest record for climbing Mount Everest was set on the 30th of May in 2005 by Nepalese Mona Mulepati and PemDorje Sherpa, who were the first couple to get married on top of Mount Everest.

PASSAGE 1: QUESTIONS 1-12

Questions 1–6

Answer the questions below using NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.

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

Who suggested that the name Everest be used to refer to the mountain? 1

Which country prevented explorers climbing Everest until 1920? 2

What has not yet been recovered? 3

What was not found on Mallory's body that indicates he may have reached the summit? 4

Who was photographed at the top of the mountain? 5

What was the name of Hillary's charitable organisation? 6

Questions 7–12

Do the following statements agree with the information given in the reading passage?

In boxes 7- 12 on your answer sheet write

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

7 Mortality rates on Everest have consistently declined since 1990.

8 Hillary found evidence of the Mallory expedition.

9 Photographs were taken from the summit as proof of the Hillary/ Norgay climb.

10 Both Hillary and Norgay received recognition of their achievement from Britain.

11 Hillary was the first person to reach the South Pole by mechanised transport.

12 Hillary's death was attributed to an accident that occurred in Kathmandu.

READING PASSAGE 2

You should spend about **20 minutes on Questions 13-27**, which are based on **Reading Passage 2 below**

SLEEP

A. Like many things about your body, scientists and medical professionals still have a lot to learn about the process of sleep. One earlier misconception that has now been revised is that the body completely slows down during sleep; it is now dear that the body's major organs and regulatory systems continue to work actively – the lungs, heart and stomach for example. Another important part of the body also operates at night – the glands and lymph nodes, which strengthen the immune system. This is commonly why the body's natural immunity is weakened with insufficient sleep.

B. In some cases, certain systems actually become more active while we sleep. Hormones required for muscle development and growth, for instance, as well as the growth of new nerve cells. In the brain, activity of the pathways needed for learning and memory is increased.

C. Another common myth about sleep is that the body requires less sleep the older we get. Whilst It is true that babies need 16 hours compared to 9 hours and 8 hours respectively for teenagers and adults, this does not mean that older people need less sleep. However, what is true if that for a number of different factors, they often get less sleep or find their sleep less refreshing. This is because as people age, they spend less time in the deep, restful stages of sleep and are more easily awakened. Older people are also more likely to have medical conditions that affect their sleep, such as insomnia, sleep apnoea and heart problems.

D. Getting a good sleep is not just a matter of your head hitting the pillow at night and waking up in the morning. Your sleep goes in cycles throughout the night, moving back and forth between deep restorative sleep and more alert stages with dreaming. As the night progresses, you spend more time in a lighter dream sleep.

E. Sleep patterns can be broken down into two separate and distinct stages – REM and NREM sleep, REM (Rapid Eye Movement) sleep is when you dream. You usually have 3 to 5 periods of REM sleep each night, lasting from 5 minutes to over an hour, during which time your body's activities increase. Breathing becomes fast, shallow and uneven, with an increase in brain activity, heartbeat and blood pressure. Although your major muscles generally don't move, fingers and toes may twitch and body temperature changes and you may sweat or shiver.

F. Research has concluded that this sleep is most important for your brain. It is when it is most active, processing emotions and memories and relieving stress. The areas used for learning and developing more skills are activated. In fact, the brain waves measured during REM sleep are similar to those measured when awake.
G. NREM (Noil-Rapid Eye Movement) sleep is dreamless sleep. NREM sleep consists of four stages of deeper and deeper sleep. As you move through the stages, you become more relaxed, less aware of what is happening around you and more difficult to wake. Your body's activity will also decrease as you move through the NREM stages, acting in the opposite manner to REM sleep. Stage 1 of NREM sleep is when you are falling to sleep. This period generally lasts between 5 and 10 minutes, during which time you can be woken easily. During stage 2, you are in a light sleep- the in-between stage before your fall into a deep sleep. It lasts about 20 minutes. In stage 3, deep sleep begins, paving the way for stage 4, in which you are difficult to awake and unaware of anything around you. This is when sleep walking and talking can occur. This is the most important stage for your body. Your brain has slowed right down and is recovering. Blood flow is redirected from your brain to your large muscles allowing them to mend any damage from your day at work. People woken quickly from stage 4 sleep often feel a sense of disorientation, which is why it is helpful to use an alarm clock with an ascending ring.
H. About an hour and a half into your sleep cycle you will go from deep Stage 4 sleep back into light Stage 2 sleep, then into REM sleep, before the cycle begins again. About 75% of your sleep is NREM sleep. If you sleep for eight hours, about six of them will be NREM sleep. As the night progresses, you spend more time in dream sleep and lighter sleep.
I. When you constantly get less sleep (even 1 hour less) than you need each night, it is called sleep debt. You may pay for it in daytime drowsiness, trouble concentrating, moodiness, lower productivity and increased risk of falls and accidents. Although a daytime nap cannot replace a good night's sleep, it can help make up for some of the harm done as a result of sleep debt. But avoid taking a nap after 3 pm as late naps may stop you getting to sleep at night. And avoid napping for longer than 30 minutes as longer naps will make it harder to wake up and get back into the swing of things.

PASSAGE 2: QUESTIONS 13-27

Questions 13-16

Do the following statements agree with the information, given in the reading passage?
In boxes 13-16 on your answer sheet write

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

13 [ ] It was previously believed that biological processes slowed during sleep.

14 [ ] Teenagers lose less sleep than adults when they have a medical condition.

15 [ ] During the night, our sleep becomes increasingly deep.

16 [ ] Lack of sleep can cause heart problems and other medical conditions.

Questions 17-20

Complete the sentences below using NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer,
Write your answers in boxes 17–20 on your answer sheet.

REM sleep can help reduce 17 [ ]

During REM sleep, 18 [ ] are similar to those recorded whilst awake.
During Stage 1 NREM sleep, you can be 19 [ ] with little effort.
Suddenly being woken from deep sleep can cause 20 [ ]

Questions 21-22

Choose TWO letters, A-E.
Write your answers in boxes 21-22.
NB Your answers may be given in either order.
REM sleep

A [ ] is more common for younger people.

B [ ] is when we dream.

C [ ] may cause your extremities to move of their own accord.

D [ ] lasts about an hour a night.

E [ ] is when the brain is most relaxed.

Questions 23-27

The reading passage has nine paragraphs, A-I.
Which paragraph contains the following information?
Write the correct letter A-I in boxes 23-27.

23 Differences in sleep patterns between generations

24 Brain activity is limited as resources are diverted

25 Repetition of the cycle

26 Dangers of accumulated lack of sleep

27 Increased activity during sleep

READING PASSAGE 3

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

Constellation

A. A constellation is a group of stars which when viewed collectively appear to have a physical proximity' in the sky. Constellation boundaries and definitions as used today in Western culture, and as defined by the International Astronomical Union (IAU), were formalised in 1930 by Eugene Delporte. There are 88 official constellations as recognised by the IAU, those visible in the northern hemisphere being based upon those established by the ancient Greeks, The constellations of the southern hemisphere – since invisible to the Greeks due to geographical location – were not defined until later in the early modem era.

B. Arguably, the twelve constellations through which the sun passes – as used to represent the signs of the zodiac to define birth characteristics – are the most culturally significant and well known of those established by the ancient Greeks. Cultural differences in Interpretation and definition of star constellations mainly relate to these zodiac interpretations, Chinese constellations, for example, which are different to those defined in the western world due to the independent development of ancient Chinese astronomy, includes 28 'Xiu' or 'mansions' instead of the 12 western zodiac counterparts. In Hindu/Vedic astronomy, in which constellations are known as 'rashis', 12 rashi corresponding directly to the twelve western star signs are acknowledged; these are however, divided again into 27 'Nakshatras' or 'lunar houses'. Many cultures have an intricate mythology behind the stars and their constellations. In Greek mythology, for example Pegasus, the winged horse, is said to have sprung from the decapitated head of Medusa, and later was used by the God King Zeus to carry thunder and lightning to Earth, before being put into a constellation.

C. In Western astronomy, all modern constellation names derive from Latin, some stars within the constellations are named using the genitive form of the Latin word by using the usual rules of Latin grammar. For example the zodiac sign for the Fish constellation Pisces relates to Piscium. In addition, all constellation names have a standard three-letter abbreviation as assigned by the IAU, under which, for example, Pisces becomes PSC.

D. Some star patterns often wrongly considered constellations by laymen are actually 'asterisms' – a group of stars that appear to form patterns in the sky -and are not in fact one of the 88 officially divided areas truly defined as a constellation. A famous example of an asterism oft mistaken for a constellation is the Big Dipper' (as it is termed in North America) or the 'Plough' as it is known in the UK. In astronomical terms, this famous star formation is in fact considered only part of the larger constellation known as Ursa Major.

E. In order to identify the position of stars relative to the Earth, there are a number of different celestial coordinate systems that cart provide a detailed reference point in space. There are many different systems, all of which are largely similar with the exception of a difference in the position of the fundamental plane – the division between northern and southern hemispheres. The five most common celestial systems are the Horizontal system, the Equatorial system, the Ecliptical system, the Galactic system and the Supergalactic system.

F. The launch of the Hubble space telescope in April 1990 changed the way that astronomers saw the universe, providing detailed digital images of constellations, planets and gas- clouds that had never been seen before. Compared to ground-based telescopes, Hubble is not particularly large. With a primary mirror diameter of 2.4 meters (94.5 inches). Hubble would be considered a medium-size telescope on the ground. However, the combination of its precision optics, state-of-the-art instrumentation, and unprecedented pointing stability and control, allows Hubble to more than make up for its lack of size, giving it a range of well over 12 billion light years.

G. The telescope's location above the Earth's atmosphere also has a number of significant advantages over land based telescopes. The atmosphere bends light due to a phenomenon known as diffraction (this is what causes starlight to appear to twinkle and leads to the often blurred images seen through ground-based telescopes). The Hubble Space Telescope can also observe infrared light that would otherwise be blocked by the atmosphere as the wavelength (distance between successive wave crests) of ultraviolet light is shorter than that of visible light.

H. Despite early setbacks – one of the reflective mirrors had to be replaced after finding that it had been ground incorrectly and did not produce the images expected – the telescope has reignited interest in space amongst the general public – a requirement, given that taxpayer funding paid for the research, deployment and maintenance of the telescope.

PASSAGE 3: QUESTIONS 28-40

Questions 28-35

Reading Passage 1 has eight paragraphs A-H.
Choose the correct heading for paragraphs A-H from the list of headings below.
Write the correct number i-xii in boxes 28-35.

	List of Headings
i	Different methods of locating and identifying
ii	A better view of the constellations
iii	Technological advances in research and development
iv	Atmospheric weaknesses of telescopes in orbit
v	Different interpretations of star groupings
vi	Common misconceptions
vii	Bypassing terrestrial limitations
viii	Renewed interest in the stars
ix	Ethnic differences in celestial mapping
x	Formal marking of constellations
xi	Universal myths of constellations
xii	Historical and modern reference

28 [ ] Paragraph A
29 [ ] Paragraph B
30 [ ] Paragraph C
31 [ ] Paragraph D
32 [ ] Paragraph E
33 [ ] Paragraph F
34 [ ] Paragraph G
35 [ ] Paragraph H

Questions 36-40

Complete the summary below using NO MORE THAN TWO WORDS.
Write the correct answers in boxes 36-40.

Despite an initial flaw in a 36 [ ] , the Hubble space telescope is superior to telescopes on land as it can identify 37 [ ] which would not normally reach the Earth's surface.
This is all the more impressive given that Hubble is only classified as a 38 [ ] telescope.
Being above the atmosphere, it also has the advantages of not being affected by 39 [ ] , which would otherwise lead to 40 [ ] images.

TEST READING Answer Keys:

1 Andrew Waugh
2 Tibet
3 Andrew Irvine's body
4 A photograph
5 Tenzing Norgay
6 Himalayan Trust
7 FALSE
8 FALSE
9 TRUE
10 TRUE
11 NOT GIVEN
12 FALSE
13 TRUE
14 NOT GIVEN
15 FALSE
16 FALSE
17 Stress
18 Brain waves
19 (easily) woken
20 Disorientation
21 22 B,C
23 C
24 G
25 H
26 I
27 E
28 x
29 v
30 xii
31 vi
32 i
33 ii
34 vii
35 viii
36 (reflective) mirror
37 Infrared light
38 Medium sized
39 Diffraction
40 Blurred

Vocab

Reading- Mount Everest and Hillary

1. Expeditions- a journey undertaken by a group
2. Attributed- regarding something as being caused by
3. Myth- folk tale, story
4. Apnoea- breathing problems specially during sleep
5. Restorative- heaving the ability to restore
6. Disorientation- losing sense of direction
7. Drowsiness- sleepiness
8. Accord- grant, give
9. Extremities- limit
10. Diverted- redirect, transfer
11. Accumulated- gather
12. Interpretation- explanation
13. Terrestrial- earthly
14. Reignited- cause to start again

TEST READING
READING PASSAGE 1
You should spend about **20 minutes on Questions 1 – 13**, which are based on **Reading Passage 1 below.**
Astronaut ice cream, anyone?
Breeze-drying is a technique that can help to provide food for astronauts. But it also has other applications nearer home. Freeze-drying is like suspended animation for food: you can store a freeze-dried meal for years, and then, when you're finally ready to eat it. you can completely revitalise it with a little hot water. Even after several years, the original foodstuff will be virtually unchanged.
The technique basically involves completely removing the water from some material, such as food while leaving the rest of the material virtually intact. The main reason for doing this is either to preserve the food or to reduce its weight. Removing the water from food keeps it from spoiling, because the microorganisms such as bacteria that cause spoiling cannot survive without it. Similarly, the enzymes which occur naturally in food cannot cause ripening without water, so removing water from food will also stop the ripening process.
Freeze-drying significantly reduces the total weight of the food because most food is largely made up of water; for example, many fruits are more than 80 00% water. Removing this makes the food much lighter and therefore makes transportation less difficult. The military and camping-supply companies freeze-dry foods to make them easier for an individual to carry and NASA has also freeze-dried foods for the cramped quarters on board spacecraft.
The process is also used to preserve other sorts of material, such as pharmaceuticals. Chemists can greatly extend pharmaceutical shelf life by freeze-drying the material and storing it in a container free of oxygen and water. Similarly, research scientists may use freeze-drying to preserve biological samples for long periods of time. Even valuable manuscripts that had been water damaged have been saved by using this process.
Freeze-drying is different from simple drying because it is able to remove almost all the water from materials, whereas simple drying techniques can only remove 90-95%. This means that the damage caused by bacteria and enzymes can virtually be stopped rather than just slowed down. In addition, the composition and structure of the material is not significantly changed, so materials can be revitalised without compromising the quality of the original.
This is possible because in freeze-drying, solid water - ice - is converted directly into water vapour, missing out the liquid phase entirely. This is called 'sublimation', the shift from a solid directly into a gas. Just like evaporation, sublimation occurs when a molecule gains enough energy to break free from the molecules around it. Water will sublime from a solid (ice) to a gas (vapour) when the molecules have enough energy to break free but the conditions aren't right for a liquid to form. These conditions arc determined by heat and atmospheric pressure. When the temperature is above freezing point, so that ice can thaw, but the atmospheric pressure is too low for a liquid to form (below 0.06 atmospheres (ATM)) then it becomes a gas.
This is the principle on which a freeze-drying machine is based. The material to be preserved is placed in a freeze-drying chamber which is connected to a freezing coil and refrigerator compressor. When the chamber is sealed the compressor lowers the temperature inside it. I he material is frozen solid, which separates the water from everything around it on a molecular level, even though the water is still present. Next, a vacuum pump forces air out of the chamber, lowering the atmospheric pressure below to 0.06 ATM. The heating units apply a small amount of heat to the shelves in the chamber, causing the ice to change phase. Since the pressure in the chamber is so low, the ice turns directly into water vapour, which leaves the freeze-drying chamber, and flows past the freezing coil. The water vapour condenses onto the freezing coil in the form of solid ice, in the same way that water condenses as frost on a cold day.
The process continues for many hours (even days) while the material gradually dries out. This time is necessary to avoid overheating, which might affect the structure of the material. Once it has dried sufficiently, it is sealed in a moisture-free package. As long as the package is secure, the material can sit on a shelf for years and years without degrading, until it is restored to its original form with a little hot water. If everything works correctly, the material will go through the entire process almost completely unscathed.
In fact, freeze-drying, as a general concept, is not new but has been around for centuries. The ancient Incas of Peru used mountain peaks along the Andes as natural food preservers. The extremely cold temperatures and low pressure at those high altitudes prevented food from spoiling in the same basic way as a modern freeze-drying machine and a freezer.

PASSAGE 1: QUESTIONS 1-13

Questions 1-5

Complete the notes below.
Choose NO MORE THAN THREE WORDS from the passage for each answer.
Write your answers in boxes 1-5 on your answer sheet.

Uses of freeze-drying:

food preservation

easy 1 _____ of food items

long-term storage of 2 _____ and biological samples

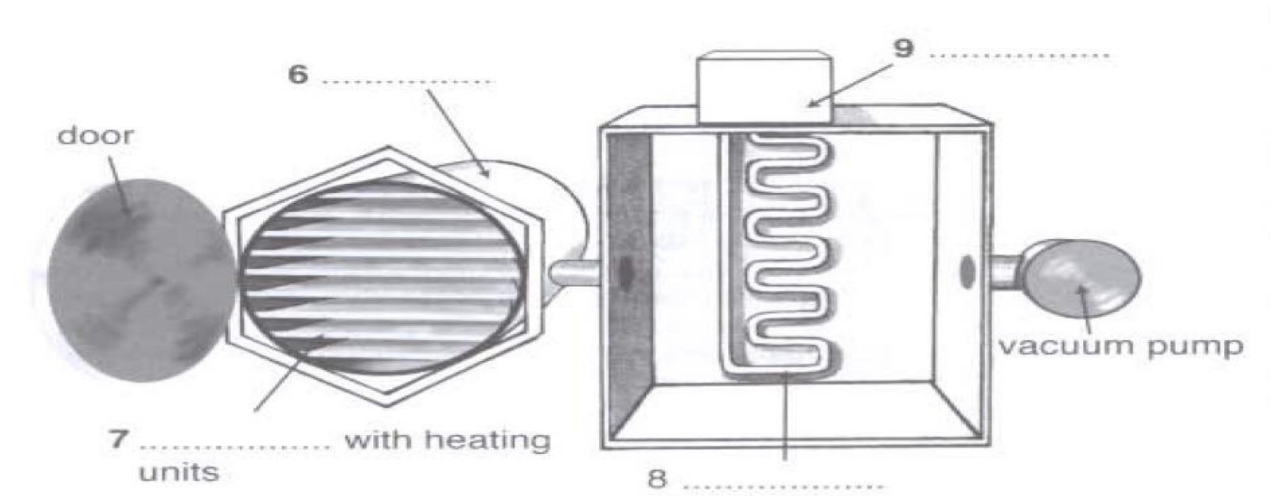
preservation of precious 3 _____

Freeze-drying

is based on process of 4 _____ is more efficient than 5 _____

Questions 6-9

Label the diagram below.
Choose NO MORE THAN TWO WORDS from the passage for each answer.
Write your answers in boxes 6-9 on your answer sheet.



A simplified freeze-drying machine

6 _____ 7 _____ 8 _____ 9.....

Questions 10-13

Complete the summary below.
Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.
Write your answers in boxes 10-13 on your answer sheet.

Freeze-drying prevents food from going bad by stopping the activity of microorganisms or 10 _____ Its advantages are that the food tastes and feels the same as the original because both the 11 _____ and structure are preserved. The process is carried out slowly in order to ensure that 12 _____ does not take place. The people of one ancient mountain civilisation were able to use this method of food preservation because the conditions needed were present at 13 _____.

READING PASSAGE 2

You should spend about **20 minutes on Questions 14 – 26,** which are based on **Reading Passage 1 below.**

THE WILD SIDE OF TOWN

The countryside is no longer the place to see wildlife, according to Chris Barnes. These days you are more likely to find impressive numbers of skylarks, dragonflies and toads in your own back garden.

The past half century has seen an interesting reversal in the fortunes of much of Britain's wildlife. Whilst the rural countryside has become poorer and poorer, wildlife habitat in towns has burgeoned. Now, if you want to hear a deafening dawn chorus of birds or familiarise yourself with foxes, you can head for the urban forest.

Whilst species that depend on wide open spaces such as the hare, the eagle and the red deer may still be restricted to remote rural landscapes, many of our wild plants and animals find the urban ecosystem ideal. This really should be no surprise, since it is the fragmentation and agrochemical pollution in the farming lowlands that has led to the catastrophic decline of so many species.

By contrast, most urban open spaces have escaped the worst of the pesticide revolution, and they are an intimate mosaic of interconnected habitats. Over the years, the cutting down of hedgerows on farmland has contributed to habitat isolation and species loss. In towns, the tangle of canals, railway embankments, road verges and boundary hedges lace the landscape together, providing first-class ecological corridors for species such as hedgehogs, kingfishers and dragonflies.

Urban parks and formal recreation grounds are valuable for some species, and many of them are increasingly managed with wildlife in mind. But in many places their significance is eclipsed by the huge legacy of post-industrial land demolished factories, waste tips, quarries, redundant railway yards and other so-called 'brownfield' sites. In Merseyside, South Yorkshire and the West Midlands, much of this has been spectacularly colonised with birch and willow woodland, herb-rich grassland and shallow wetlands. As a consequence, there are song birds and predators in abundance over these once-industrial landscapes.

There are fifteen million domestic gardens in the UK. and whilst some are still managed as lifeless chemical war zones, most benefit the local wildlife, either through benign neglect or positive encouragement. Those that do best tend to be woodland species, and the garden lawns and flower borders, climber-covered fences, shrubberies and fruit trees are a plausible alternative. Indeed, in some respects gardens are rather better than the real thing, especially with exotic flowers extending the nectar season. Birdfeeders can also supplement the natural seed supply, and only the millions of domestic cats may spoil the scene.

As Britain's gardeners have embraced the idea of 'gardening with nature', wildlife's response has been spectacular. Between 1990 and the year 2000. the number of different bird species seen at artificial feeders in gardens increased from 17 to an amazing 81. The BUGS project (Biodiversity in Urban Gardens in Sheffield) calculates that there are 25.000 garden ponds and 100.000 nest boxes in that one city alone.

We are at last acknowledging that the wildlife habitat in towns provides a valuable life support system. The canopy of the urban forest is filtering air pollution, and intercepting rainstorms, allowing the water to drip more gradually to the ground. Sustainable urban drainage relies on ponds and wetlands to contain storm water runoff, thus reducing the risk of flooding, whilst reed beds and other wetland wildlife communities also help to clean up the water. We now have scientific proof that contact with wildlife close to home can help to reduce stress and anger. Hospital patients with a view of natural green space make a more rapid recovery and suffer less pain.

Traditionally, nature conservation in the UK has been seen as marginal and largely rural. Now we are beginning to place it at the heart of urban environmental and economic policy. There are now dozens of schemes to create new habitats and restore old ones in and around our big cities. Biodiversity is big in parts of London. thanks to schemes such as the London Wetland Centre in the south west of the city.

This is a unique scheme masterminded by the Wildfowl and Wetlands Trust to create a wildlife reserve out of a redundant Victorian reservoir. Within five years of its creation the Centre has been hailed as one of the top sites for nature in England and made a Site of Special Scientific Interest. It consists of a 105-acre wetland site, which is made up of different wetland habitats of shallow, open water and grazing marsh. The site attracts more than 104 species of bird, including nationally important rarities like the bittern.

We need to remember that if we work with wildlife, then wildlife will work for us and this is the very essence of sustainable development.

PASSAGE 2: QUESTIONS 14-26

Questions 14-19

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

In boxes 14-19 on your answer sheet write

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

14 [ ] There is now more wildlife in UK cities than in the countryside.

15 [ ] Rural wildlife has been reduced by the use of pesticides on farms.

16 [ ] In the past, hedges on farms used to link up different habitats.

17 [ ] New urban environments are planned to provide ecological corridors for wildlife.

18 [ ] Public parks and gardens are being expanded to encourage wildlife.

19 [ ] Old industrial wastelands have damaged wildlife habitats in urban areas.

Questions 20-23

Answer the questions below, using NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.

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

Which type of wildlife benefits most from urban gardens? 20 [ ]

What type of garden plants can benefit birds and insects? 21 [ ]

What represents a threat to wildlife in urban gardens? 22 [ ]

At the last count, how many species of bird were spotted in urban gardens? 23 [ ]

Question 24-26

Choose THREE letters A-G.

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

In which THREE ways can wildlife habitats benefit people living in urban areas?

A [ ] They can make the cities greener.

B [ ] They can improve the climate.

C [ ] They can promote human well-being.

D [ ] They can extend the flowering season.

E [ ] They can absorb excess water.

F [ ] They can attract wildlife.

G [ ] They can help clean the urban atmosphere

Question 27

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

Write your answer in box 27 on your answer sheet.

27 The writer believes that sustainable development is dependent on

A [ ] urban economic policy.

B [ ] large restoration schemes.

C [ ] active nature conservation.

D [ ] government projects.

READING PASSAGE 3

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

Running on empty

A revolutionary new theory in sports physiology.

A For almost a century, scientists have presumed, not unreasonably, that fatigue - or exhaustion in athletes originates in the muscles. Precise explanations have varied but all have been based on the 'limitations theory'. In other words, muscles tire because they hit a physical limit: they either run out of fuel or oxygen or they drown in toxic by-products.

B In the past few years, however, Timothy Noakes and Alan St Clair Gibson from the University of Cape Town, South Africa, have examined this standard theory. The deeper they dig, the more convinced they have become that physical fatigue simply isn't the same as a car running out of petrol. Fatigue, they argue, is caused not by distress signals springing from overtaxed muscles, but is an emotional response which begins in the brain. The essence of their new theory is that the brain, using a mix of physiological, subconscious and conscious cues, paces the muscles to keep them well back from the brink of exhaustion. When the brain decides its time to quit, it creates the distressing sensations we interpret as unbearable muscle fatigue. This 'central governor* theory remains controversial, but it does explain many puzzling aspects of athletic **performance.**

C A recent discovery that Noakes calls the 'lactic acid paradox' made him start researching this area seriously. Lactic acid is a by-product of exercise, and its accumulation is often cited as a cause of fatigue. But when research subjects exercise in

conditions simulating high altitude, they become fatigued even though lactic acid levels remain low. Nor has the oxygen content of their blood fallen too low for them to keep going. Obviously, Noakes deduced, something else was making them tire before they hit either of these physiological limits.

D Probing further, Noakes conducted an experiment with seven cyclists who had sensors taped to their legs to measure the nerve impulses travelling through their muscles. It has long been known that during exercise, the body never uses 100% of the available muscle fibres in a single contraction. The amount used varies, but in endurance tasks such as this cycling test the body calls on about 30%.

E Noakes reasoned that if the limitations theory was correct and fatigue was due to muscle fibres hitting some limit, the number of fibres used for each pedal stroke should increase as the fibres tired and the cyclist's body attempted to compensate by recruiting an ever-larger proportion of the total. But his team found exactly the opposite. As fatigue set in, the electrical activity in the cyclists' legs declined - even during sprinting, when they were striving to cycle as fast as they could.

F To Noakes, this was strong evidence that the old theory was wrong. 'The cyclists may have felt completely exhausted,' he says, 'but their bodies actually had considerable reserves that they could theoretically tap by using a greater proportion of the resting fibres.' This, he believes, is proof that the brain is regulating the pace of the workout to hold the cyclists well back from the point of catastrophic exhaustion.

G More evidence comes from the fact that fatigued muscles don't actually run out of anything critical. Levels of glycogen, which is the muscles' primary fuel, and ATP. the chemical they use for temporary energy storage, decline with exercise but never bottom out. Even at the end of a marathon, ATP levels are 80-90% of the resting norm, and glycogen levels never get to zero.

H Further support for the central regulator comes from the fact that top athletes usually manage to go their fastest at the end of a race, even though, theoretically, that's when their muscles should be closest to exhaustion. But Noakes believes the end spurt makes no sense if fatigue is caused by muscles poisoning themselves with lactic acid as this would cause racers to slow down rather than enable them to sprint for the finish line. In the new theory, the explanation is obvious. Knowing the end is near, the brain slightly relaxes its vigil, allowing the athlete to tap some of the body's carefully hoarded reserves.

I But the central governor theory does not mean that what's happening in the muscles is irrelevant. The governor constantly monitors physiological signals from the muscles, along with other information, to set the level of fatigue. A large number of signals are probably involved but, unlike the limitations theory, the central governor theory suggests that these physiological factors are not the direct determinants of fatigue, but simply information to take into account.

J Conscious factors can also intervene. Noakes believes that the central regulator evaluates the planned workout, and sets a pacing strategy accordingly. Experienced runners know that if they set out on a 10-kilometre run. the first kilometre feels easier than the first kilometre of a 5-kilometre run, even though there should be no difference. That, Noakes says, is because the central governor knows you have farther to go in the longer run and has programmed itself to dole out fatigue symptoms accordingly.

K St Clair Gibson believes there is a good reason why our bodies arc designed to keep something back. That way, there's always something left in the tank for an emergency. In ancient times, and still today, life would be too dangerous if our bodies allowed us to become so tired that we couldn't move quickly when faced with an unexpected need.

PASSAGE 3: QUESTIONS 27-40

Questions 28-33

Reading Passage 3 has eleven paragraphs A-K.
Choose the correct heading for Paragraphs A-F from the list of headings below.
Write the correct number (i-viii) in boxes 28-33 on your answer sheet.

i	Avoiding tiredness in athletes
ii	Puzzling evidence raises a question
iii	Traditional explanations
iv	Interpreting the findings
v	Developing muscle fibres
vi	A new hypothesis
vii	Description of a new test
viii	Surprising results in an endurance test

28 [ ] Paragraph A
29 [ ] Paragraph B
30 [ ] Paragraph C
31 [ ] Paragraph D
32 [ ] Paragraph E
33 [ ] Paragraph F

Questions 34-40

Classify the following ideas as relating to
Write the correct letter A, B or C in boxes 34-40 on your answer sheet.
NB: You may use any letter more than once.

A. the Limitations Theory
B. the Central Governor Theory
C. both the Limitations Theory and the Central Governor Theory

34 [ ] Lactic acid is produced in muscles during exercise.
35 [ ] Athletes can keep going until they use up all their available resources.
36 [ ] Mental processes control the symptoms of tiredness.
37 [ ] The physiological signals from an athlete's muscles are linked to fatigue.
38 [ ] The brain plans and regulates muscle performance in advance of a run.
39 [ ] Athletes' performance during a race may be affected by lactic acid build-up.
40 [ ] Humans are genetically programmed to keep some energy reserves.

TEST READING Answer Keys:

1 transportation
2 pharmaceuticals
3 manuscripts
4 sublimation
5 simple drying (techniques)
6 (freeze-drying) chamber
7 shelves
8 freezing coil
9 (refrigerator) compressor
10 enzymes
11 composition
12 overheating
13 high altitudes
14 NOT GIVEN
15 TRUE
16 TRUE
17 NOT GIVEN
18 NOT GIVEN
19 FALSE
20 woodland species
21 exotic flowers
22 (domestic) cats
23 81
24 26 C,E,G
27 C
28 iii
29 vi
30 ii
31 vii
32 viii
33 iv
34 C
35 A
36 B
37 C
38 B
39 A
40 B

Vocab

Reading- Astronaut ice cream, anyone

1. Revitalise- re-energise
2. Virtually- effectively
3. Unscathed- unhurt, safe
4. Burgeoned-expand
5. Agrochemical- a chemical used in agriculture like pesticides
6. Catastrophic- tragic
7. Controversial- arguable
8. Exhaustion- emission
9. Genetically- related to games
10. Endurance- to tolerate

TEST READING

READING PASSAGE 1

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

Sport Science in Australia

The professional career paths available to graduates from courses relating to human movement and sport science are as diverse as the graduate's imagination. However, undergraduate courses with this type of content, in Australia as well as in most other Western countries, were originally designed as preparation programmes for Physical Education (PE) teachers. The initial programmes commenced soon after the conclusion of World War II in the mid-1940s. One of the primary motives for these initiatives was the fact that, during the war effort, so many of the men who were assessed for military duty had been declared unfit. The government saw the solution in the providing of Physical Education programmes in schools, delivered by better prepared and specifically educated PE teachers.

Later, in the 1970s and early 1980s, the surplus of Australians graduating with a PE degree obliged institutions delivering this qualification to identify new employment opportunities for their graduates, resulting in the first appearance of degrees catering for recreation professionals. In many instances, this diversity of programme delivery merely led to degrees, delivered by physical educators, as a sideline activity to the production of PE teachers.

Whilst the need to produce Physical Education teachers remains a significant social need, and most developed societies demand the availability of quality leisure programmes for their citizens, the career options of graduates within this domain are still developing. The two most evident growth domains are in the area of the professional delivery of sport, and the role of a physical lifestyle for community health.

The sports industry is developing at an unprecedented rate of growth. From a business perspective, sport is now seen as an area with the potential for high returns. It is quite significant that the businessman Rupert Murdoch broadened his business base from media to sport, having purchased an American baseball team and an Australian Rugby League competition, as well as seeking opportunities to invest in an English football club. No business person of such international stature would see fit to invest in sport unless he was satisfied that this was a sound business venture with ideal revenue-generating opportunities.

These developments have confirmed sport as a business with professional management structures, marketing processes, and development strategies in place. They have indicated new and developing career paths for graduates of human movement science, sport science, exercise science and related degrees. Graduates can now visualise career paths extending into such diverse domains as sport management, sport marketing, event and facility management, government policy development pertaining to sport, sport journalism, sport psychology, and sport or athletic coaching.

Business leaders will only continue their enthusiasm for sport if they receive returns for their money. Such returns will only be forthcoming if astute, enthusiastic and properly educated professionals are delivering the programs that earn appropriate financial returns. The successful universities of the 21st century will be those that have responded to this challenge by delivering such degrees.

A second professional growth area for this group of graduates is associated with community health. The increasing demand for government expenditure within health budgets is reaching the stage where most governments are simply unable to function in a manner that is satisfying their constituents. One of the primary reasons for this problem is the unhelpful emphasis on treatment in medical care programmes. Governments have traditionally given their senior health official the title of 'Minister for Health', when in fact this officer has functioned as 'Minister for Sickness and the Construction of Hospitals'. Government focus simply has to change. If the change is not brought about for philosophical reasons, it will occur naturally, because insufficient funding will be available to address the ever-increasing costs of medical support.

Graduates of human movement, exercise science and sport science have the potential to become major players in this shift in policy focus. It is these graduates who already have the skills, knowledge and understanding to initiate community health education programmes to reduce cardio-vascular disease, to reduce medical dependency upon diabetes, to improve workplace health leading to increased productivity, to initiate and promote programmes of activity for the elderly that reduce medical dependency, and to maintain an active lifestyle for the unemployed and disadvantaged groups in society. This is the graduate that governments will be calling upon to shift the community focus from medical dependency to healthy lifestyles in the decades ahead.

The career paths of these graduates are developing at a pace that is not evident in other professions. The contribution that these graduates can make to society, and the recognition of this contribution is at an unprecedented high, and all indications are that it will continue to grow.

PASSAGE 1: QUESTIONS 1-13

Questions 1-5

Complete the flow chart below.
Choose NO MORE THAN TWO WORDS from the passage for each answer.

The history of sports and physical science in Australia

A lot of people identified as being 1 [ ]

↓

Introduction of PE to 2 [ ]

↓

Special training programmes for 3 [ ]

↓

4 [ ] of PE graduates

↓

Identification of alternative 5 [ ]

↓

Diversification of course delivery

Questions 6-13

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

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

6 [ ] Sport is generally regarded as a profitable area for investment.

7 [ ] Rupert Murdoch has a personal as well as a business interest in sport.

8 [ ] The range of career opportunities available to sport graduates is increasing.

9 [ ] The interests of business and the interests of universities are linked.

10 [ ] Governments have been focusing too much attention on preventative medicine.

11 [ ] It is inevitable that government priorities for health spending will change.

12 [ ] Existing degree courses are unsuitable for careers in community health.

13 [ ] Funding for sport science and related degrees has been increased considerably.

READING PASSAGE 2

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

An assessment of micro-wind turbines

A In terms of micro-renewable energy sources suitable for private use, a 15-kilowatt (kW) turbine is at the biggest end of the spectrum. With a nine metre diameter and a pole as high as a four-storey house, this is the most efficient form of wind microturbine, and the sort of thing you could install only if you had plenty of space and money. According to one estimate, a 15-kW micro-turbine (that's one with the maximum output), costing £41,000 to purchase and a further £9,000 to install, is capable of delivering 25,000 kilowatt-hours (kWh)' of electricity each year if placed on a suitably windy site.

B I don't know of any credible studies of the greenhouse gas emissions involved in producing and installing turbines, so my estimates here are going to be even more broad than usual. However, it is worth trying. If turbine manufacture is about as carbon intensive per pound sterling of product as other generators and electrical motors, which seems a reasonable assumption, the carbon intensity of manufacture will be around 640 kilograms (kg) per £1,000 of value. Installation is probably about as carbon intensive as typical construction, at around 380 kg per £1,000. That makes the carbon footprint (the total amount of greenhouse gases that installing a turbine creates) 30 tonnes.

C The carbon savings from wind-powered electricity generation depend on the carbon intensity of the electricity that you're replacing. Let's assume that your generation replaces the coal-fuelled part of the country's energy mix. In other words, if you live in the UK, let's say that rather than replacing typical grid electricity, which comes from a mix of coal, gas, oil and renewable energy sources, the effect of your turbine is to reduce the use of coal-fired power stations. That's reasonable, because coal is the least preferable source in the electricity mix. In this case the carbon saving is roughly one kilogram per kWh, so you save 25 tonnes per year and pay back the embodied carbon in just 14 months - a great start.

D The UK government has recently introduced a subsidy for renewable energy that pays individual producers 24p per energy unit on top of all the money they save on their own fuel bill, and on selling surplus electricity back to the grid at approximately 5p per unit. With all this taken into account, individuals would get back £7,250 per year on their investment. That pays back the costs in about six years. It makes good financial sense and, for people who care about the carbon savings for their own sake, it looks like a fantastic move. The carbon investment pays back in just over a year, and every year after that is a 25-tonne carbon saving. (It's important to remember that all these sums rely on a wind turbine having a favourable location)

E So, at face value, the turbine looks like a great idea environmentally, and a fairly good long-term investment economically for the person installing it. However, there is a crucial perspective missing from the analysis so far. Has the government spent its money wisely? It has invested 24p per unit into each micro-turbine. That works out at a massive £250 per tonne of carbon saved. My calculations tell me that had the government invested its money in offshore wind farms, instead of subsidising smaller domestic turbines, they would have broken even after eight years. In other words, the micro-turbine works out as a good investment for individuals, but only because the government spends, and arguably wastes, so much money subsidising it. Carbon savings are far lower too.

F Nevertheless, although the micro-wind turbine subsidy doesn't look like the very best way of spending government resources on climate change mitigation, we are talking about investing only about 0.075 percent per year of the nation's GDP to get a one percent reduction in carbon emissions, which is a worthwhile benefit. In other words, it could be much better, but it could be worse. In addition, such investment helps to promote and sustain developing technology.

G There is one extra favourable way of looking at the micro-wind turbine, even if it is not the single best way of investing money in cutting carbon. Input- output modelling has told us that it is actually quite difficult to spend money without having a negative carbon impact. So if the subsidy encourages people to spend their money on a carbon-reducing technology such as a wind turbine, rather than on carbon-producing goods like cars, and services such as overseas holidays, then the reductions in emissions will be greater than my simple sums above have suggested.

PASSAGE 2: QUESTIONS 14-26

Questions 14-20

Reading Passage 2 has SEVEN paragraphs, A-G.
Choose the correct heading for each paragraph from the list of headings below.
Write the correct number, i-ix.

List of Headings

i A better use for large sums of money.
ii The environmental costs of manufacture and installation.
iii Estimates of the number of micro-turbines in use.
iv The environmental benefits of running a micro-turbine.
v The size and output of the largest type of micro-turbine.
vi A limited case for subsidising micro-turbines.
vii Recent improvements in the design of micro-turbines.
viii An indirect method of reducing carbon emissions.
ix The financial benefits of running a micro-turbine.

14 [ ] Paragraph A
15 [ ] Paragraph B
16 [ ] Paragraph C
17 [ ] Paragraph D
18 [ ] Paragraph E
19 [ ] Paragraph F
20 [ ] Paragraph G

Questions 21-22
Choose TWO letters, A-E.
The list below contains some possible statements about micro wind-turbines.
Which TWO of these statements are made by the writer of the passage?

A ☐ In certain areas, permission is required to install them.

B ☐ Their exact energy output depends on their position.

C ☐ They probably take less energy to make than other engines.

D ☐ The UK government contributes towards their purchase cost.

E ☐ They can produce more energy than a household needs.

Questions 23-26
Complete the sentences below.
Choose NO MORE THAN THREE WORDS from the passage for each answer.

23 _____ would be a more effective target for government investment than micro-turbines.

An indirect benefit of subsidising micro-turbines is the support it provides for 24 _____

Most spending has a 25 _____ effect on the environment.

If people buy a micro-turbine, they have less money to spend on things like foreign holidays and 26

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

Pottery production in ancient Akrotiri

Excavations at the site of prehistoric Akrotiri, on the coast of the Aegean Sea, have revealed much about the technical aspects of pottery manufacture, indisputably one of the basic industries of this Greek city. However, considerably less is known about the socio-economic context and the way production was organised.

The bulk of pottery found at Akrotiri is locally made, and dates from the late fifteenth century BC. It clearly fulfilled a vast range of the settlement's requirements: more than fifty different types of pots can be distinguished. The pottery found includes a wide variety of functional types like storage jars, smaller containers, pouring vessels, cooking pots, drinking vessels and so on, which all relate to specific activities and which would have been made and distributed with those activities in mind. Given the large number of shapes produced and the relatively high degree of standardisation, it has generally been assumed that most, if not all, of Akrotiri pottery was produced by specialised craftsmen in a nondomestic context. Unfortunately neither the potters' workshops nor kilns have been found within the excavated area. The reason may be that the ceramic workshops were located on the periphery of the site, which has not yet been excavated. In any event, the ubiquity of the pottery, and the consistent repetition of the same types in different sizes, suggests production on an industrial scale.

The Akrotirian potters seem to have responded to pressures beyond their households, namely to the increasing complexity of regional distribution and exchange systems. We can imagine them as fulltime craftsmen working permanently in a high production-rate craft such as pottery manufacture, and supporting themselves entirely from the proceeds of their craft. In view of the above, one can begin to speak in terms of mass-produced pottery and the existence of organised workshops of craftsmen during the period 1550-1500 BC. Yet, how pottery production was organised at Akrotiri remains an open question, as there is no real documentary evidence. Our entire knowledge comes from the ceramic material itself, and the tentative conclusions which can be drawn from it.

The invention of units of quantity and of a numerical system to count them was of capital importance for an exchange-geared society such as that of Akrotiri. In spite of the absence of any written records, the archaeological evidence reveals that concepts of measurements, both of weight and number, had been formulated. Standard measures may already have been in operation, such as those evidenced by a graduated series of lead weights - made in disc form - found at the site. The existence of units of capacity in Late Bronze Age times is also evidenced by the notation of units of a liquid measure for wine on excavated containers.

It must be recognised that the function of pottery vessels plays a very important role in determining their characteristics. The intended function affects the choice of clay, the production technique, and the shape and the size of the pots. For example, large storage jars (pithoi) would be needed to store commodities, whereas smaller containers would be used for transport. In fact, the length of a man's arm limits the size of a smaller pot to a capacity of about twenty litres; that is also the maximum a man can comfortably carry.

The various sizes of container would thus represent standard quantities of a commodity, which is a fundamental element in the function of exchange. Akrotirian merchants handling a commodity such as wine would have been able to determine easily the amount of wine they were transporting from the number of containers they carried in their ships, since the capacity of each container was known to be 14-18 litres. (We could draw a parallel here with the current practice in Greece of selling oil in 17 kilogram tins)

We may therefore assume that the shape, capacity, and, sometimes decoration of vessels are indicative of the commodity contained by them. Since individual transactions would normally involve different quantities of a given commodity, a range of 'standardised' types of vessel would be needed to meet traders' requirements.

In trying to reconstruct systems of capacity by measuring the volume of excavated pottery, a rather generous range of tolerances must be allowed. It seems possible that the potters of that time had specific sizes of vessel in mind, and tried to reproduce them using a specific type and amount of clay. However, it would be quite difficult for them to achieve the exact size required every time, without any mechanical means of regulating symmetry and wall thickness, and some potters would be more skilled than others. In addition, variations in the repetition of types and size may also occur because of unforeseen circumstances during the throwing process. For instance, instead of destroying the entire pot if the clay in the rim contained a piece of grit, a potter might produce a smaller pot by simply cutting off the rim. Even where there is no noticeable external difference between pots meant to contain the same quantity of a commodity, differences in their capacity can actually reach one or two litres. In one case the deviation from the required size appears to be as much as 10-20 percent.

The establishment of regular trade routes within the Aegean led to increased movement of goods; consequently a regular exchange of local, luxury and surplus goods, including metals, would have become feasible as a result of the advances in transport technology. The increased demand for standardised exchanges, inextricably linked to commercial transactions, might have been one of the main factors which led to the standardisation of pottery production. Thus, the whole network of ceramic production and exchange would have depended on specific regional economic conditions, and would reflect the socio-economic structure of prehistoric Akrotiri.

PASSAGE 3: QUESTIONS 27-40

Questions 27-28

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

27 What does the writer say about items of pottery excavated at Akrotiri?

A ☐ There was very little duplication.

B ☐ They would have met a big variety of needs.

C ☐ Most of them had been imported from other places.

D ☐ The intended purpose of each piece was unclear.

28 The assumption that pottery from Akrotiri was produced by specialists is partly based on

A ☐ the discovery of kilns.

B ☐ the central location of workshops.

C ☐ the sophistication of decorative patterns.

D ☐ the wide range of shapes represented.

Questions 29-32
Complete each sentence with the correct ending, A-F, below.
Write the correct letter, A-F.

29 [ ] The assumption that standard units of weight were in use could be based on

30 [ ] Evidence of the use of standard units of volume is provided by

31 [ ] The size of certain types of containers would have been restricted by

32 [ ] Attempts to identify the intended capacity of containers are complicated by

A the discovery of a collection of metal discs.

B the size and type of the sailing ships in use.

C variations in the exact shape and thickness of similar containers.

D the physical characteristics of workmen.

E marks found on wine containers.

F the variety of commodities for which they would have been used.

Questions 33-38
Do the following statements agree with the views of the writer in Reading Passage 3? Write

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

33 [ ] There are plans to excavate new areas of the archaeological site in the near future.

34 [ ] Some of the evidence concerning pottery production in ancient Akrotiri comes from written records.

35 [ ] Pots for transporting liquids would have held no more than about 20 litres.

36 [ ] It would have been hard for merchants to calculate how much wine was on their ships.

37 [ ] The capacity of containers intended to hold the same amounts differed by up to 20 percent.

38 [ ] Regular trading of goods around the Aegean would have led to the general standardisation of quantities.

Questions 39-40
Choose the correct letter, A, B, C or D.

39 What does the writer say about the standardisation of container sizes?

A ☐ Containers which looked the same from the outside often varied in capacity.

B ☐ The instruments used to control container size were unreliable.

C ☐ The unsystematic use of different types of clay resulted in size variations.

D ☐ Potters usually discarded containers which were of a non-standard size.

40 What is probably the main purpose of Reading Passage 3?

A ☐ To evaluate the quality of pottery containers found in prehistoric Akrotiri.

B ☐ To suggest how features of pottery production at Akrotiri reflected other developments in the region.

C ☐ To outline the development of pottery-making skills in ancient Greece.

D ☐ To describe methods for storing and transporting household goods in prehistoric societies.

TEST READING Answer Keys:

1 unfit
2 schools
3 PE teachers
4 surplus
5 employment opportunities/careers/routes
6 TRUE
7 NOT GIVEN
8 TRUE
9 TRUE
10 FALSE
11 TRUE
12 FALSE
13 NOT GIVEN
14 v
15 ii
16 iv
17 ix
18 i
19 vi
20 viii
21 22 B,E
23 offshore wind farms
24 developing technology
25 negative
26 cars
27 B
28 D
29 A
30 E
31 D
32 C
33 NOT GIVEN
34 NO
35 YES
36 NO
37 YES
38 YES
39 A
40 B

Vocab

Reading- Sport Science in Australia

1. Path- way
2. Perspective- view
3. Initiatives- step to start
4. Indisputably- unquestionable
5. Periphery- edge
6. Craftsmen- who makes craft/art
7. Evidence- proof

Reading TEST
Passage 1 Questions 1-13
Early Childhood Education

New Zealand's National Party spokesman on education, Dr Lockwood Smith, recently visited the US and Britain. Here he reports on the findings of his trip and what they could mean for New Zealand's education policy

A 'Education To Be More' was published last August. It was the report of the New Zealand Government's Early Childhood Care and Education Working Group. The report argued for enhanced equity of access and better funding for childcare and early childhood education institutions. Unquestionably, that's a real need; but since parents don't normally send children to pre-schools until the age of three, are we missing out on the most important years of all?

B A 13-year study of early childhood development at Harvard University has shown that, by the age of three, most children have the potential to understand about 1000 words - most of the language they will use in ordinary conversation for the rest of their lives.

Furthermore, research has shown that while every child is born with a natural curiosity, it can be suppressed dramatically during the second and third years of life. Researchers claim that the human personality is formed during the first two years of life, and during the first three years children learn the basic skills they will use in all their later learning both at home and at school. Once over the age of three, children continue to expand on existing knowledge of the world.

C It is generally acknowledged that young people from poorer socio-economic backgrounds tend to do less well in our education system. That's observed not just in New Zealand, but also in Australia, Britain and America. In an attempt to overcome that educational under-achievement, a nationwide programme called 'Headstart' was launched in the United States in 1965. A lot of money was poured into it. It took children into pre-school institutions at the age of three and was supposed to help the children of poorer families succeed in school.

Despite substantial funding, results have been disappointing. It is thought that there are two explanations for this. First, the programme began too late. Many children who entered it at the age of three were already behind their peers in language and measurable intelligence. Second, the parents were not involved. At the end of each day, 'Headstart' children returned to the same disadvantaged home environment.

D As a result of the growing research evidence of the importance of the first three years of a child's life and the disappointing results from 'Headstart', a pilot programme was launched in Missouri in the US that focused on parents as the child's first teachers. The 'Missouri' programme was predicated on research showing that working with the family, rather than bypassing the parents, is the most effective way of helping children get off to the best possible start in life. The four-year pilot study included 380 families who were about to have their first child and who represented a cross-section of socio-economic status, age and family configurations. They included single-parent and two-parent families, families in which both parents worked, and families with either the mother or father at home.

The programme involved trained parent-educators visiting the parents' home and working with the parent, or parents, and the child. Information on child development, and guidance on things to look for and expect as the child grows were provided, plus guidance in fostering the child's intellectual, language, social and motor-skill development. Periodic check-ups of the child's educational and sensory development (hearing and vision) were made to detect possible handicaps that interfere with growth and development. Medical problems were referred to professionals.

Parent-educators made personal visits to homes and monthly group meetings were held with other new parents to share experience and discuss topics of interest. Parent resource centres, located in school buildings, offered learning materials for families and facilitators for child care.

E At the age of three, the children who had been involved in the 'Missouri' programme were evaluated alongside a cross-section of children selected from the same range of socio-economic backgrounds and family situations, and also a random sample of children that age. The results were phenomenal. By the age of three, the children in the programme were significantly more advanced in language development than their peers, had made greater strides in problem solving and other intellectual skills, and were further along in social development. In fact, the average child on the programme was performing at the level of the top 15 to 20 per cent of their peers in such things as auditory comprehension, verbal ability and language ability.

Most important of all, the traditional measures of 'risk', such as parents' age and education, or whether they were a single parent, bore little or no relationship to the measures of achievement and language development. Children in the programme performed equally well regardless of socio-economic disadvantages. Child abuse was virtually eliminated. The one factor that was found to affect the child's development was family stress leading to a poor quality of parent-child

interaction. That interaction was not necessarily bad in poorer families.

F These research findings are exciting. There is growing evidence in New Zealand that children from poorer socio-economic backgrounds are arriving at school less well developed and that our school system tends to perpetuate that disadvantage. The initiative outlined above could break that cycle of disadvantage. The concept of working with parents in their homes, or at their place of work, contrasts quite markedly with the report of the Early Childhood Care and Education Working Group. Their focus is on getting children and mothers access to childcare and institutionalized early childhood education. Education from the age of three to five is undoubtedly vital, but without a similar focus on parent education and on the vital importance of the first three years, some evidence indicates that it will not be enough to overcome educational inequity.

Questions 1-4

Reading Passage 1 has six sections, **A-F**.

Which paragraph contains the following information?

*Write the correct letter **A-F** in boxes 1-4 on your answer sheet.*

1) details of the range of family types involved in an education programme

2) reasons why a child's early years are so important

3) reasons why an education programme failed

4) a description of the positive outcomes of an education programme

Questions 5-10

Classify the following features as characterising

A the 'Headstart' programme

B the 'Missouri' programme

C both the 'Headstart' and the 'Missouri' programmes

D neither the `Headstart' nor the 'Missouri' programme

*Write the correct letter **A, B, C** or **D** in boxes 5-10 on your answer sheet.*

5) was administered to a variety of poor and wealthy families

6) continued with follow-up assistance in elementary schools

7) did not succeed in its aim

8) supplied many forms of support and training to parents

9) received insufficient funding

10) was designed to improve pre-schoolers' educational development

Questions 11-13

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

In boxes 11-13 on your answer sheet, write

TRUE *if the statement is true according to the passage*

FALSE *if the statement is false according to the passage*

NOTGIVEN *if the information is not given in the passage*

11) Most 'Missouri' programme three-year-olds scored highly in areas such as listening, speaking, reasoning and interacting with others.

12) 'Missouri' programme children of young, uneducated, single parents scored less highly on the tests.

13) The richer families in the 'Missouri' programme had higher stress levels.

Passage 2

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

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

Choose the correct heading for paragraphs **B** and **D-F** from the list of headings below.

Write the correct number i-viii in boxes **14-17 on your answer sheet.**

List of Headings

i Effects of irrigation on sedimentation

ii The danger of flooding the Cairo area

iii Causing pollution in the Mediterranean

iv Interrupting a natural process

v The threat to food production

vi Less valuable sediment than before

vii Egypt's disappearing coastline

viii Looking at the long-term impact

Example) Paragraph **A** vii

14) Paragraph **B**

Example) Paragraph **C** vi

15) Paragraph **D**

16) Paragraph **E**

17) Paragraph **F**

Disappearing Delta

A The fertile land of the Nile delta is being eroded along Egypt's Mediterranean coast at an astounding rate, in some parts estimated at 100 metres per year. In the past, land scoured away from the coastline by the currents of the Mediterranean Sea used to be replaced by sediment brought dawn to the delta by the River Nile, but this is no longer happening.

B Up to now, people have blamed this loss of delta land on the two large dams at Aswan in the south of Egypt, which hold back virtually all of the sediment that used to flow down the river. Before the dams were built, the Nile flowed freely, carrying huge quantities of sediment north from Africa's interior to be deposited on the Nile delta. This continued for 7,000 years, eventually covering a region of over 22,000 square kilometres with layers of fertile silt. Annual flooding brought in new, nutrient-rich soil to the delta region, replacing what had been washed away by the sea, and dispensing with the need for fertilizers in Egypt's richest food-growing area. But when the Aswan dams were constructed in the 20th century to provide electricity and irrigation, and to protect the huge population centre of Cairo and its surrounding areas from annual flooding and drought, most of the sediment with its natural fertilizer accumulated up above the dam in the southern, upstream half of Lake Nasser, instead of passing down to the delta

C Now, however, there turns out to be more to the story. IF appears that the sediment-free water emerging from the Aswan dams picks up silt and sand as it erodes the river bed and banks on the 800-kilometre trip to Cairo. Daniel Jean Stanley of the Smithsonian Institute noticed that water samples taken in Cairo, just before the river enters the delta, indicated that the river sometimes carries more than 850 grams of sediment per cubic metre of water - almost half of what it carried before the dams were built. 'I'm ashamed to say that the significance of this didn't strike me until after I had read 50 or 60 studies,' says Stanley in *Marine Geology*. 'There is still a lot of sediment coming into the delta, but virtually no sediment comes out into the Mediterranean to replenish the Coastline. So this sediment must be trapped on the delta itself.'

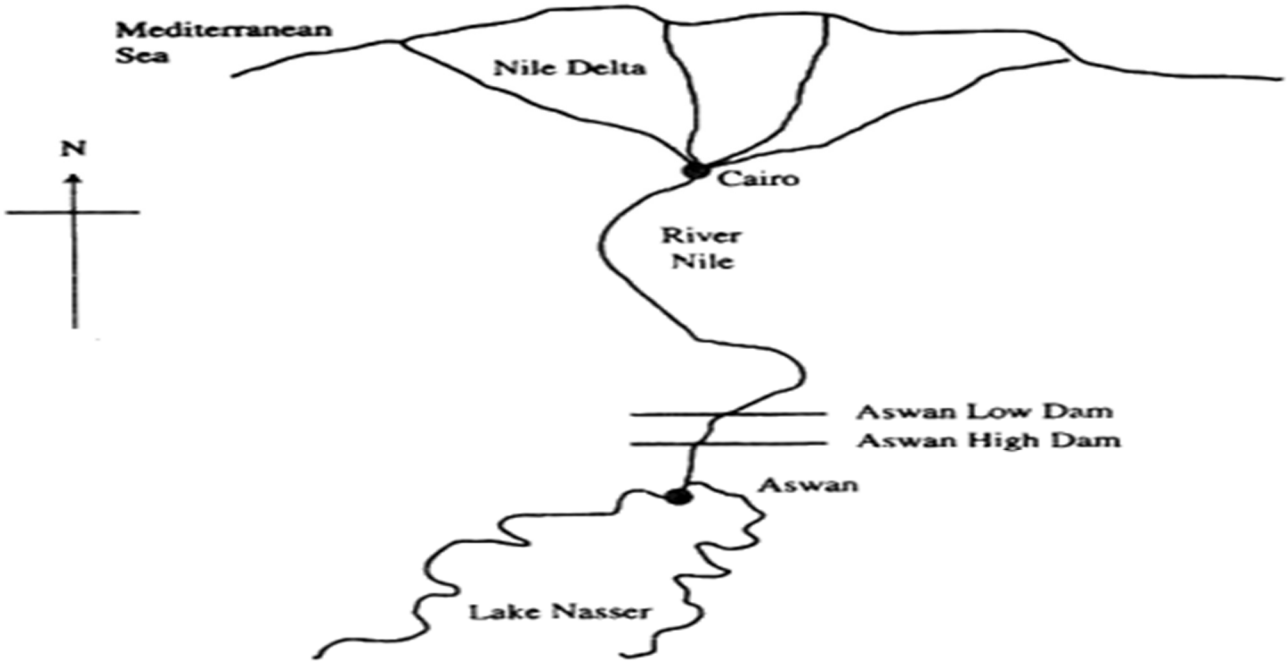
D Once north of Cairo, most of the Nile water is diverted into more than 10,000 kilometres of irrigation canals and only a small proportion reaches the sea directly through the rivers in the delta. The water in the irrigation canals is still or very slow-moving and thus cannot carry sediment, Stanley explains.

The sediment sinks to the bottom of the canals and then is added to fields by farmers or pumped with the water into the four large freshwater lagoons that are located near the outer edges of the delta. So very little of it actually reaches the coastline to replace what is being washed away by the Mediterranean currents.

E The farms on the delta plains and fishing and aquaculture in the lagoons account for much of Egypt's food supply. But by the time the sediment has come to rest in the fields and lagoons it is laden with municipal, industrial and agricultural waste from the Cairo region, which is home to more than 40 million people. 'Pollutants are building up faster and faster' says Stanley.

Based on his investigations of sediment from the delta lagoons, Frederic Siegel of George Washington University concurs.

'In Manzalah Lagoon, for example, the increase in mercury, lead, copper and zinc coincided with the building of the High Dam at Aswan, the availability of cheap electricity, and the development of major power-based industries,' he says. Since that time the concentration of mercury has increased significantly. Lead from engines that use leaded fuels and from other industrial sources has also increased dramatically. These poisons can easily enter the food chain, affecting the productivity of Fishing and Farming. Another problem is that agricultural wastes include fertilizers which stimulate increases in plant growth in the lagoons and upset the ecology of the area, with serious effects on the fishing industry.



F According to Siegel, international environmental organisations are beginning to pay closer attention to the region, partly because of the problems of erosion and pollution of the Nile delta, but principally because they fear the impact this situation could have on the whole Mediterranean coastal ecosystem. But there are no easy solutions. In the immediate Future, Stanley believes that one solution would be to make artificial floods to flush out the delta waterways, in the same way that natural floods did before the construction of the dams. He says, however, that in the long term an alternative process such as desalination may have to be used to increase the amount of water available, 'In my view, Egypt must devise a way to have more water running through the river and the delta,' says Stanley. Easier said than done in a desert region with a rapidly growing population.

Questions 18-23

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

In boxes 18-23 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) Coastal erosion occurred along Egypt's Mediterranean coast before the building of the Aswan dams.

19) Some people predicted that the Aswan dams would cause land loss before they were built.

20) The Aswan dams were built to increase the fertility of the Nile delta.

21) Stanley found that the levels of sediment in the river water in Cairo were relatively high.

22) Sediment in the irrigation canals on the Nile delta causes flooding.

23) Water is pumped from the irrigation canals into the lagoons.

Questions 24-26

*Complete the summary of paragraphs E and F with the list of words **A-H** below.*
*Write the correct letter **A-H** in boxes 24-26 on your answer sheet.*

A artificial floods	**B** desalination	**C** delta waterways	**D** natural floods
E nutrients	**F** pollutants	**G** population control	**H** sediment

In addition to the problem of coastal erosion, there has been a marked increase in the level of (24)..... contained in the silt deposited in the Nile delta. To deal with this, Stanley suggests the use of (25) ..... in the short term, and increasing the amount of water available through (26)..... in the longer term.

Passage 3

The Return of Artificial Intelligence

It is becoming acceptable again to talk of computers performing
human tasks such as problem-solving and pattern-recognition

A After years in the wilderness, the term 'artificial intelligence' (AI) seems poised to make a comeback. AI was big in the 1980s but vanished in the 1990s. It re-entered public consciousness with the release of AI, a movie about a robot boy. This has ignited public debate about AI, but the term is also being used once more within the computer industry. Researchers, executives and marketing people are now using the expression without irony or inverted commas. And it is not always hype. The term is being applied, with some justification, to products that depend on technology that was originally developed by AI researchers. Admittedly, the rehabilitation of the term has a long way to go, and some firms still prefer to avoid using it. But the fact that others are starting to use it again suggests that AI has moved on from being seen as an over-ambitious and under-achieving field of research.

B The field was launched, and the term 'artificial intelligence' coined, at a conference in 1956 by a group of researchers that included Marvin Minsky, John McCarthy, Herbert Simon and Alan Newell, all of whom went on to become leading figures in the field. The expression provided an attractive but informative name for a research programme that encompassed such previously disparate fields as operations research, cybernetics, logic and computer science. The goal they shared was an attempt to capture or mimic human abilities using machines. That said, different groups of researchers attacked different problems, from speech recognition to chess playing, in different ways; AI unified the field in name only. But it was a term that captured the public imagination.

C Most researchers agree that AI peaked around 1985. A public reared on science-fiction movies and excited by the growing power of computers had high expectations. For years, AI researchers had implied that a breakthrough was just around the corner. Marvin Minsky said in 1967 that within a generation the problem of creating 'artificial intelligence' would be substantially solved. Prototypes of medical-diagnosis programs and speech recognition software appeared to be making progress. It proved to be a false dawn. Thinking computers and household robots failed to materialise, and a backlash ensued. 'There was undue optimism in the early 1980s,' says David Leaky, a researcher at Indiana University. 'Then when people realised these were hard problems, there was retrenchment. By the late 1980s, the term AI was being avoided by many researchers, who opted instead to align themselves with specific sub-disciplines such as neural networks, agent technology, case-based reasoning, and so on.'

D Ironically, in some ways AI was a victim of its own success. Whenever an apparently mundane problem was solved, such as building a system that could land an aircraft unattended, the problem was deemed not to have been AI in the first plate. 'If it works, it can't be AI,' as Dr Leaky characterises it. The effect of repeatedly moving the goal-posts in this way was that AI came to refer to 'blue-sky' research that was still years away from commercialisation. Researchers joked that AI stood for 'almost implemented'. Meanwhile, the technologies that made it onto the market, such as speech recognition, language translation and decision-support software, were no longer regarded as AI. Yet all three once fell well within the umbrella of AI research.

E But the tide may now be turning, according to Dr Leake. HNC Software of San Diego, backed by a government agency, reckon that their new approach to artificial intelligence is the most powerful and promising approach ever discovered. HNC claim that their system, based on a cluster of 30 processors, could be used to spot camouflaged vehicles on a battlefield or extract a voice signal from a noisy background - tasks humans can do well, but computers cannot. 'Whether or not their technology lives up to the claims made for it, the fact that HNC are emphasising the use of AI is itself an interesting development,' says Dr Leaky.

F Another factor that may boost the prospects for AI in the near future is that investors are now looking for firms using clever technology, rather than just a clever business model, to differentiate themselves. In particular, the problem of information

overload, exacerbated by the growth of e-mail and the explosion in the number of web pages, means there are plenty of opportunities for new technologies to help filter and categorise information - classic AI problems. That may mean that more artificial intelligence companies will start to emerge to meet this challenge.

G The 1969 film, *2001: A Space Odyssey*, featured an intelligent computer called HAL 9000. As well as understanding and speaking English, HAL could play chess and even learned to lipread. HAL thus encapsulated the optimism of the 1960s that intelligent computers would be widespread by 2001. But 2001 has been and gone, and there is still no sign of a HAL-like computer. Individual systems can play chess or transcribe speech, but a general theory of machine intelligence still remains elusive. It may be, however, that the comparison with HAL no longer seems quite so important, and AI can now be judged by what it can do, rather than by how well it matches up to a 30-year-old science-fiction film. 'People are beginning to realise that there are impressive things that these systems can do,' says Dr Leake hopefully.

Questions 27-31

Reading Passage 3 has seven paragraphs, **A-G**.

Which paragraph contains the following information?

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

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

27) how AI might have a military impact

28) the fact that AI brings together a range of separate research areas

29) the reason why AI has become a common topic of conversation again

30) how AI could help deal with difficulties related to the amount of information available electronically

31) where the expression AI was first used

Questions 32-37

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

In boxes 32-37 on your answer sheet, write

TRUE *if the statement is true according to the passage*

FALSE *if the statement is false according to the passage*

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

32) The researchers who launched the field of AI had worked together on other projects in the past.

33) In 1985, AI was at its lowest point.

34) Research into agent technology was more costly than research into neural networks.

35) Applications of AI have already had a degree of success.

36) The problems waiting to be solved by AI have not changed since 1967.

37) The film 2001: A Space Odyssey reflected contemporary ideas about the potential of AI computers

Questions 38-40

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

Write your answers in boxes 38-40 on your answer sheet.

38) According to researchers, in the late 1980s there was a feeling that

A a general theory of AI would never be developed.

B original expectations of AI may not have been justified.

C a wide range of applications was close to fruition.

D more powerful computers were the key to further progress.

39) In Dr Leake's opinion, the reputation of AI suffered as a result of

A changing perceptions.

B premature implementation.

C poorly planned projects.

D commercial pressures.

40) The prospects for AI may benefit from

A existing AI applications.

B new business models.

C orders from Internet-only companies.

D new investment priorities.

Test Answer:

1. D
2. B
3. C
4. E
5. B
6. D
7. A
8. B
9. D
10. C
11. TRUE
12. FALSE
13. NOT GIVEN
14. iv
15. i
16. v
17. viii
18. YES
19. NOT GIVEN
20. NO
21. YES
22. NOT GIVEN
23. YES
24. (F) pollutant
25. (A) artificial floods
26. (b) desalination
27. E
28. B
29. A
30. F
31. B
32. NOT GIVEN
33. FALSE
34. NOT GIVEN
35. TRUE
36. FALSE
37. TRUE
38. B
39. A
40. D

Vocab

Reading- Early Childhood Education

1. Suppressed- defeat, crush, overpower
2. Poured- tip down, comedown ,put into
3. Substantial- considerable, real solid
   Intellectual- intelligent, well-educated
4. Strides- march, stalk step ,walk
5. Sedimentation- the process of setting
6. Replenish- refill, recharge, reload
7. Laden- overloaded, weighted
8. Coincide- co-exist, agree
9. Rehabilitation- re-adapt, renovate
10. Victim- suffer, injured party

Reading test
Passage 1

BAKELITE The birth of modern plastics

In 1907, Leo Hendrick Baekeland, a Belgian scientist working in New York, discovered and patented a revolutionary new synthetic material. His invention, which he named 'Bakelite', was of enormous technological importance, and effectively launched the modern plastics industry.

The term 'plastic' comes from the Greek plassein, meaning 'to mould'. Some plastics are derived from natural sources, some are semi-synthetic (the result of chemical action on a natural substance), and some are entirely synthetic, that is, chemically engineered from the constituents of coal or oil. Some are 'thermoplastic', which means that, like candlewax, they melt when heated and can then be reshaped. Others are 'thermosetting': like eggs, they cannot revert to their original viscous state, and their shape is thus fixed for ever, Bakelite had the distinction of being the first totally synthetic thermosetting plastic.

The history of today's plastics begins with the discovery of a series of semi-synthetic thermoplastic materials in the mid-nineteenth century. The impetus behind the development of these early plastics was generated by a number of factors - immense technological progress in the domain of chemistry, coupled with wider cultural changes, and the pragmatic need to find acceptable substitutes for dwindling supplies of 'luxury' materials such as tortoiseshell and ivory.

Baekeland's interest in plastics began in 1885 when, as a young chemistry student in Belgium, he embarked on research into phenolic resins, the group of sticky substances produced when phenol (carbolic acid) combines with an aldehyde (a volatile fluid similar to alcohol). He soon abandoned the subject, however, only returning to it some years later. By 1905 he was a wealthy New Yorker, having recently made his fortune with the invention of a new photographic paper. While Baekeland had been busily amassing dollars, some advances had been made in the development of plastics. The years 1899 and 1900 had seen the patenting of the first semi-synthetic thermosetting material that could be manufactured on an industrial scale. In purely scientific terms, Baekeland's major contribution to the field is not so much the actual discovery of the material to which he gave his name, but rather the method by which a reaction between phenol and formaldehyde could be controlled, thus making possible its preparation on a commercial basis. On 13 July 1907, Baekeland took out his famous patent describing this preparation, the essential features of which are still in use today.

The original patent outlined a three-stage process, in which phenol and formaldehyde (from wood or coal) were initially combined under vacuum inside a large egg-shaped kettle. The result was a resin known as Novalak, which became soluble and malleable when heated. The resin was allowed to cool in shallow trays until it hardened, and then broken up and ground into powder. Other substances were then introduced: including fillers, such as woodflour, asbestos or cotton, which increase strength and. moisture resistance, catalysts (substances to speed up the reaction between two chemicals without joining to either) and hexa, a compound of ammonia and formaldehyde which supplied the additional formaldehyde necessary to form a thermosetting resin. This resin was then left to cool and harden, and ground up a second time. The resulting granular powder was raw Bakelite, ready to be made into a vast range of manufactured objects. In the last stage, the heated Bakelite was poured into a hollow mould of the required shape and subjected to extreme heat and pressure; thereby 'setting' its form for life.

The design of Bakelite objects, everything from earrings to television sets, was governed to a large extent by the technical requirements of the moulding process. The object could not be designed so that it was locked into the mould and therefore difficult to extract. A common general rule was that objects should taper towards the deepest part of the mould, and if necessary the product was moulded in separate pieces. Moulds had to be carefully designed so that the molten Bakelite would flow evenly and completely into the mould. Sharp corners proved impractical and were thus avoided, giving rise to the smooth, 'streamlined' style popular in the 1930s. The thickness of the walls of the mould was also crucial: thick walls took longer to cool and harden, a factor which had to be considered by the designer in order to make the most efficient use of machines.

Baekeland's invention, although treated with disdain in its early years, went on to enjoy an unparalleled popularity which lasted throughout the first half of the twentieth century. It became the wonder product of the new world of industrial expansion -'the material of a thousand uses'. Being both non-porous and heat-resistant, Bakelite kitchen goods were promoted as being germ-free and sterilisable. Electrical manufacturers seized on its insulating: properties, and consumers everywhere relished its dazzling array of shades, delighted that they were now, at last, no longer restricted to the wood tones and drab browns of the pre-plastic era. It then fell from favour again during the 1950s, and was despised and destroyed in vast quantities. Recently, however, it has been experiencing something of a renaissance, with renewed

demand for original Bakelite objects in the collectors' marketplace, and museums, societies and dedicated individuals once again appreciating the style and originality of this innovative material.

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.

Some plastics behave in a similar way to **(1)** ..... in that they melt under heat and can be moulded into new forms. Bakelite was unique because it was the first material to be both entirely **(2)**..... in origin, and thermosetting. There were several reasons for the research into plastics in the nineteenth century, among them the great advances that had been made in the field of **(3)** ..... and the search for alternatives to natural resources like ivory.

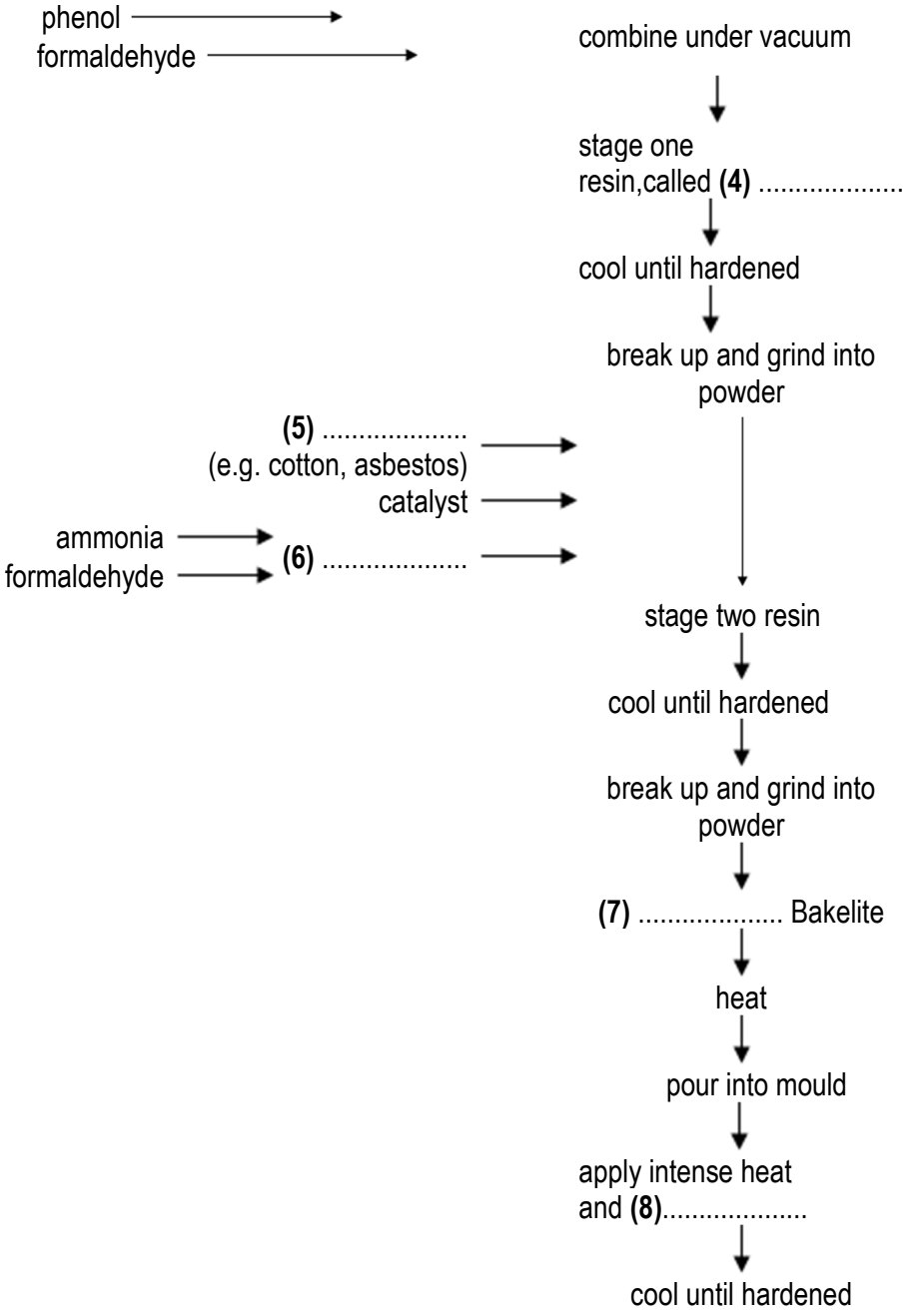
Questions 4-8

Complete the flow-chart.

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

Write your answers in boxes 4-8 on your answer sheet.

The Production of Bakelite



Questions 9-10

Write your answers in boxes 9 and 10 on your answer sheet.

NB *Your answers may be given in either order.*

Which **TWO** of the following factors influencing the design of Bakelite objects are mentioned in the text?

A the function which the object would serve

B the ease with which the resin could fill the mould

C the facility with which the object could be removed from the mould

D the limitations of the materials used to manufacture the mould

E the fashionable styles of the period

Questions 11-13

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

In boxes 11-13 on your answer sheet, write

TRUE *if the statement is true according to the passage*

FALSE *if the statement is false according to the passage*

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

11 Modern-day plastic preparation is based on the same principles as that patented in 1907.

12 Bakelite was immediately welcomed as a practical and versatile material.

13 Bakelite was only available in a limited range of colours.

Reading Passage 2

What's so funny? **John McCrone reviews recent research on humour**

The joke comes over the headphones: 'Which side of a dog has the most hair? The left.' No, not funny. Try again. 'Which side of a dog has the most hair? The outside.' Hah! The punchline is silly yet fitting, tempting a smile, even a laugh. Laughter has always struck people as deeply mysterious, perhaps pointless. The writer Arthur Koestler dubbed it the luxury reflex: 'unique in that it serves no apparent biological purpose'.

Theories about humour have an ancient pedigree. Plato expressed the idea that humour is simply a delighted feeling of superiority over others. Kant and Freud felt that joke-telling relies on building up a psychic tension which is safely punctured by the ludicrousness of the punchline. But most modern humour theorists have settled on some version of Aristotle's belief that jokes are based on a reaction to or resolution of incongruity, when the punchline is either a nonsense or, though appearing silly, has a clever second meaning.

Graeme Ritchie, a computational linguist in Edinburgh, studies the linguistic structure of jokes in order to understand not only humour but language understanding and reasoning in machines. He says that while there is no single format for jokes, many revolve around a sudden and surprising conceptual shift. A comedian will present a situation followed by an unexpected interpretation that is also apt.

So even if a punchline sounds silly, the listener can see there is a clever semantic fit and that sudden mental 'Aha!' is the buzz that makes us laugh. Viewed from this angle, humour is just a form of creative insight, a sudden leap to a new perspective.

However, there is another type of laughter, the laughter of social appeasement and it is important to understand this too. Play is a crucial part of development in most young mammals. Rats produce ultrasonic squeaks to prevent their scuffles turning nasty. Chimpanzees have a 'play-face' - a gaping expression accompanied by a panting 'ah, ah' noise. In humans, these signals have mutated into smiles and laughs. Researchers believe social situations, rather than cognitive events such as jokes, trigger these instinctual markers of play or appeasement. People laugh on fairground rides or when tickled to flag a play situation, whether they feel amused or not.

Both social and cognitive types of laughter tap into the same expressive machinery in our brains, the emotion and motor circuits that produce smiles and excited vocalisations. However, if cognitive laughter is the product of more general thought processes, it should result from more expansive brain activity.

Psychologist Vinod Goel investigated humour using the new technique of 'single event' functional magnetic resonance imaging (fMRI). An MRI scanner uses magnetic fields and radio waves to track the changes in oxygenated blood that accompany mental activity. Until recently, MRI scanners needed several minutes of activity and so could not be used to track rapid thought processes such as comprehending a joke. New developments now allow half-second 'snapshots' of all sorts of reasoning and problem-solving activities.

Although Goel felt being inside a brain scanner was hardly the ideal place for appreciating a joke, he found evidence that understanding a joke involves a widespread mental shift. His scans showed that at the beginning of a joke the listener'$ prefrontal cortex lit up, particularly the right prefrontal believed to be critical for problem solving. But there was also activity in the temporal lobes at the side of the head (consistent with attempts to rouse stored knowledge) and in many other brain areas. Then when the punchline arrived, a new area sprang to life -the orbital prefrontal cortex. This patch of brain tucked behind the orbits of the eyes is associated with evaluating information.

Making a rapid emotional assessment of the events of the moment is an extremely demanding job for the brain, animal or human. Energy and arousal levels may need, to be retuned in the blink of an eye. These abrupt changes will produce either positive or negative feelings. The orbital cortex, the region that becomes active in Goel's experiment, seems the best candidate for the site that feeds such feelings into higher-level thought processes, with its close connections to the brain's sub-cortical arousal apparatus and centres of metabolic control.

All warm-blooded animals make constant tiny adjustments in arousal in response to external events, but humans, who have developed a much more complicated internal life as a result of language, respond emotionally not only to their surroundings, but to their own thoughts. Whenever a sought-for answer snaps into place, there is a shudder of pleased recognition. Creative discovery being pleasurable, humans have learned to find ways of milking this natural response. The fact that jokes tap into our general evaluative machinery explains why the line between funny and disgusting, or funny and frightening, can be so fine. Whether a joke gives pleasure or pain depends on a person's outlook.

Humour may be a luxury, but the mechanism behind it is no evolutionary accident. As Peter Derks, a psychologist at William and Mary College in Virginia, says: 'I like to think of humour as the distorted mirror of the mind. It's creative, perceptual, analytical and lingual. If we can figure out how the mind processes humour, then we'll have a pretty good handle on how it works in general.

Questions 14-20

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

In boxes 14-20 on your answer sheet, write

TRUE *if the statement is true according to the passage*

FALSE *if the statement is false according to the passage*

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

14 Arthur Koestler considered laughter biologically important in several ways.

15 Plato believed humour to be a sign of above-average intelligence.

16 Kant believed that a successful joke involves the controlled release of nervous energy.

17 Current thinking on humour has largely ignored Aristotle's view on the subject.

18 Graeme Ritchie's work links jokes to artificial intelligence.

19 Most comedians use personal situations as a source of humour.

20 Chimpanzees make particular noises when they are playing.

Questions 21-23

The diagram below shows the areas of the brain activated by jokes.
Label the diagram.
Choose **NO MORE THAN TWO WORDS** from the passage for each answer.
Write your answers in boxes 21-23 on your answer sheet.

Right prefrontal cortex lights up - area of brain linked to **(21)** .....

(22) ..... become active too

Orbital prefrontal cortex is activated - involved with **(23)** .....

Questions 24-27

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

Write the correct letter **A-G** in boxes 24-27 on your answer sheet.

24 One of the brain's most difficult tasks is to
25 Because of the language they have developed, humans
26 Individual responses to humour
27 Peter Derks believes that humour

A react to their own thoughts.

B helped create language in humans.

C respond instantly to whatever is happening.

D may provide valuable information about the operation of the brain.

E cope with difficult situations.

F relate to a person's subjective views.

G led our ancestors to smile and then laugh.

Reading Passage 3

The Birth of Scientific English

World science is dominated today by a small number of languages, including Japanese, German and French, but it is English which is probably the most popular global language of science. This is not just because of the importance of English-speaking countries such as the USA in scientific research; the scientists of many non-English-speaking countries find that they need to write their research papers in English to reach a wide international audience. Given the prominence of scientific English today, it may seem surprising that no one really knew *how*to write science in English before the 17th century. Before that, Latin was regarded as the *lingua franca*[1] for European intellectuals.

The European Renaissance (c. 14th-16th century) is sometimes called the 'revival of learning', a time of renewed interest in the 'lost knowledge' of classical times. At the same time, however, scholars also began to test and extend this knowledge. The emergent nation states of Europe developed competitive interests in world exploration and the development of trade. Such expansion, which was to take the English language west to America and east to India, was supported by scientific developments such as the discovery of magnetism (and hence the invention of the compass), improvements in cartography and - perhaps the most important scientific revolution of them all - the new theories of astronomy and the movement of the Earth in relation to the planets and stars, developed by Copernicus (1473-1543).

England was one of the first countries where scientists adopted and publicised Copernican ideas with enthusiasm. Some of these scholars, including two with interests in language -John Wall's and John Wilkins - helped Found the Royal Society in 1660 in order to promote empirical scientific research.

Across Europe similar academies and societies arose, creating new national traditions of science. In the initial stages of the scientific revolution, most publications in the national languages were popular works, encyclopaedias, educational

textbooks and translations. Original science was not done in English until the second half of the 17th century. For example, Newton published his mathematical treatise, known as the Principia, in Latin, but published his later work on the properties of light - *Opticks* - in English.

There were several reasons why original science continued to be written in Latin. The first was simply a matter of audience. Latin was suitable for an international audience of scholars, whereas English reached a socially wider, but more local, audience. Hence, popular science was written in English.

A second reason for writing in Latin may, perversely, have been a concern for secrecy. Open publication had dangers in putting into the public domain preliminary ideas which had not yet been fully exploited by their 'author'. This growing concern about intellectual property rights was a feature of the period - it reflected both the humanist notion of the individual, rational scientist who invents and discovers through private intellectual labour, and the growing connection between original science and commercial exploitation.

There was something of a social distinction between 'scholars and gentlemen' who understood Latin, and men of trade who lacked a classical education. And in the mid-17th century it was common practice for mathematicians to keep their discoveries and proofs secret, by writing them in cipher, in obscure languages, or in private messages deposited in a sealed box with the Royal Society. Some scientists might have felt more comfortable with Latin precisely because its audience, though international, was socially restricted. Doctors clung the most keenly to Latin as an 'insider language'.

A third reason why the writing of original science in English was delayed may have been to do with the linguistic inadequacy of English in the early modern period. English was not well equipped to deal with scientific argument. First, it lacked the necessary technical vocabulary. Second, it lacked the grammatical resources required to represent the world in an objective and impersonal way, and to discuss the relations, such as cause and effect, that might hold between complex and hypothetical entities.

Fortunately, several members of the Royal Society possessed an interest in language and became engaged in various linguistic projects. Although a proposal in 1664 to establish a committee for improving the English language came to little, the society's members did a great deal to foster the publication of science in English and to encourage the development of a suitable writing style. Many members of the Royal Society also published monographs in English. One of the first was by Robert Hooke, the society's first curator of experiments, who described his experiments with microscopes in *Micrographia* (1665). This work is largely narrative in style, based on a transcript of oral demonstrations and lectures.

In 1665 a new scientific journal, *Philosophical Transactions*, was inaugurated. Perhaps the first international English-language scientific journal, it encouraged a new genre of scientific writing, that of short, focused accounts of particular experiments.

The 17th century was thus a formative period in the establishment of scientific English. In the following century much of this momentum was lost as German established itself as the leading European language of science. It is estimated that by the end of the 18th century 401 German scientific journals had been established as opposed to 96 in France and 50 in England. However, in the 19th century scientific English again enjoyed substantial lexical growth as the industrial revolution created the need for new technical vocabulary, and new, specialised, professional societies were instituted to promote and publish in the new disciplines.

[1] *lingua franca*: a language which is used for communication between groups of people who speak different languages

Questions 28-34

Complete the summary.

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

Write your answers in boxes 28-34 on your answer sheet.

In Europe modem science emerged at the same time as the nation state. At first, the scientific language of choice remained **(28)** ..... It allowed scientists to communicate with other socially privileged thinkers while protecting their work from unwanted exploitation. Sometimes the desire to protect ideas seems to have been stronger than the desire to communicate them, particularly in the case of mathematicians and **(29)** ..... In Britain, moreover, scientists worried that English had neither the **(30)** ..... nor the **(31)** ..... to express their ideas.This situation only changed after 1660 when scientists associated with the **(32)** ..... set about developing English. An early scientific journal fostered a new kind of writing based on short descriptions of specific experiments. Although English was then overtaken by **(33)** ..... it developed again in the 19th century. as a direct result of the **(34)** .....

Questions 35-37
Do the following statements agree with the information given in Reading Passage 3?

In boxes 35-37 on your answer sheet, write
TRUE *if the statement is true according to the passage*
FALSE *if the statement is false according to the passage*
NOTGIVEN *if the information is not given in the passage*
35 There was strong competition between scientists in Renaissance Europe.
36 The most important scientific development of the Renaissance period was the discovery of magnetism.
37 In 17th-century Britain, leading thinkers combined their interest in science with an interest in how to express ideas.

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.

Science written in the first half of the 17th century		
Language used	Latin	English
Type of science	Original	**(38)** .....
Examples	**(39)**	Encyclopaedias
Target audience	International scholars	**(40)** ....., but socially wider

Answer:

1. Candlewax

2. Synthetic

3. Chemistry

4. Novalak

5. Fillers

6. Hexa

7. Raw

8. Pressure

9. B

10. C

11. TRUE

12. FALSE

13. FALSE

14. FALSE

15. NOT GIVEN

16. TRUE

17. FALSE

18. TRUE

19. NOT GIVEN

20. TRUE

21. problem solving

22. temporal lobes

23. evaluating information

24. C

25. A

26. F

27. D

28. Latin

29. Doctors

30. Technical Vocabulary

31. Grammatical Resources

32. Royal Society

33. German

34. Industrial Revolution

35. NOT GIVEN

36. FALSE

37. TRUE

38. Popular

39. Principia / the Principia / Newton's Principia / mathematical treatise

40. local / more local / local audience

Vocabulary of Reading- Bakelite

1. Pragmatic- Dealing With Things In A Realistic Way
2. Dazzling- Blinding Brightness
3. Mysterious- Difficult To Understand
4. Squeak- A Short, High-Pitched Sound Or Cry
5. Emergent- New And Still Developing
6. Narrative- A Story
7. Lexical-Relating To Words Or Vocabulary
8. Inaugurate- Introduce A System Or Process
9. Precisely- Presented In A Detailed And Accurate Way

Academic Reading TEST

you should spend about **20 minutes on Questions 1-12** which are based on **Reading Passage 1 below**.

Spoken Corpus Comes To Life

A The compiling of dictionaries has been historically the provenance of studious professorial types - usually bespectacled - who love to pore over weighty tomes and make pronouncements on the finer nuances of meaning. They were probably good at crosswords and definitely knew a lot of words, but the image was always rather dry and dusty. The latest technology, and simple technology at that, is revolutionising the content of dictionaries and the way they are put together.

B For the first time, dictionary publishers are incorporating real, spoken English into their data. It gives lexicographers (people who write dictionaries) access to a more vibrant, up-to-date vernacular language which has never really been studied before. In one project, 150 volunteers each agreed to discreetly tie a Walkman recorder to their waist and leave it running for anything up to two weeks. Every conversation they had was recorded. When the data was collected, the length of tapes was 35 times the depth of the Atlantic Ocean. Teams of audio typists transcribed the tapes to produce a computerised database of ten million words.

C This has been the basis - along with an existing written corpus - for the Language Activator dictionary, described by lexicographer Professor Randolph Quirk as "the book the world has been waiting for". It shows advanced foreign learners of English how the language is really used. In the dictionary, keywords such as "eat" are followed by related phrases such as "wolf down" or "be a picky eater", allowing the student to choose the appropriate phrase.

D "This kind of research would be impossible without computers," said Delia Summers, a director of dictionaries. "It has transformed the way lexicographers work. If you look at the word "like", you may intuitively think that the first and most frequent meaning is the verb, as in "I like swimming". It is not. It is the preposition, as in: "she walked like a duck". Just because a word or phrase is used doesn't mean it ends up in a dictionary. The sifting out process is as vital as ever. But the database does allow lexicographers to search for a word and find out how frequently it is used - something that could only be guessed at intuitively before.

E Researchers have found that written English works in a very different way to spoken English. The phrase "say what you like" literally means "feel free to say anything you want", but in reality it is used, evidence shows, by someone to prevent the other person voicing disagreement. The phrase "it"s a question of crops up on the database over and over again. It has nothing to do with enquiry, but it's one of the most frequent English phrases which has never been in a language learner's dictionary before: it is now.

F The Spoken Corpus computer shows how inventive and humorous people are when they are using language by twisting familiar phrases for effect. It also reveals the power of the pauses and noises we use to play for time, convey emotion, doubt and irony.

G For the moment, those benefiting most from the Spoken Corpus are foreign learners. "Computers allow lexicographers to search quickly through more examples of real English," said Professor Geoffrey Leech of Lancaster University. "They allow dictionaries to be more accurate and give a feel for how language is being used." The Spoken Corpus is part of the larger British National Corpus, an initiative carried out by several groups involved in the production of language learning materials: publishers, universities and the British Library.

Questions 1-6

Reading Passage 1 has seven paragraphs (A-G).

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

Write the appropriate numbers (i-xi) in boxes 1-6 on your answer sheet. Paragraph C has been done for you as an example.

NB There are more headings than paragraphs so you will not use all of them. You may use any heading more than once.

List of Headings

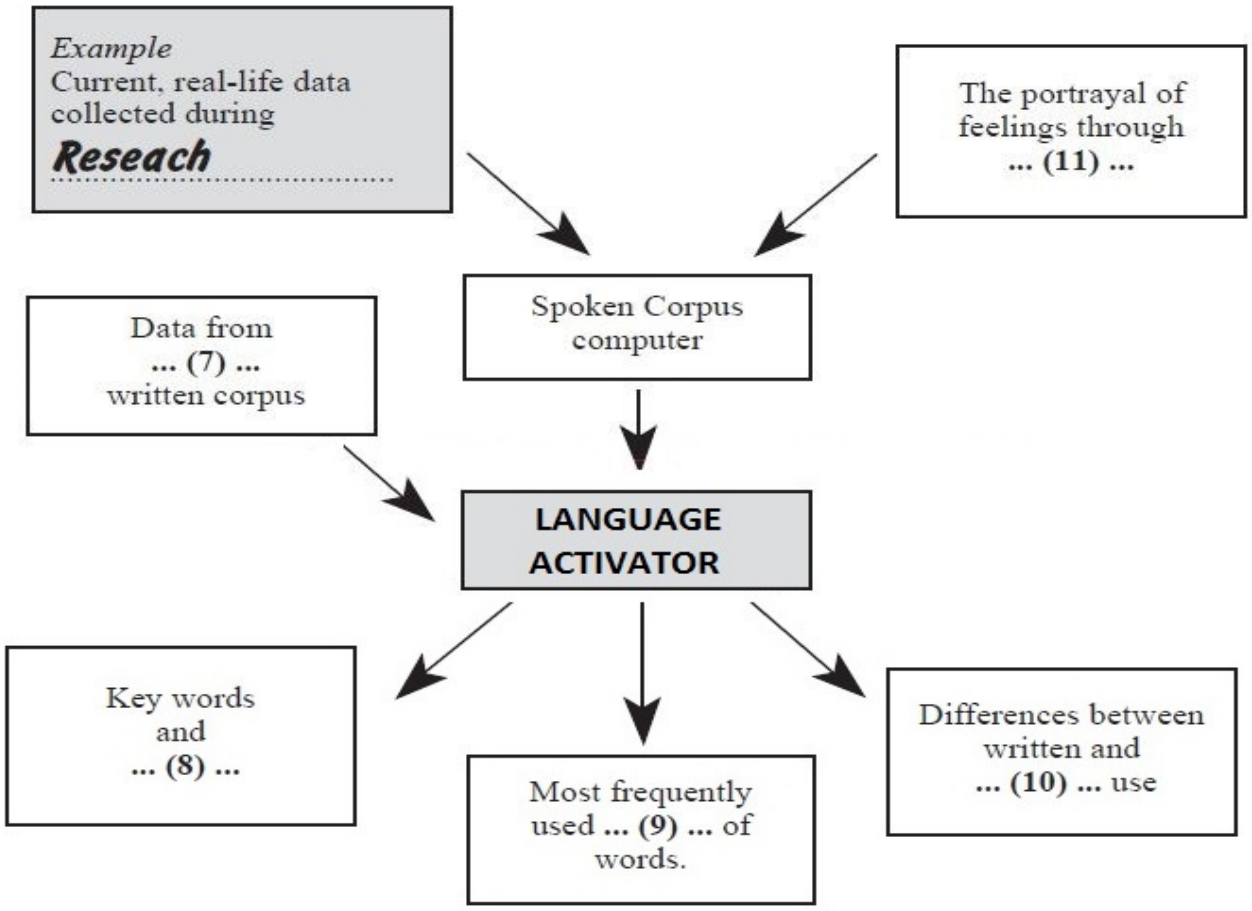
i Grammar is corrected
ii New method of research
iii Technology learns from dictionaries
iv Non-verbal content
v The first study of spoken language
vi Traditional lexicographical methods
vii Written English tells the truth
viii New phrases enter dictionary
ix A cooperative research project
x Accurate word frequency counts
xi Alternative expressions provided

1 Paragraph A
2 Paragraph B
3 Paragraph D
4 Paragraph E
5 Paragraph F
6 Paragraph G

Example	**Answer:**
Paragraph C	**xi**

Questions 7-11

The diagram below illustrates the information provided in paragraphs B-F of Reading Passage 1
Complete the labels on the diagram with an appropriate word or words Use NO MORE THAN THREE WORDS for each space.
Write your answers in boxes 7-11 on your answer sheet.



Question 12:

Choose the appropriate letter A-D and write it in box 12 on your answer sheet

12 Why was this article written?

A To give an example of a current dictionary.
B To announce a new approach to dictionary writing.
C To show how dictionaries have progressed over the years.
D To compare the content of different dictionaries

READING PASSAGE : 2

You should spend about **20 minutes on Questions 13-26** which are based on **Reading Passage 2 below.**

Moles happy as homes go underground

A The first anybody knew about Dutchman Frank Siegmund and his family was when workmen tramping through a field found a narrow steel chimney protruding through the grass. Closer inspection revealed a chink of sky-light window among the thistles, and when amazed investigators moved down the side of the hill they came across a pine door complete with leaded diamond glass and a brass knocker set into an underground building. The Siegmunds had managed to live undetected for six years outside the border town of Breda, in Holland. They are the latest in a clutch of individualistic homemakers who have burrowed underground in search of tranquillity.

B Most, falling foul of strict building regulations, have been forced to dismantle their individualistic homes and return to more conventional lifestyles. But subterranean suburbia, Dutch-style, is about to become respectable and chic. Seven luxury homes cosseted away inside a high earth-covered noise embankment next to the main Tilburg city road recently went on the market for $296,500 each. The foundations had yet to be dug, but customers queued up to buy the unusual part-submerged houses, whose back wall consists of a grassy mound and whose front is a long glass gallery.

C The Dutch are not the only would-be moles. Growing numbers of Europeans are burrowing below ground to create houses, offices, discos and shopping malls. It is already proving a way of life in extreme climates; in winter months in Montreal, Canada, for instance, citizens can escape the cold in an underground complex complete with shops and even health clinics. In Tokyo, builders are planning a massive underground city to be begun in the next decade, and underground shopping malls are already common in Japan, where 90 percent of the population is squeezed into 20 percent of the land space.

D Building big commercial buildings underground can be a way to avoid disfiguring or threatening a beautiful or 'environmentally sensitive' landscape. Indeed many of the buildings which consume most land -such as cinemas, supermarkets, theatres, warehouses or libraries -have no need to be on the surface since they do not need windows.

E There are big advantages, too, when it comes to private homes. A development of 194 houses which would take up 14 hectares of land above ground would occupy 2.7 hectares below it, while the number of roads would be halved. Under several metres of earth, noise is minimal and insulation is excellent. "We get 40 to 50 enquiries a week," says Peter Carpenter, secretary of the British Earth Sheltering Association, which builds similar homes in Britain. "People see this as a way of building for the future." An underground dweller himself, Carpenter has never paid a heating bill, thanks to solar panels and natural insulation.

F In Europe the obstacle has been conservative local authorities and developers who prefer to ensure quick sales with conventional mass-produced housing. But the Dutch development was greeted with undisguised relief by South Limburg planners because of Holland's chronic shortage of land. It was the Tilburg architect Jo Hurkmans who hit on the idea of making use of noise embankments on main roads. His two floored, four-bedroomed, two-bathroomed detached homes are now taking shape. "They are not so much below the earth as in it," he says. "All the light will come through the glass front, which runs from the second-floor ceiling to the ground. Areas which do not need much natural lighting are at the back. The living accommodation is to the front so nobody notices that the back is dark."

G In the US, where energy-efficient homes became popular after the oil crisis of 1973, 10,000 underground houses have been built. A terrace of five homes, Britain's first subterranean development, is under way in Nottinghamshire. Italy's outstanding example of subterranean architecture is the Olivetti residential centre in Ivrea. Commissioned by Roberto Olivetti in 1969, it comprises 82 one-bedroomed apartments and 12 maisonettes and forms a house/ hotel for Olivetti employees. It is built into a hill and little can be seen from outside except a glass facade. Patnzia Vallecchi, a resident since 1992, says it is little different from living in a conventional apartment.

H Not everyone adapts so well, and in Japan scientists at the Shimizu Corporation have developed "space creation" systems which mix light, sounds, breezes and scents to stimulate people who spend long periods below ground. Underground offices in Japan are being equipped with "virtual" windows and mirrors, while underground departments in the University of Minnesota have periscopes to reflect views and light.

I But Frank Siegmund and his family love their hobbit lifestyle. Their home evolved when he dug a cool room for his bakery business in a hill he had created. During a heatwave, they took to sleeping there. "We felt at peace and so close to nature," he says. "Gradually I began adding to the rooms. It sounds strange but we are so close to the earth we draw

strength from its vibrations. Our children love it; not every child can boast of being watched through their playroom windows by rabbits.

Questions 13-20

Reading Passage 2 has nine paragraphs (A-I). Choose the most suitable heading for each paragraph from the list of headings below.

Write the appropriate numbers (i-xii) in boxes 13 -20 on your answer sheet. Paragraph A has been done for you as an example.

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

List of Headings

i A designer describes his houses
ii Most people prefer conventional housing
iii Simulating a natural environment
iv How an underground family home developed
v Demands on space and energy are reduced
vi The plans for future homes
vii Worldwide examples of underground living accommodation
viii Some buildings do not require natural light
ix Developing underground services around the world
x Underground living improves health
xi Homes sold before completion
xii An underground home is discovered

13 Paragraph B
14 Paragraph C
15 Paragraph D
16 Paragraph E
17 Paragraph F
18 Paragraph G
19 Paragraph H
20 Paragraph I

Questions 21-26

Complete the sentences below with words taken from the reading passage. Use NO MORE THAN THREE WORDS for each answer. Write your answers in boxes 21-26 on your answer sheet.

21 Many developers prefer mass-produced houses because they .....
22 The Dutch development was welcomed by .....
23 Hurkmans' houses are built into .....
24 The Ivrea centre was developed for .....
25 Japanese scientists are helping people ..... underground life.
26 Frank Siegmund's first underground room was used for .....

READING PASSAGE : 3

You should spend about **20 minutes on Questions 27-38** which are based on **Reading Passage 3 below.**

A Workaholic Economy

For the first century or so of the industrial revolution, increased productivity led to decreases in working hours. Employees who had been putting in 12-hour days, six days a week, found their time on the job shrinking to 10 hours daily, then finally to eight hours, five days a week. Only a generation ago social planners worried about what people would do with all this new-found free time. In the US, at least it seems they need not have bothered.

Although the output per hour of work has more than doubled since 1945, leisure seems reserved largely for the unemployed and underemployed. Those who work full-time spend as much time on the job as they did at the end of World War II. In fact, working hours have increased noticeably since 1970 — perhaps because real wages have stagnated since that year. Bookstores now abound with manuals describing how to manage time and cope with stress.

There are several reasons for lost leisure. Since 1979, companies have responded to improvements in the business climate by having employees work overtime rather than by hiring extra personnel, says economist Juliet B. Schor of Harvard University. Indeed, the current economic recovery has gained a certain amount of notoriety for its “jobless” nature: increased production has been almost entirely decoupled from employment. Some firms are even downsizing as their profits climb. “All things being equal, we'd be better off spreading around the work," observes labour economist Ronald G. Ehrenberg of Cornell University.

Yet a host of factors pushes employers to hire fewer workers for more hours and at the same time compels workers to spend more time on the job. Most of those incentives involve what Ehrenberg calls the structure of compensation: quirks in the way salaries and benefits are organised that make it more profitable to ask 40 employees to labour an extra hour each than to hire one more worker to do the same 40-hour job.

Professional and managerial employees supply the most obvious lesson along these lines. Once people are on salary, their cost to a firm is the same whether they spend 35 hours a week in the office or 70. Diminishing returns may eventually set in as overworked employees lose efficiency or leave for more arable pastures. But in the short run, the employer’s incentive is clear. Even hourly employees receive benefits - such as pension contributions and medical insurance - that are not tied to the number of hours they work. Therefore, it is more profitable for employers to work their existing employees harder.

For all that employees complain about long hours, they too have reasons not to trade money for leisure. “People who work reduced hours pay a huge penalty in career terms,” Schor maintains. “It's taken as a negative signal’ about their commitment to the firm.’ [Lotte] Bailyn [of Massachusetts Institute of Technology] adds that many corporate managers find it difficult to measure the contribution of their underlings to a firm’s well-being, so they use the number of hours worked as a proxy for output. “Employees know this,” she says, and they adjust their behaviour accordingly.

“Although the image of the good worker is the one whose life belongs to the company,” Bailyn says, “it doesn't fit the facts.’ She cites both quantitative and qualitative studies that show increased productivity for part-time workers: they make better use of the time they have and they are less likely to succumb to fatigue in stressful jobs. Companies that employ more workers for less time also gain from the resulting redundancy, she asserts. "The extra people can cover the contingencies that you know are going to happen, such as when crises take people away from the workplace." Positive experiences with reduced hours have begun to change the more-is-better culture at some companies, Schor reports. Larger firms, in particular, appear to be more willing to experiment with flexible working arrangements...

It may take even more than changes in the financial and cultural structures of employment for workers successfully to trade increased productivity and money for leisure time, Schor contends. She says the U.S. market for goods has become skewed by the assumption of full-time, two-career households. Automobile makers no longer manufacture cheap models, and developers do not build the tiny bungalows that served the first postwar generation of home buyers. Not even the humblest household object is made without a microprocessor. As Schor notes, the situation is a curious inversion of the “appropriate technology” vision that designers have had for developing countries: U.S. goods are appropriate only for high incomes and long hours. --- Paul Walluh.

Questions 27-32

Do the following statements agree with the views of the writer in reading passage 4? In boxes 27-32 on your answer sheet write:

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

Example	Answer
During the industrial revolution, people worked harder	NOT GIVEN

27 Today, employees are facing a reduction in working hours.
28 Social planners have been consulted about US employment figures.
29 Salaries have not risen significantly since the 1970s.
30 The economic recovery created more jobs.
31 Bailyn’s research shows that part-time employees work more efficiently.
32 Increased leisure time would benefit two-career households.

Questions 33-34

Choose the appropriate letters A-D and write them in boxes 33 and 34 on your answer sheet.

33 Bailyn argues that it is better for a company to employ more workers because

A. it is easy to make excess staff redundant.
B. crises occur if you are under-staffed.
C. people are available to substitute for absent staff.
D. they can project a positive image at work.

34 Schor thinks it will be difficult for workers in the US to reduce their working hours because

A. they would not be able to afford cars or homes.
B. employers are offering high incomes for long hours.
C. the future is dependent on technological advances.
D. they do not wish to return to the humble post-war era.

Questions 35-38

The writer mentions a number of factors that have resulted, in employees working longer hours. Which FOUR of the following factors are mentioned? Write your answers (A-H) in boxes 35-38 on your answer sheet.

List of Factors

A Books are available to help employees cope with stress.
B Extra work is offered to existing employees.
C Increased production has led to joblessness.
D Benefits and hours spent on the job are not linked.
E Overworked employees require longer to do their work.
F Longer hours indicate a greater commitment to the firm.
G Managers estimate staff productivity in terms of hours worked.
H Employees value a career more than a family.

IELTS Academic Reading TEST
Answer:
1 vi
2 ii
3 x
4 viii
5 iv
6 ix
7 existing
8 (related) phrases
9 meanings / forms
10 spoken / real/ oral
11 noise / pauses / noises and pauses
12 B
13 xi
14 ix
15 viii
16 v
17 i
18 vii
19 iii
20 iv
21 sell (more) quickly
22 (South Limberg) planners
23 (road/ noise) embarkments
24 (Olivetti) employees
25 adapt to
26 his bakery busmess / a cool room
27. No
28. Not Given
29. Yes
30. No
31. Yes
32. Not Given
33. C
34. A
35. B. (Extra work is offered to existing employees.)
36. D. (Benefits and hours spent on the job are not linked)
37. F. (Longer hours indicate greater commitment to the firm.)
38. G. (Managers estimate staff productivity in terms of hours worked.)
[Answer 35 - 38, in any order]

READING MOCK TEST

VOCABULARY - SPOKEN CARPUS COMES TO LIFE

1. **HUMOROUS** - Characterized by humour
2. **INVENTIVE** - Independence and creativity in thought or action
3. **IRONY** - Use to convey insult, Paradox
4. **BURROWED** - A hole / tunnel
5. **HALVED** - Half
6. **OBSTACLE** - Problems
7. **CHIC** - Elegantly and stylishly fashionable
8. **WAGES** - Salary, Rewards, Pay off
9. **PENALTY** - A five, act of punishment
10. **FATIGUE** - Tiredness from hard physical or mental work
11. **SKEWED** - Suddenly change the direction or position
12. **CONTINGENCIES** - Result, Eventuality

Academic Reading test
READING PASSAGE 1
You should spend about **20 minutes on Questions 1-15** which are based on **Reading Passage 1 below:**

A spark, a flint: How fire leapt to life

[The control of fire was the first and perhaps greatest of humanity's steps towards a life-enhancing technology.]

To early man, the fire was a divine gift randomly delivered in the form of lightning, forest fire or burning lava. Unable to make flame for themselves, the earliest peoples probably stored fire by keeping slow burning logs alight or by carrying charcoal in pots.

How and where man learnt how to produce flame at will is unknown. It was probably a secondary invention, accidentally made during tool-making operations with wood or stone. Studies of primitive societies suggest that the earliest method of making fire was through friction. European peasants would insert a wooden drill in a round hole and rotate it briskly between their palms This process could be speeded up by wrapping a cord around the drill and pulling on each end.

The Ancient Greeks used lenses or concave mirrors to concentrate the sun's rays and burning glasses were also used by Mexican Aztecs and the Chinese.

Percussion methods of fire-lighting date back to Paleolithic times, when some Stone Age toolmakers discovered that chipping flints produced sparks. The technique became more efficient after the discovery of iron, about 5000 years ago In Arctic North America, the Eskimos produced a slow-burning spark by striking quartz against iron pyrites, a compound that contains sulphur. The Chinese lit their fires by striking porcelain with bamboo. In Europe, the combination of steel, flint and tinder remained the main method of fire lighting until the mid 19th century.

Fire-lighting was revolutionized by the discovery of phosphorus, isolated in 1669 by a German alchemist trying to transmute silver into gold. Impressed by the element's combustibility, several 17th-century chemists used it to manufacture fire-lighting devices, but the results were dangerously inflammable. With phosphorus costing the equivalent of several hundred pounds per ounce, the first matches were expensive.

The quest for a practical match really began after 1781 when a group of French chemists came up with the Phosphoric Candle or Ethereal Match, a sealed glass tube containing a twist of paper tipped with phosphorus. When the tube was broken, air rushed in, causing the phosphorus self-combust. An even more hazardous device, popular in America, was the Instantaneous Light Box — a bottle filled with sulphuric acid into which splints treated with chemicals were dipped.

The first matches resembling those used today were made in 1827 by John Walker, an English pharmacist who borrowed the formula from a military rocket-maker called Congreve. Costing a shilling a box, Congreves were splints coated with sulphur and tipped with potassium chlorate. To light them, the user drew them quickly through folded glass paper.

Walker never patented his invention, and three years later it was copied by a Samuel Jones, who marketed his product as Lucifers. About the same time, a French chemistry student called Charles Sauria produced the first "strike-anywhere" match by substituting white phosphorus for the potassium chlorate in the Walker formula. However, since white phosphorus is a deadly poison, from 1845 match-makers exposed to its fumes succumbed to necrosis, a disease that eats away jaw-bones. It wasn't until 1906 that the substance was eventually banned.

That was 62 years after a Swedish chemist called Pasch had discovered non-toxic red or amorphous phosphorus, a development exploited commercially by Pasch's compatriot J E Lundstrom in 1885. Lundstrom's safety matches were safe because the red phosphorus was non-toxic; it was painted on to the striking surface instead of the match tip, which contained potassium chlorate with a relatively high ignition temperature of 182 degrees centigrade.

America lagged behind Europe in match technology and safety standards. It wasn't until 1900 that the Diamond Match Company bought a French patent for safety matches — but the formula did not work properly in the different climatic conditions prevailing in America and it was another 11 years before scientists finally adapted the French patent for the US.

The Americans, however, can claim several "firsts" in match technology and marketing. In 1892 the Diamond Match Company pioneered book matches. The innovation didn't catch on until after 1896, when a brewery had the novel idea of advertising its product in match books. Today book matches are the most widely used type in the US, with 90 percent handed out free by hotels, restaurants and others.

Other American innovations include an anti-after-glow solution to prevent the match from smoldering after it has been blown out; and the waterproof match, which lights after eight hours in water.

Questions 1-8

Complete the summary below. Choose your answers from the box at the bottom of the page and write them in boxes 1 8 on your answer sheet.

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

EARLY FIRE-LIGHTING METHODS

Primitive Societies saw fire as a ……..(Example)…..… gift. Answer: heavenly

They tried to **..... (1) .....** burning logs or charcoal **..... (2) .....** that they could create fire themselves. It is suspected that the first man-made flames were produced by **..... (3) .....**

The very first fire-lighting methods involved the creation of **..... (4) .....** by, for example, rapidly **..... (5) .....** a wooden stick in a round hole. The use of **..... (6) .....** or persistent chipping was also widespread in Europe and among other peoples such as the Chinese and **..... (7) .....** European practice of this method continued until the 1850s **..... (8) .....** the discovery of phosphorus some years earlier.

List of Words

Mexicans	random	rotating	despite	preserve	realising		
sunlight	lacking	heavenly	percussion	Chance	friction		
unaware	without	make	heating	Eskimos	surprised	until	smoke

Questions 9-15

Look at the following notes that have been made about the matches described in Reading Passage 32. Decide which type of match (**A-H**) corresponds with each description and write your answers in boxes **9-15** on your answer sheet.

NB There are more matches than descriptions so you will not use them all. You may use any match more than once.

Example	***Answer***
could be lit after soaking in water	**H**

NOTES

9 made using a less poisonous type of phosphorus
10 identical to a previous type of match
11 caused a deadly illness
12 first to look like modern matches
13 first matches used for advertising
14 relied on an airtight glass container
15 made with the help of an army design

Types of Matches

A the Ethereal Match
B the Instantaneous Light box
C Congreves
D Lucifers
E the first strike-anywhere match
F Lundstrom's safety match
G book matches
H waterproof matches

Passage 2

You should spend about **20 minutes on Questions 16-28** which are based on **Reading Passage 2 below.**

Zoo Conservation Programmes

One of London Zoo's recent advertisements caused me some irritation, so patently did it distort reality. Headlined "Without zoos, you might as well tell these animals to get stuffed", it was bordered with illustrations of several endangered species and went on to extol the myth that without zoos like London Zoo these animals "will almost certainly disappear forever". With the zoo world's rather mediocre record on conservation, one might be forgiven for being slightly sceptical about such an advertisement.

Zoos were originally created as places of entertainment, and their suggested involvement with conservation didn't seriously arise until about 30 years ago, when the Zoological Society of London held the first formal international meeting on the subject. Eight years later, a series of world conferences took place, entitled "The Breeding of Endangered Species", and from this point onwards conservation became the zoo community's buzzword. This commitment has now been clear defined in The World Zoo Conservation Strategy (WZCS, September 1993), which although an important and welcome document does seem to be based on an unrealistic optimism about the nature of the zoo industry.

The WZCS estimates that there are about 10,000 zoos in the world, of which around 1,000 represent a core of quality collections capable of participating in coordinated conservation programmes. This is probably the document's first failing, as I believe that 10,000 is a serious underestimate of the total number of places masquerading as zoological establishments. Of course, it is difficult to get accurate data but, to put the issue into perspective, I have found that, in a year of working in Eastern Europe, I discover fresh zoos on almost a weekly basis.

The second flaw in the reasoning of the WZCS document is the naive faith it places in its 1,000 core zoos. One would assume that the calibre of these institutions would have been carefully examined, but it appears that the criterion for inclusion on this select list might merely be that the zoo is a member of a zoo federation or association. This might be a good starting point, working on the premise that members must meet certain standards, but again the facts don't support the theory. The greatly respected American Association of Zoological Parks and Aquariums (AAZPA) has had extremely dubious members, and in the UK the Federation of Zoological Gardens of Great Britain and Ireland has.
Occasionally had members that have been roundly censured in the national press. These include Robin Hill Adventure Park on the Isle of Wight, which many considered the most notorious collection of animals in the country. This establishment, which for years was protected by the Isle's local council (which viewed it as a tourist amenity), was finally closed down following a damning report by a veterinary inspector appointed under the terms of the Zoo Licensing Act 1981. As it was always a collection of dubious repute, one is obliged to reflect upon the standards that the Zoo Federation sets when granting membership. The situation is even worse in developing countries where little money is available for redevelopment and it is hard to see a way of incorporating collections into the overall scheme of the WZCS.
Even assuming that the WZCS's 1,000 core zoos are all of a high standard complete with scientific staff and research facilities, trained and dedicated keepers, accommodation that permits normal or natural behaviour, and a policy of co-operating fully with one another what might be the potential for conservation? Colin Tudge, author of Last Animals at the Zoo (Oxford University Press, 1992), argues that "if the world"s zoos worked together in co-operative breeding programmes, then even without further expansion they could save around 2,000 species of endangered land vertebrates'. This seems an extremely optimistic proposition from a man who must be aware of the failings and weaknesses of the zoo industry the man who, when a member of the council of London Zoo, had to persuade the zoo to devote more of its activities to conservation. Moreover, where are the facts to support such optimism?
Today approximately 16 species might be said to have been "saved" by captive breeding programmes, although a number of these can hardly be looked upon as resounding successes. Beyond that, about a further 20 species are being seriously considered for zoo conservation programmes. Given that the international conference at London Zoo was held 30 years ago, this is pretty slow progress, and a long way off Tudge's target of 2,000.

Do the following statements agree with the views of the writer in Reading Passage 2? In boxes 16-22

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

Example London zoo's advertisements are poorly presented. Answer Not Given

16. London Zoo's advertisements are dishonest.
17. Zoos made an insignificant contribution to conservation up until 30 years ago.
18. The WZCS document is not known in Eastern Europe.
19. Zoos in the WZCS select list were carefully inspected.
20. No-one knew how the animals were being treated at Robin Hill Adventure Park.
21. Colin Tudge was dissatisfied with the treatment of animals at London Zoo.
22. The number of successful zoo conservation programmes is unsatisfactory.

Questions 23-25

Choose the appropriate letters A-D and write them in boxes 23-25 on your answer sheet.

23 What were the objectives of the WZCS document?

A. to improve the calibre of zoos worldwide
B. to identify zoos suitable for conservation practice
C. to provide funds for zoos in underdeveloped countries
D. to list the endangered species of the world

24 Why does the writer refer to Robin Hill Adventure Park?

A. to support the Isle of Wight local council
B. to criticise the 1981 Zoo Licensing Act
C. to illustrate a weakness in the WZCS document
D. to exemplify the standards in AAZPA zoos

25 What word best describes the writer's response to Colin Tudges' prediction on captive breeding programmes?

A. disbelieving
B. impartial
C. prejudiced
D. accepting

Questions 26-28

The writer mentions a number of factors which lead him to doubt the value of the WZCS document Which THREE of the following factors are mentioned? Write your answers (**A-F**) in boxes **26-28** on your answer sheet.

List of Factors:

A. the number of unregistered zoos in the world
B. the lack of money in developing countries
C. the actions of the Isle of Wight local council
D. the failure of the WZCS to examine the standards of the "core zoos"
E. the unrealistic aim of the WZCS in view of the number of species "saved" to date
F. the policies of WZCS zoo managers

Passage 3

You should spend about **20 minutes on Questions 29-40** which are based on **Reading Passage 3 below.**

ARCHITECTURE - Reaching for the Sky

Architecture is the art and science of designing buildings and structures. A building reflects the scientific and technological achievements of the age as well as the ideas and aspirations of the designer and client. The appearance of individual buildings, however, is often controversial.

The use of an architectural style cannot be said to start or finish on a specific date. Neither is it possible to say exactly what characterises a particular movement. But the origins of what is now generally known as modern architecture can be traced back to the social and technological changes of the 18th and 19th centuries.

Instead of using timber, stone and traditional building techniques, architects began to explore ways of creating buildings by using the latest technology and materials such as steel, glass and concrete strengthened steel bars, known as reinforced concrete. Technological advances also helped bring about the decline of rural industries and an increase in urban populations as people moved to the towns to work in the new factories. Such rapid and uncontrolled growth helped to turn parts of cities into slums.

By the 1920s architects throughout Europe were reacting against the conditions created by industrialisation. A new style of architecture emerged to reflect more idealistic notions for the future. It was made possible by new materials and construction techniques and was known as Modernism.

By the 1930s many buildings emerging from this movement were designed in the International Style. This was largely characterised by the bold use of new materials and simple, geometric forms, often with white walls supported by stiltlike pillars. These were stripped of unnecessary decoration that would detract from their primary purpose to be used or lived in.

Walter Gropius, Charles Jeanneret (better known as Le Corbusier) and Ludwig Mies van der Rohe were among the most influential of the many architects who contributed to the development of Modernism in the first half of the century. But the economic depression of the 1930s and the second world war (1939-45) prevented their ideas from being widely realised until the economic conditions improved and war-torn cities had to be rebuilt. By the 1950s, the International Style had developed into a universal approach to building, which standardised the appearance of new buildings in cities across the world.

Unfortunately, this Modernist interest in geometric simplicity and function became exploited for profit. The rediscovery of quick-and-easy-to-handle reinforced concrete and an improved ability to prefabricate building sections meant that builders could meet the budgets of commissioning authorities and handle a renewed demand for development quickly and cheaply. But this led to many badly designed buildings, which discredited the original aims of Modernism.

Influenced by Le Corbusier's ideas on town planning, every large British city built multi-storey housing estates in the 1960s. Mass produced, low-cost high-rises seemed to offer a solution to the problem of housing a growing inner-city population. But far from meeting human needs, the new estates often proved to be windswept deserts lacking essential social facilities and services. Many of these buildings were poorly designed and constructed and have since been demolished.

By the 1970s, a new respect for the place of buildings within the existing townscape arose. Preserving historic buildings or keeping only their facades (or fronts) grew common. Architects also began to make more use of building styles and materials that were traditional to the area. The architectural style usually referred to as High Tech was also emerging. It celebrated scientific and engineering achievements by openly parading the sophisticated techniques used in construction. Such buildings are commonly made of metal and glass; examples are Stansted airport and the Lloyd's building in London.

Disillusionment at the failure of many of the poor imitations of Modernist architecture led to interest in various styles and ideas from the past and present. By the 1980s the coexistence of different styles of architecture in the same building became known as Post-Modern. Other architects looked back to the classical tradition. The trend in architecture now favours smaller scale building design that reflects a growing public awareness of environmental issues such as energy efficiency. Like the Modernists, people today recognise that a well-designed environment improves the quality of life but is not necessarily achieved by adopting one well-defined style of architecture.

Twentieth century architecture will mainly be remembered for its tall buildings. They have been made possible by the development of light steel frames and safe passenger lifts. They originated in the US over a century ago to help meet the demand for more economical use of land. As construction techniques improved, the skyscraper became a reality.

[Ruth Coleman]

Questions 29-35

Complete the table below using information from Reading Passage 3. Write **NO MORE THAN THREE WORDS**for each answer. Write your answers in boxes 29-35 on your answer sheet.

PERIOD	**STYLE OF PERIOD**	**BUILDING MATERIALS**	**CHARACTERISTICS**
Before 18th century	*Example* traditional	**... (29) ...**	
1920s	introduction of **…... (30) .....**	steel, glass and concrete	exploration of latest technology
1930s - 1950s	**…... (31) ……**		geometric forms
1960s	decline of Modernism	pre-fabricated sections	**…... (32) …...**
1970s	end of Modernist era	traditional materials	**..... (33) …...** of historic buildings
1970s	beginning of **…... (34) …...** era	metal and glass	sophisticated techniques paraded
1980s	Post-Modernism		**…... (35) …...**

Questions 36-40

Reading Passage 3 describes a number of cause and effect relationships.

Match each Cause (**36-40**) in List **A**, with its Effect (**A-H**) in List **B**.

Write your answers (**A-H**) in boxes 36 40 on your answer sheet.

NB There are more effects in List B than you will need, so you will not use all of them. You may use any effect more than once if you wish.

LIST A CAUSES	**LIST B EFFECTS**
36 A rapid movement of people from rural areas to cities is triggered by technological advance. **37** Buildings become simple and functional. **38** An economic depression and the second world war hit Europe. **39** Multi-storey housing estates are built according to contemporary ideas on town planning. **40** Less land must be used for building.	**A** The quality of life is improved. **B** Architecture reflects the age. **C** A number of these have been knocked down. **D** Light steel frames and lifts are developed. **E** Historical buildings are preserved. **F** All decoration is removed. **G** Parts of cities become slums. **H** Modernist ideas cannot be put into practice until the second half of the 20th century.

IELTS Academic Reading test

Answer:

1 preserve
2 unaware
3 chance
4 friction
5 rotating
6 percussion
7 Eskimos
8 despite
9 F
10 D
11 E
12 C
13 G
14 A
15 C

16. Y
17. Y
18. NG
19. N
20. N
21. NG
22. Y
23. B
24. C
25. A
26. A
27. D
28. E

(26, 27, 28 In any order) Answer:

29 timber and stone
30 Modernism
31 International style
32 badly designed buildings/ multi-storey housmg/ mass-produced, low-cost high-rises
33 preservation
34 High-Tech
35 co-existing of styles / different styles together / styles mixed
36 G
37 F
38 H
39 C
40 D

Vocabulary of reading- a spark, a flint: how fire leapt to life

1) Divine- for or like a god or a god , angelic
2) Primitive-ancient , earliest
3) Flint- a hard grey rock
4) Succumbed- submitted, give way
5) Prevailing- existing at a particular time, winning
6) Smoldering- smoke, glow
7) Suspect- feel , reckon
8) Persistent- determined ,single minded
9) Relied-depended , count
10) Distort- twist , bend, deform
11) Extol- sing the praises of
12) Sceptical- doubtful, doubting
13) Naïve- innocent , inexperienced
14) Dubious-unsure , hesitant
15) Aspirant- a person who has ambitions to achieve
16) Trace- find, discover
17) Prefabricate- manufacture section
18) Parading- march , process , file
19) Sophisticate- well mannered
20) Trigger- activate, set off

ACADEMIC READING TEST

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

Stepwells

A millennium ago, stepwells were fundamental to life in the driest parts of India. Although many have been neglected, recent restoration has returned them to their former glory. Richard Cox travelled to north-western India to document these spectacular monuments from a bygone era.

During the sixth and seventh centuries, the inhabitants of the modern-day states of Gujarat and Rajasthan in North-western India developed a method of gaining access to clean, fresh groundwater during the dry season for drinking, bathing, watering animals and irrigation. However, the significance of this invention – the stepwell – goes beyond its utilitarian application.

Unique to the region, stepwells are often architecturally complex and vary widely in size and shape. During their heyday, they were places of gathering, of leisure, of relaxation and of worship for villagers of all but the lowest castes. Most stepwells are found dotted around the desert areas of Gujarat (where they are called vav) and Rajasthan (where they are known as baori), while a few also survive in Delhi. Some were located in or near villages as public spaces for the community; others were positioned beside roads as resting places for travellers.

As their name suggests, stepwells comprise a series of stone steps descending from ground level to the water source (normally an underground aquifer) as it recedes following the rains. When the water level was high, the user needed only to descend a few steps to reach it; when it was low, several levels would have to be negotiated.

Some wells are vast, open craters with hundreds of steps paving each sloping side, often in tiers. Others are more elaborate, with long stepped passages leading to the water via several storeys built from stone and supported by pillars, they also included pavilions that sheltered visitors from the relentless heat. But perhaps the most impressive features are the intricate decorative culptures that embellish many stepwells, showing activities from fighting and dancing to everyday acts such as women combing their hair and churning butter.

Down the centuries, thousands of wells were constructed throughout north western India, but the majority have now fallen into disuse; many are derelict and dry, as groundwater has been diverted for industrial use and the wells no longer reach the water table. Their condition hasn't been helped by recent dry spells: southern Rajasthan suffered an eight-year drought between 1996 and 2004.

However, some important sites in Gujarat have recently undergone major restoration, and the state government announced in June last year that it plans to restore the stepwells throughout the state.

In Patan, the state's ancient capital, the stepwell of Rani Ki Vav (Queen's Stepwell) is perhaps the finest current example. It was built by Queen Udayamati during the late 11th century, but became silted up following a flood during the 13th century. But the Archaeological Survey of India began restoring it in the 1960s, and today it's in pristine condition. At 65 metres long, 20 metres wide and27 metres deep, Rani Ki Vav features 500 distinct sculptures carved into niches throughout the monument, depicting gods such as Vishnu and Parvati in various incarnations. Incredibly, in January 2001, this ancient structure survived a devastating earthquake that measured 7.6 on the Richter scale.

Another example is the Surya Kund in Modhera, northern Gujarat, next to the Sun Temple, built by King Bhima I in 1026 to honour the sun god Surya. It's actually a tank (kund means reservoir orpond) rather than a well, but displays the hallmarks of stepwell architecture, including four sides of steps that descend to the bottom in a stunning geometrical formation. The terraces house 108small, intricately carved shrines between the sets of steps.

Rajasthan also has a wealth of wells. The ancient city of Bundi, 200 kilometres south of Jaipur, is reknowned for its architecture, including its stepwells. One of the larger examples is Raniji Ki Baori, which was built by the queen of the region, Nathavatji, in 1699. At 46 metres deep, 20 metres wide and 40 metres long, the intricately carved monument is one of 21 baoris commissioned in the Bundi area by Nathavatji.

In the old ruined town of Abhaneri, about 95 kilometres east of Jaipur, is Chand Baori, one of India's oldest and deepest wells; aesthetically, it's perhaps one of the most dramatic. Built in around850 AD next to the temple of Harshat Mata, the baori comprises hundreds of zigzagging steps that run along three of its sides, steeply descending 11 storeys, resulting in a striking geometric pattern when seen from afar. On the fourth side, covered verandas supported by ornate pillars overlook the steps.

Still in public use is Neemrana Ki Baori, located just off the Jaipur–Dehli highway. Constructed in around 1700, it's nine storeys deep, with the last two levels underwater. At ground level, there are86 colonnaded openings from where the visitor descends 170 steps to the deepest water source.

Today, following years of neglect, many of these monuments to medieval engineering have been saved by the Archaeological Survey of India, which has recognised the importance of preserving them as part of the country's rich history. Tourists flock to wells in far-flung corners of northwestern India to gaze in wonder at these architectural marvels from 1,000 years ago, which serve as are minder of both the ingenuity and artistry of ancient civilisations and of the value of water to human existence.

Questions 1–5

Do the following statements agree with the information given in Reading Passage 1?
*In boxes **1–5** on your answer sheet, write*
TRUE if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this

1 Examples of ancient stepwells can be found all over the world.
2 Stepwells had a range of functions, in addition to those related to water collection.
3 The few existing stepwells in Delhi are more attractive than those found elsewhere.
4 It took workers many years to build the stone steps characteristic of stepwells.
5 The number of steps above the water level in a stepwell altered during the course of a year.

Questions 6–8

Choose **ONE WORD ONLY** from the passage for each answer.
Write your answers in boxes 6–8 on your answer sheet.

6 Which part of some stepwells provided shade for people?
7 What type of serious climatic event, which took place in southern Rajasthan, is mentioned in the article?
8 Who are frequent visitors to stepwells nowadays?

Question 9-13

Complete the table below
Choose **ONE WORD AND /OR A NUMBER** *from the passage for each answer.*
Write your answers in boxes **9-13** *on your answer sheet.*

Stepwells	**Date**	**Features**	**Other notes**
Rani Ki Vav	Late 11th century	As many as 500 sculptures decorate the monument	Restored in the 1990s Excellent condition, despite the 9_____ of 2001.
Surya Kund	1026	Steps on the 10_____ produce a geometric pattern Carved shrines.	looks more like a 11_____ then a well.
Raniji Ki Baori	1699	Intricately carved monument	One of 21 baoris in the area commissioned by Queen Nathavatji
Chand Baori	850 AD	Steps take you down 11 storeys to the bottom	Old, deep and very dramatic Has 12_____ which provide a view to the steps.
Neemrana Ki Baori	1700	Has two 13_____levels.	Used by public today

READING PASSAGE 2

Questions 14-21

You should spend about **20 minutes on Questions 14-26***, which are based on Reading Passage 2 on the following pages.*
Reading Passage 2 has nine paragraphs, **A-I***.*
Choose the correct heading for paragraphs **A-E** *and* **G-I** *from the list of headings below.*
Write the correct number **i-xi***, in boxes* ***14-21*** *on your answer sheet.*

List of Headings

i A fresh and important long-term goal
ii Charging for roads and improving other transport methods
iii Changes affecting the distances goods may be transported
iv Taking all the steps necessary to change transport patterns
v The environmental costs of road transport
vi The escalating cost of rail transport
vii The need to achieve transport rebalance
viii The rapid growth of private transport
ix Plans to develop major road networks
x Restricting road use through charging policies alone
xi Transport trends in countries awaiting EU admission

14 Paragraph A
15 Paragraph B
16 Paragraph C
17 Paragraph D
18 Paragraph E
19 Paragraph G
20 Paragraph H
21 Paragraph I

EXAMPLE paragraph F ans vii

EUROPEAN TRANSPORT SYSTEMS 1990-2010

What have been the trends and what are the prospects for European transport systems?

A It is difficult to conceive of vigorous economic growth without an efficient transport system. Although modern information technologies can reduce the demand for physical transport by facilitating teleworking and teleservices, the requirement for transport continues to increase. There are two key factors behind this trend. For passenger transport, the determining factor is the spectacular growth in car use. The number of cars on European Union (EU) roads saw an increase of three million cars each year from 1990 to 2010, and in the next decade the EU will see a further substantial increase in its fleet.

B As far as goods transport is concerned, growth is due to a large extent to changes in the European economy and its system of production. In the last 20 years, as internal frontiers have been abolished, the EU has moved from a ”stock” economy to a ”flow” economy. This phenomenon has been emphasised by the relocation of some industries, particularly those which are labour intensive, to reduce production costs, even though the production site is hundreds or even thousands of kilometres away from the final assembly plant or away from users.

C The strong economic growth expected in countries which are candidates for entry to the EU will also increase transport flows, in particular road haulage traffic. In 1998, some of these countries already exported more than twice their 1990 volumes and imported more than five times their 1990volumes. And although many candidate countries inherited a transport system which encourages rail, the distribution between modes has tipped sharply in favour of road transport since the 1990s.Between 1990 and 1998， road haulage increased by 19.4%, while during the same period rail haulage decreased by 43.5%, although – and this could benefit the enlarged EU – it is still on average at a much higher level than in existing member states.

D However, a new imperative-sustainable development – offers an opportunity for adapting the EU， s common transport policy. This objective, agreed by the Gothenburg European Council, has to be achieved by integrating environmental considerations into Community policies, and shifting the balance between modes of transport lies at the heart of its strategy. The ambitious objective can only be fully achieved by 2020, but proposed measures are nonetheless a first essential step towards a sustainable transport system which will ideally be in place in 30 years‟ time, that is by2040.

E In 1998, energy consumption in the transport sector was to blame for 28% of emissions ofCO_2， the leading greenhouse gas. According to the latest estimates, if nothing is done to reverse the traffic growth trend, CO_2 emissions from transport can be expected to increase by around 50%to 1,113 billion tonnes by 2020， compared with the 739 billion tonnes recorded in 1990. Once again, road transport is the main culprit since it alone accounts for 84% of the CO_2 emissions attributable to transport. Using alternative fuels and improving energy efficiency is thus both an ecological necessity and a technological challenge.

F At the same time greater efforts must be made to achieve a modal shift. Such a change cannot be achieved overnight, all the less so after over half a century of constant deterioration in favour of road. This has reached such a pitch that today rail freight services are facing marginalisation, with just 8% of market share, and with international goods trains struggling along at an average speed of 18km/h. Three possible options have emerged.

G The first approach would consist of focusing on road transport solely through pricing. This option would not be accompanied by complementary measures in the other modes of transport. In the short term it might curb the growth in road transport through the better loading ratio of goods vehicles and occupancy rates of passenger vehicles expected as a result of the increase in the price of transport. However, the lack of measures available to revitalise other modes of transport would make it impossible for more sustainable modes of transport to take up the baton.

H The second approach also concentrates on road transport pricing but is accompanied by measures to increase the efficiency of the other modes (better quality of services, logistics, technology). However, this approach does not include investment in new infrastructure, nor does it guarantee better regional cohesion. It could help to achieve greater uncoupling than the first approach, but road transport would keep the lion's share of the market and continue to concentrate on saturated arteries, despite being the most polluting of the modes. It is therefore not enough to guarantee the necessary shift of the balance.

I The third approach, which is not new, comprises a series of measures ranging from pricing to revitalising alternative modes of transport and targeting investment in the trans-European network. This integrated approach would allow the market shares of the other modes to return to their 1998levels and thus make a shift of balance. It is far more ambitious than it looks, bearing in mind the historical imbalance in favour of roads for the last fifty years, but would achieve a marked break in the link between road transport growth and economic growth, without placing restrictions on the mobility of people and goods.

Questions 22-26

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

In boxes 22-26 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

22 The need for transport is growing, despite technological developments.

23 To reduce production costs, some industries have been moved closer to their relevant consumers.

24 Cars are prohibitively expensive in some EU candidate countries.

25 The Gothenburg European Council was set up 30 years ago.

26 By the end of this decade, CO2 emissions from transport are predicted to reach 739 billion tonnes.

READING PASSAGE 3

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

The psychology of innovation

Why are so few companies truly innovative?

Innovation is key to business survival, and companies put substantial resources into inspiring employees to develop new ideas. There are, nevertheless, people working in luxurious, state-of-the-art centres designed to stimulate innovation who find that their environment doesn't make them feel at all creative. And there are those who don't have a budget, or much space, but who innovate successfully.

For Robert B. Cialdini, Professor of Psychology at Arizona State University, one reason that companies don't succeed as often as they should is that innovation starts with recruitment. Research shows that the fit between an employee's values and a company's values makes a difference to what contribution they make and whether, two years after they join, they're still at the company. Studies at Harvard Business School show that, although some individuals may be more creative than others, almost every individual can be creative in the right circumstances.

One of the most famous photographs in the story of rock'n'roll emphasises Ciaidini's views. The1956 picture of singers Elvis Presley, Carl Perkins, Johnny Cash and Jerry Lee Lewis jamming at apiano in Sun Studios in Memphis tells a hidden story. Sun's 'million-dollar quartet' could have been a quintet. Missing from the picture is Roy Orbison' a greater natural singer than Lewis, Perkins or Cash. Sam Phillips, who owned Sun, wanted to revolutionise popular music with songs that fused black and white music, and country and blues. Presley, Cash, Perkins and Lewis instinctively understood Phillips's ambition and believed in it. Orbison wasn't inspired by the goal, and only ever achieved one hit with the Sun label.

The value fit matters, says Cialdini, because innovation is, in part, a process of change, and under that pressure we, as a species, behave differently, 'When things change, we are hard-wired to play it safe.' Managers should therefore adopt an approach that appears counterintuitive -they should explain what stands to be lost if the company fails to seize a particular opportunity. Studies show that we invariably take more gambles when threatened with a loss than when offered a reward.
Managing innovation is a delicate art. It's easy for a company to be pulled in conflicting directions as the marketing, product development, and finance departments each get different feedback from different sets of people. And without a system which ensures collaborative exchanges within the company, it's also easy for small 'pockets of innovation‟ to disappear. Innovation is a contact sport. You can‟t brief people just by saying, 'We're going in this direction and I'm going to take you with me.'
Cialdini believes that this 'follow-the-leader syndrome, is dangerous, not least because it encourages bosses to go it alone. 'It's been scientifically proven that three people will be better than one at solving problems, even if that one person is the smartest person in the field.' To prove his point, Cialdini cites an interview with molecular biologist James Watson. Watson, together with Francis Crick, discovered the structure of DNA, the genetic information carrier of all living organisms. 'When asked how they had cracked the code ahead of an array of highly accomplished rival investigators, he said something that stunned me. He said "he and Crick had succeeded because they were aware that they weren't the most intelligent of the scientists pursuing the answer. The smartest scientist was called Rosalind Franklin who, Watson said, "was so intelligent she rarely sought advice".'
Teamwork taps into one of the basic drivers of human behaviour. 'The principle of social proof is so pervasive that we don't even recognise it,' says Cialdini. 'If your project is being resisted, for example, by a group of veteran employees, ask another old-timer to speak up for it.' Cialdini is not alone in advocating this strategy. Research shows that peer power, used horizontally not vertically, is much more powerful than any boss's speech.
Writing, visualising and prototyping can stimulate the flow of new ideas. Cialdini cites scores of research papers and historical events that prove that even something as simple as writing deepens very individual's engagement in the project. It is, he says, the reason why all those competitions on breakfast cereal packets encouraged us to write in saying, in no more than 10 words: 'I like Kellogg's Com Flakes because… .' The very act of writing makes us more likely to believe it.
Authority doesn't have to inhibit innovation but it often does. The wrong kind of leadership will lead to what Cialdini calls "captainitis, the regrettable tendency of team members to opt out of team responsibilities that are properly their'. He calls it captainitis because, he says, "crew members of multipilot aircraft exhibit a sometimes deadly passivity when the flight captain makes a clearly wrong-headed decision". This behaviour is not, he says, unique to air travel, but can happen in any workplace where the leader is overbearing.
At the other end of the scale is the 1980s Memphis design collective, a group of young designers for whom "the only rule was that there were no rule". This environment encouraged a free interchange of ideas, which led to more creativity with form, function, colour and materials that revolutionised attitudes to furniture design.
Many theorists believe the ideal boss should lead from behind, taking pride in collective accomplishment and giving credit where it is due. Cialdini says:"Leaders should encourage everyone to contribute and simultaneously assure all concerned that every recommendation is important to making the right decision and will be given full attention" The frustrating thing about innovation is that there are many approaches, but no magic formula. However, a manager who wants to create a truly innovative culture can make their job a lot easier by recognising these psychological realities.

Questions 27-30

Choose the correct letter, A, B, C or D.
Write the correct letter in boxes 27-30 on your answer sheet.

27. The example of the 'million-dollar quartet' underlines the writer's point about

A recognising talent.
B working as a team.
C having a shared objective.
D being an effective leader.

28. James Watson suggests that he and Francis Crick won the race to discover the DNA code because they

A were conscious of their own limitations.
B brought complementary skills to their partnership.
C were determined to outperform their brighter rivals.
D encouraged each other to realise their joint ambition.

29. The writer mentions competitions on breakfast cereal packets as an example of how to
A inspire creative thinking.
B generate concise writing.
C promote loyalty to a group.
D strengthen commitment to an idea.

30. In the last paragraph, the writer suggests that it is important for employees to
A be aware of their company's goals.
B feel that their contributions are valued.
C have respect for their co-workers‟ achievements.
D understand why certain management decisions are made.

Questions 31-35
Complete each sentence with the correct ending, A-G, below.
Write the correct letter, A-G, in boxes 31-35 on your answer sheet
31. Employees whose values match those of their employers are more likely to
32. At times of change, people tend to
33. If people are aware of what they might lose, they will often
34. People working under a dominant boss are liable to .
35. Employees working in organisations with few rules are more likely to

A take chances.
B share their ideas.
C become competitive.
D get promotion.
E avoid risk.
F ignore their duties.
G remain in their jobs.

Questions 36-40
Do the following statements agree with the claims of the writer in Reading Passage 3?
In boxes 36-40 on your answer sheet, write
YES if the statement agrees with the claims of the writer
NO if the statement contradicts the claims of the writer
NOT GIVEN if it is impossible to say what the writer thinks about this.
36 The physical surroundings in which a person works play a key role in determining their creativity.
37 Most people have the potential to be creative.
38 Teams work best when their members are of equally matched intelligence.
39 It is easier for smaller companies to be innovative.
40 A manager’s approval of an idea is more persuasive than that of a colleague.

ACADEMIC READING – ANSWERS

1. FALSE:
2. TRUE:
3. NOT GIVEN:
4. NOT GIVEN:
5. TRUE:
6. pavilions:
7. drought:
8. tourists:
9. Earthquake:
10. Four sides/4 sides:
11. Tank:
12. verandas/verandahs:
13. underwater:
14. viii:
15. iii:
16. xi:
17. i:
18. v:
19. x:
20. ii:
21. iv:
22. TRUE:
23. FALSE:
24. NOT GIVEN:
25. NOT GIVEN:
26. FALSE:
27. C:
28. A:
29. D:
30. B:
31. G:
32. E:
33. A:
34. F:
35. B:
36. NO:
37. YES:
38. NOT GIVEN:
39. NOT GIVEN:
40. NO:

Vocabulary of Reading- Step wells

1. Utilitarian-Someone Who Practice
2. Step wells- A Well In Which The Water Can Be Reached By Descending A Set Of Steps
3. Craters- A Hemispherical Pit (E.G Mouth Of Volcano)
4. Pavilions- Public Shelter, Light Roofed Structure
5. Embellish- To Make More Beautiful And Attractive
6. Derelict- Neglected, Abandoned
7. Reservoir- Place Where Anything Is Stored
8. Intricately- In An Complex Manner
9. Colonnaded- Having Colonad (A Series Of Columns)
10. Vigorous- Strong, Active
11. Haulage- Act Of Hauling(Carrying)
12. Marginalisation- To Margin, Process Of Margining
13. Ingenuity- Ability To Solve Difficult Problems
14. Solely- Alone
15. Revitalise-Give New Life, Energy
16. Revolutionise- To Change Significantly
17. Prototyping- Rapid Creation Of Prototypes(Samples)
18. Seize-Grab, Capture
19. Sought-Seek, To Look For
20. Counterintuitive-Contrary To Intuition, Common Sense

TEST

READING PASSAGE 1

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

Foot Pedal Irrigation

A Until now, governments and development agencies have tried to tackle the problem through large-scale projects: gigantic dams, sprawling, irrigation canals and vast new fields of high-yield crops introduced during the Green Revolution, the famous campaign to increase grain harvests in developing nations. Traditional irrigation, however, has degraded the soil in many areas, and the reservoirs behind dams can quickly fill up with silt, reducing their storage capacity and depriving downstream farmers of fertile sediments. Furthermore, although the Green Revolution has greatly expanded worldwide farm production since 1950, poverty stubbornly persists in Africa, Asia and Latin America. Continued improvements in the productivity of large farms may play the main role in boosting food supply, but local efforts to provide cheap, individual irrigation systems to small farms may offer a better way to lift people out of poverty.

B The Green Revolution was designed to increase the overall food supply, not to raise the incomes of the rural poor, so it should be no surprise that it did not eradicate poverty or hunger. India, for example, has been self-sufficient in food for 15 years, and its granaries are full, but more than 200 million Indians – one fifth of the country's population – are malnourished because they cannot afford the food they need and because the country's safety nets are deficient. In 2000, 189 nations committed to the Millennium Development Goals, which called for cutting world poverty in half by 2015. With business as usual, however, we have little hope of achieving most of the Millennium goals, no matter how much money rich countries contribute to poor ones.

C The supply-driven strategies of the Green Revolution, however, may not help subsistence farmers, who must play to their strengths to compete in the global marketplace. The average size of a family farm is less than four acres in India, 1.8 acres in Bangladesh and about half an acre in China. Combines and other modern farming tools are too expensive to be used on such small areas. An Indian farmer selling surplus wheat grown on his one-acre plot could not possibly compete with the highly efficient and subsidized Canadian wheat farms that typically stretch over thousands of acres. Instead subsistence farmers should exploit the fact that their labor costs are the lowest in the world, giving them a comparative advantage in growing and selling high-value, intensely farmed crops.

D Paul Polak saw firsthand the need for a small-scale strategy in 1981 when he met Abdul Rahman, a farmer in the Noakhali district of Bangladesh. From his three quarter-acre plots of rain-fed rice fields, Abdul could grow only 700 kilograms of rice each year – 300 kilograms less than what he needed to feed his family. During the three months before the October rice harvest came in, Abdul and his wife had to watch silently while their three children survived on one meal a day or less. As Polak walked with him through the scattered fields he had inherited from his father, Polak asked what he needed to move out of poverty. "Control of water for my crops," he said, "at a price I can afford."

E Soon Polak learned about a simple device that could help Abdul achieve his goal: the treadle pump. Developed in the late 1970s by Norwegian engineer Gunnar Barnes, the pump is operated by a person walking in place on a pair of treadles and two handle arms made of bamboo. Properly adjusted and maintained, it can be operated several hours a day without tiring the users. Each treadle pump has two cylinders which are made of engineering plastic. The diameter of a cylinder is 100.5mm and the height is 280mm. The pump is capable of working up to a maximum depth of 7 meters. Operation beyond 7 meters is not recommended to preserve the integrity of the rubber components. The pump mechanism has piston and foot valve assemblies. The treadle action creates alternate strokes in the two pistons that lift the water in pulses.

F The human-powered pump can irrigate half an acre of vegetables and costs only $25 (including the expense of drilling a tube well down to the groundwater). Abdul heard about the treadle pump from a cousin and was one of the first farmers in Bangladesh to buy one. He borrowed the $25 from an uncle and easily repaid the loan four months later. During the five-month dry season, when Bangladeshis typically farm very little, Abdul used the treadle pump to grow a quarter-acre of chili peppers, tomatoes, cabbage and eggplants. He also improved the yield of one of his rice plots by irrigating it. His family ate some of the vegetables and sold the rest at the village market, earning a net profit of $100. With his new income, Abdul was able to buy rice for his family to eat, keep his two sons in school until they were 16 and set aside a little money for his daughter's dowry. When Polak visited him again in 1984, he had doubled the size of his vegetable plot and replaced the thatched roof on his house with corrugated tin. His family was raising a calf and some chickens. He told me that the treadle pump was a gift from God.

G Bangladesh is particularly well suited for the treadle pump because a huge reservoir of groundwater lies just a few meters below the farmers' feet. In the early 1980s IDE initiated a campaign to market the pump, encouraging 75 small

private-sector companies to manufacture the devices and several thousand village dealers and tube-well drillers to sell and install them. Over the next 12 years one and a half million farm families purchased treadle pumps, which increased the farmers' net income by a total of $150 million a year. The cost of IDE's market-creation activities was only $12 million, leveraged by the investment of $37.5 million from the farmers themselves. In contrast, the expense of building a conventional dam and canal system to irrigate an equivalent area of farmland would be in the range of $2,000 per acre, or $1.5 billion.

PASSAGE 1: QUESTIONS 1-13

Questions 1–6

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

In boxes 1 – 6 on your answer sheet, write

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

1 [ ] It is more effective to resolve poverty or food problem in large scale rather than in small scale.

2 [ ] Construction of gigantic dams costs more time in developing countries.

3 [ ] Green revolution foiled to increase global crop production from the mid of 20th century.

4 [ ] Agricultural production in Bangladesh declined in last decade.

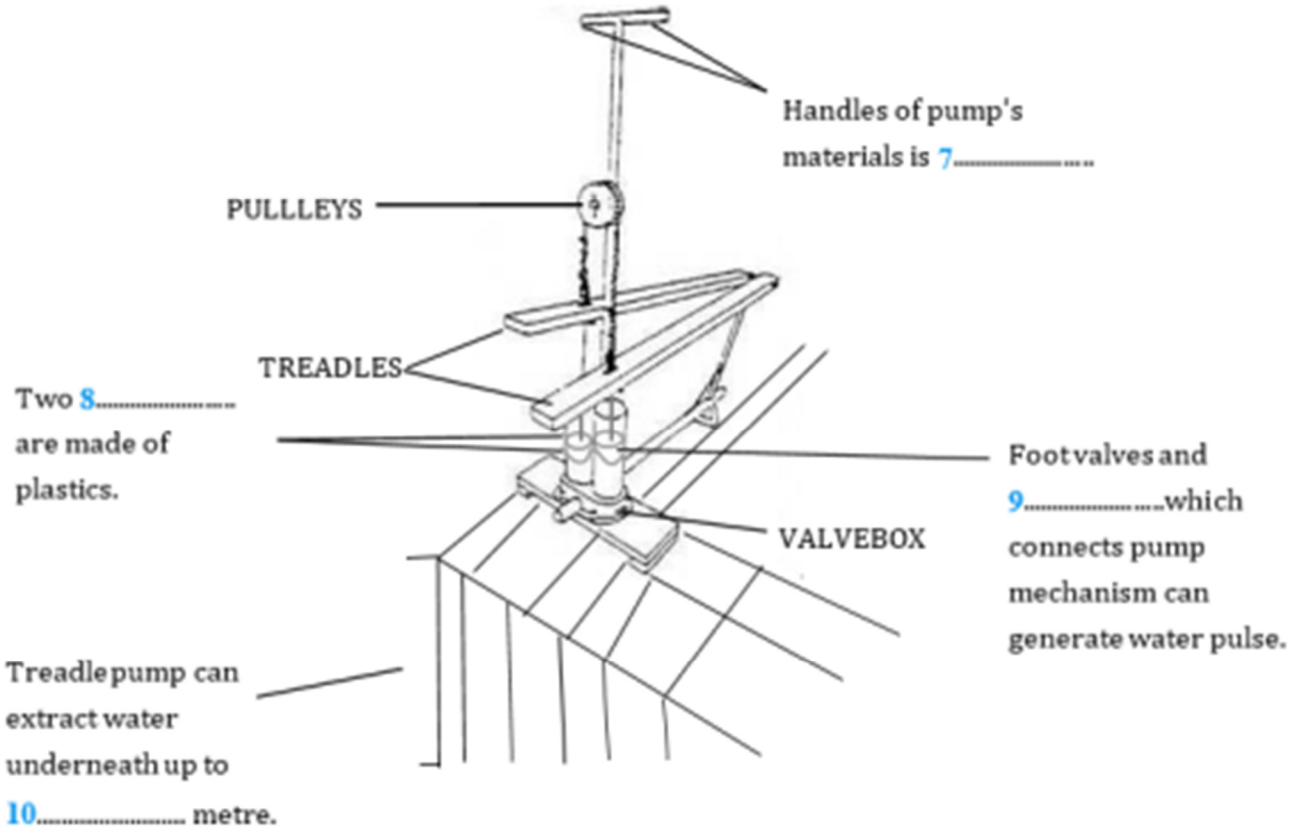
5 [ ] Farmer Abdul Rahman knew how to increase production himself.

6 [ ] Small pump spread into big project in Bangladesh in the past decade.

Questions 7–10

Filling the blanks in diagram of treadle pump's each parts.

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



7 [ ] 8 [ ] 9 [ ] 10 [ ]

Questions 11 – 13
Answer the questions below.
Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.

How large area can a treadle pump irrigate the field at a low level of expense? 11

What is Abdul's new roof made of? 12

How much did Bangladesh farmers invest by IDE's stimulation? 13

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

Learning By Examples

A Learning theory is rooted in the work of Ivan Pavlov, the famous scientist who discover and documented the principles governing how animals (humans included) learn in the 1900s. Two basic kinds of learning or conditioning occur, one of which is famously known as the classical condition. Classical conditioning happens when an animal learns to associate a neutral stimulus (signal) with a stimulus that has intrinsic meaning based on how closely in time the two stimuli are presented. The classic example of classical conditioning is a dog's ability to associate the sound of a bell (something that originally has no meaning to the dog) with the presentation of food (something that has a lot of meaning for the dog) a few moments later. Dogs are able to learn the association between bell and food, and will salivate immediately after hearing the bell once this connection has been made. Years of learning research have led to the creation of a highly precise learning theory that can be used to understand and predict how and under what circumstances most any animal will learn, including human beings, and eventually help people figure out how to change their behaviors.

B Role models are a popular notion for guiding child development, but in recent years very interesting research has been done on learning by example in other animals. If the subject of animal learning is taught very much in terms of classical or operant conditioning, it places too much emphasis on how we allow animals to learn and not enough on how they are equipped to learn. To teach a course of mine I have been dipping profitably into a very interesting and accessible compilation of papers on social learning in mammals, including chimps and human children, edited by Heyes and Galef.

C The research reported in one paper started with a school field trip to Israel to a pine forest where many pine cones were discovered, stripped to the central core. So the investigation started with no weighty theoretical intent, but was directed at finding out what was eating the nutritious pine seeds and how they managed to get them out of the cones. The culprit proved to be the versatile and athletic black rat (Rattus) and the technique was to bite each cone scale off at its base, in sequence from base to tip following the spiral growth pattern of the cone.

D Urban black rats were found to lack the skill and were unable to learn it even if housed with experiences cone strippers. However, infants of urban mothers cross fostered to stripper mothers acquired the skill, whereas infants of stripper mothers fostered by an urban mother could not. Clearly the skill had to be learned from the mother. Further elegant experiments showed that naive adults could develop the skill if they were provided with cones from which the first complete spiral of scales had been removed, rather like our new photocopier which you can word out how to use once someone has shown you how to switch it on. In case of rats, the youngsters take cones away from the mother when she is still feeding on them, allowing them to acquire the complete stripping skill.

E A good example of adaptive bearing we might conclude, but let's see the economies. This was determined by measuring oxygen uptake of a rat stripping a cone in a metabolic chamber to calculate energetic cost and comparing it with the benefit of the pine seeds measured by calorimeter. The cost proved to be less than 10% of the energetic value of the cone. An acceptable profit margin.

F A paper in 1996 Animal Behavior by Bednekoff and Balda provides a different view of the adaptiveness of social learning. It concerns the seed catching behavior of Clark's nutcracker (Nucifraga Columbiana) and the Mexican jay (Aphelocoma ultramarine). The former is a specialist, catching 30,000 or so seeds in scattered locations that it will recover over the months of winter, the Mexican jay will also cache food but is much less dependent upon this than the nutcracker. The two species also differ in their social structure, the nutcracker being rather solitary while the jay forages in social groups
.

G The experiment is to discover not just whether a bird can remember where it hid a seed but also if it can remember where it saw another bird hide a seed. The design is slightly comical with a cacher bird wandering about a room with lots of holes in the floor hiding food in some of the holes, while watched by an observer bird perched in a cage. Two days later cachers and observers are tested for their discovery rate against an estimated random performance. In the role of cacher,

not only nutcracker but also the less specialized jay performed above chance; more surprisingly, however, jay observers were as successful as jay cachers whereas nutcracker observers did no better than chance. It seems that, whereas the nutcracker is highly adapted at remembering where it hid its own seeds, the social living Mexican jay is more adept at remembering, and so exploiting, the caches of others.

SECTION 2: QUESTIONS 14-26

Questions 14–17

Reading Passage has seven paragraphs, A – G.
Which paragraph contains the following information?
Write the correct letter, A – G, in boxes 1 – 4 on your answer sheet.

14 [ ] a comparison between rats, learning and human learning

15 [ ] a reference to the earliest study in animal learning

16 [ ] the discovery of who stripped the pine cone

17 [ ] a description of a cost-effectiveness experiment

Questions 18–21

Do the following statements agree with the information given in Reading Passage?
In boxes 18 – 21 on your answer sheet write

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

18 [ ] The field trip to Israel was to investigate how black rats learn to strip pine cones.

19 [ ] The pine cones were stripped from bottom to top by black rats.

20 [ ] It can be learned from other relevant experiences to use a photocopier.

21 [ ] Stripping the pine cones is an instinct of the black rats.

Questions 22–26

Complete the summary below using words from the box.
Write your answers in boxes 22 – 26 on your answer sheet.

While the Nutcracker is more able to cache see, the Jay relies 22 [ ] on caching food and is thus less specialized in this ability, but more 23 [ ] To study their behavior of caching and finding their caches, an experiment was designed and carried out to test these two birds for their ability to remember where they hid the seeds.
In the experiment, the cacher bird hid seeds in the ground while the other 24 [ ] As a result, the Nutcracker and the Mexican Jay showed different performance in the role of 25 [ ] at finding the seeds—the observing 26 [ ] didn't do as well as its counterpart.

less	more	solitary	social
cacher	observer	remembered	watched
Jay	Nutcracker		

READING PASSAGE 3

You should spend about **20 minutes on Questions 27-39** , which are based on **Reading Passage 3 below.**

Eco-Resort Management

A Ecotourism is often regarded as a form of nature-based tourism and has become an important alternative source of tourists. In addition to providing the traditional resort-leisure product, it has been argued that ecotourism resort management should have a particular focus on best-practice environmental management, an educational and interpretive component, and direct and indirect contributions to the conservation of the natural and cultural environment (Ayala, 1996).

B Couran Cove Island Resort is a large integrated ecotourism-based resort located south of Brisbane on the Gold Coast, Queensland, Australia. As the world's population becomes increasingly urbanised, the demand for tourist attractions which are environmentally friendly, serene and offer amenities of a unique nature, has grown rapidly. Couran Cove Resort, which is one such tourist attractions, is located on South Stradbroke Island, occupying approximately 150 hectares of the island. South Stradbroke Island is separated from the mainland by the Broadwater, a stretch of sea 3 kilometers wide. More than a century ago, there was only one Stradbroke Island, and there were at least four aboriginal tribes living and hunting on the island. Regrettably, most of the original island dwellers were eventually killed by diseases such as tuberculosis, smallpox and influenza by the end of the 19th The second ship wreak on the island in 1894, and the subsequent destruction of the

ship (the Cambus Wallace) because it contained dynamite, caused a large crater in the sandhills on Stradbroke Island. Eventually, the ocean broke through the weakened land form and Stradbroke became two islands. Couran Cove Island Resort is built on one of the world's few naturally-occurring sand lands, which is home to a wide range of plant communities and one of the largest remaining remnants of the rare livistona rainforest left on the Gold Coast. Many mangrove and rainforest areas, and Malaleuca Wetlands on South Stradbroke Island (and in Queensland), have been cleared, drained or filled for residential, industrial, agricultural or urban development in the first half of the 20th century. Farmer and graziers finally abandoned South Stradbroke Island in 1939 because the vegetation and the soil conditions there were not suitable for agricultural activities.

SUSTAINABLE PRACTICES OF COURAN COVE RESORT

Being located on an offshore island, the resort is only accessible by means of water transportation. The resort provides hourly ferry service from the marina on the mainland to and from the island. Within the resort, transport modes include walking trails, bicycle tracks and the beach train. The reception area is the counter of the shop which has not changed in 8 years at least. The accommodation is an octagonal "Bure". These are large rooms that are clean but! The equipment is tired and in some cases just working. Our ceiling fan only worked on high speed for example. Beds are hard but clean, there is television, radio, an old air conditioner and a small fridge. These "Bures" are right on top of each other and night noises do carry so be careful what you say and do. The only thing is the mosquitos but if you forget to bring mosquito repellant they sell some on the island.

As an ecotourism-based resort, most of the planning and development of the attraction has been concentrated on the need to co-exist with the fragile natural environment of South Stradbroke Island to achieve sustainable development.

WATER AND ENERGY MANAGEMENT

C South Stradbroke Island has groundwater at the centre of the island, which has a maximum height of 3 metres above sea level. The water supply is recharged by rainfall and is commonly known as an unconfined freshwater aquifer. Couran Cove Island Resort obtains its water supply by tapping into this aquifer and extracting it via a bore system. Some of the problems which have threatened the island's freshwater supply include pollution, contamination and over-consumption. In order to minimise some of these problems, all laundry activities are carried out on the mainland. The resort considers washing machines as onerous to the island's freshwater supply, and that the detergents contain a high level of phosphates which are a major source of water pollution. The resort uses LPG-power generation rather than a diesel-powered plant for its energy supply, supplemented by wind turbine, which has reduced greenhouse emissions by 70% of diesel-equivalent generation methods. Excess heat recovered from the generator is used to heat the swimming pool. Hot water in the eco-cabins and for some of the resort's vehicles are solar-powered. Water efficient fittings are also installed in showers and toilets. However, not all the appliances used by the resort are energy efficient, such as refrigerators. Visitors who stay at the resort are encouraged to monitor their water and energy usage via the in-house television system, and are rewarded with prizes (such as a free return trip to the resort) accordingly if their usage level is low

.**CONCLUDING REMARKS**

D We examined a case study of good management practice and a pro-active sustainable tourism stance of an eco-resort. In three years of operation, Couran Cove Island Resort has won 23 international and national awards, including the 2001 Australian Tourism Award in the 4-Star Accommodation category. The resort has embraced and has effectively implemented contemporary environmental management practices. It has been argued that the successful implementation of the principles of sustainability should promote long-term social, economic and environmental benefits, while ensuring and enhancing the prospects of continued viability for the tourism enterprise. Couran Cove Island Resort does not conform to the characteristics of the ResortDevelopmentSpectrum, as proposed by Prideaux (2000). According to Prideaux, the resort should be at least at Phase 3 of the model (the National tourism phase), which describes an integrated resort providing 3-4 star hotel-type accommodation. The primary tourist market in Phase 3 of the model consists mainly of interstate visitors. However, the number of interstate and international tourists visiting the resort is small, with the principal visitor markets comprising locals and residents from nearby towns and the Gold Coast region. The carrying capacity of Couran Cove does not seem to be of any concern to the Resort management. Given that it is a private commercial ecotourist enterprise, regulating the number of visitors to the resort to minimize damage done to the natural environment on South Stradbroke Island is not a binding constraint. However, the Resort's growth will eventually be constrained by its carrying capacity, and quantity control should be incorporated in the management strategy of the resort.

PASSAGE 3: QUESTIONS 27-39

Questions 27-31

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

Write your answers in boxes 27-31 on your answers sheet.

27 The Stradbroke became two islands

A ☐ by an intended destruction of the ship of the Cambus Wallace

B ☐ by an explosion of dynamite on a ship and following nature erosion

C ☐ by the movement sandhills on Stradbroke Island

D ☐ by the volcanic eruption on island

28 Why are laundry activities for the resort carried out on the mainland

A ☐ In order to obtain its water supply via a bore system

B ☐ In order to preserve the water and anti-pollution

C ☐ In order to save the cost of installing onerous washing machines

D ☐ In order to reduce the level of phosphates in water around

29 What is the major water supplier in South Stradbroke Island is by

A ☐ desalinizing the sea water

B ☐ collecting the rainfall

C ☐ transporting from the mainland

D ☐ boring ground water

30 What is applied for heating water on Couran Cove Island Resort

A ☐ the LPG-power

B ☐ a diesel-powered plant

C ☐ the wind power

D ☐ the solar-power

31 What does, as the managers of resorts believe, the prospective future focus on

A ☐ more awards of for resort's accommodation

B ☐ sustainable administration and development in a long run

C ☐ Economic and environmental benefits for the tourism enterprise

D ☐ successful implementation the Resort Development Spectrum

Questions 32-36

Complete the following summary of the Reading Passage, using NO MORE THAN TWO WORDS from the Reading Passage for each answer.

Write your answers in boxes 32-36 on your answer sheet.

Being located away from the mainland, tourists can attain the resort only by 32 _____ in a regular service. Within the resort, transports include trails for walking or tracks for both 33 _____ and the beach train. The on-island equipment is old-fashioned which is barely working such as the 34 _____ overhead. There is television, radio, an old 35 _____ and a small fridge. And you can buy the repellant for 36 _____ if you forget to bring some.

Questions 37-39

Choose THREE correct letters among, A-E.

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

What is true as to the contemporary situation of Couran Cove Island R in the last paragraph

A ☐ Couran Cove Island Resort goes for more eco-friendly practices.

B ☐ The accommodation standard only conforms to the Resort Development Spectrum of Phase 3.

C ☐ Couran Cove Island Resort should raise the accommodation standard and build more facilities.

D ☐ The principal group visiting the resort is international tourists.

E ☐ Its carrying capacity will restrict the future business' expansion.

TEST READING Answer Keys:

1 FALSE
2 NOT GIVEN
3 FALSE
4 NOT GIVEN
5 TRUE
6 TRUE
7 bamboo
8 cylinders
9 Piston
10 seven/7
11 1/2 an acre/half an acre
12 corrugated tin
13 $37.5 million/37.5 million dollars
14 D
15 A
16 C
17 E
18 FALSE
19 TRUE
20 TRUE
21 FALSE
22 less
23 social
24 watched
25 observer
26 Nutcracker
27 B
28 B
29 D
30 D
31 B
32 ferry
33 bicycle
34 (ceiling) fan
35 air conditioner
36 mosquito(s)
37 39 A,C,E

READING ACADEMIC

VOCABULARY - FOOD PEDAL IRRIGATION

1. **PERSISTS** - Continue doing something in spite of difficulty or opposition
2. **STUBBORNLY** - Determined not to change mind
3. **RESERVOIR** - A lake used as a source of water supply
4. **STIMULI** - Signal
5. **INTRINSIC** - Forming part of the basic nature of something
6. **INTENT** - An aim, A plan or A purpose
7. **VERSATILE** - Able to do or can be used in many different things
8. **NATIVE** - Local
9. **OCTAGONAL** - A plane figure with eight edges
10. **EMBRACED** - Hold closely in your hand, willingly accept or support a change
11. **EXTRACTING** - Obtain something, separate out a substance by a special method
12. **CONSTRAINT** - A restriction, restrict, make something narrow or tighter
13. **INCORPORATED** - include as a part of whole
14. **SUSTAINABLE** - Avoiding using up natural resources
15. **INTEGRATE** - Combine to form a whole

TEST READING

READING PASSAGE 1

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

POLLUTING SOUNDS: IN SEARCH OF SILENCE

In a self-imposed solitary confinement, 22-year old Tom Wonnacott, a Princeton graduate student, spent four days lying in a lightless, sound-proofed isolation chamber. Unable to see or hear, he also wore thick gloves to restrict his sense of touch. Wonnacott volunteered to undergo this experience to help US-based psychologists find out what happens to people isolated from the outside world and deprived of the normal use of their senses. While over a longer period of time such extremes of silence in conjunction with sensory deprivation are harmful, there are many today who are in search of quieter areas.

An over-abundance of noise has always been a significant environmental issue for man. In ancient Rome, rules existed to ensure that the noise emitted from the large iron wheels of wagons which rolled over the stones on the pavements and caused disruption of sleep and annoyance was minimised by allowing people to travel only during certain times. The same rules existed in Medieval Europe. To ensure inhabitants were given the best chance at a peaceful night's sleep, in some cities, horse-drawn carriages and horseback riding were not allowed at night time. However when today's noise problems arc compared with the noise pollution problems of the past they are almost incomparable.

An immense number of vehicles of various shapes and sizes are regularly driven around and through most of the world's cities and countrysides. Loud, large diesel engines power the enormous trucks that roll around highways day and night. Aircraft and trains add to the environmental noise scenario. In industry, machinery emits high noise levels and amusement parks and pleasure vehicles distract leisure time and relaxation. One hundred years ago, environmental experts predicted that in the 21st century there would be a shortage of water and silence. They were correct. Silence is scarce. More and more silence is drowned out by sound.

A lack of knowledge about the effects of noise pollution on humans in comparison to other pollutants has been lacking as an area of research. Although it has been generally regarded that noise pollution is primarily a 'luxury' problem – for those developed countries able to afford the purchase price of large quantities of loud, noisy machinery – it is actually a fact that due to bad planning and poor construction of buildings, noise exposure is often higher in developing countries. This means that regardless of the economic status of a particular country, the effects of noise are just as widespread and the long-term consequences for health the same. Therefore, practical action plans based upon proper scientific evaluation of available data on the effects of noise exposure, with the express purpose of limiting and controlling the exposure of people to environmental noise is a most worthwhile undertaking.

It has been well established that exposure to loud noises for extended periods of time causes trauma to the inner ear and often results in irreversible hearing loss. When it initially receives sound, the human ear actually amplifies it by a factor of 20. In 1965, in a remote part of Ghana, scientists went about studying the impact of 'insignificant' exposure to industrial noise and transportation. In tandem, the Ghanese group was compared with a control group in industrial USA. A number of startling conclusions were drawn from the experiments. For example, both locations revealed that aging is an almost insignificant cause of hearing loss. Instead it was show-n that chronic exposure to moderately high levels of environmental noise led to hearing loss. Cardiovascular complaints also emerged from among those with prolonged exposure to industrial noise above 70 dBA. In fact, over a single eight-hour period, it was shown that participants experienced a rise in blood pressure thus indicating noise pollution contributes to human stress levels. If this was not alarming enough, also noted was an increase in the incidence of heart disease.

The findings from various noise studies had the effect of changing the perspectives of many of the world's governments. Whereas noise had been considered a 'nuisance' rather than an environmental problem, laws were made to protect citizens against it. In the United States and Ghana, federal standards for highway and aircraft noise were introduced. State governments created noise regulations pertaining to building codes, urban planning and road construction. In Canada and the EU, noise laws are the domain of local governments. Activities in those countries deemed mandatory such as the collection of rubbish or some medical services are the only allowed exceptions to what otherwise are quiet local neighbourhood zones.

Typically, quiet times in neighbourhoods are between 6am and 10pm with restricted higher decibel levels after these hours. What happens if these quite times are violated? Unfortunately, the enforcement of noise laws has proven problematic for many local governments with enforcement agencies often not following up on noise complaints. For persistent nuisances, individuals may seek compensation through the local courts and in some cities, police are authorised to impound such things as stereos and cars. These are extreme cases; most issues are handled by negotiation between the emitter and the receiver.

PASSAGE 1: QUESTIONS 1-13

Questions 1-7

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

In boxes 1-7 on your answer sheet, write

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

1 [ ] Noise pollution is a relatively new pollution.

2 [ ] Experts forecasted that water and noise pollution would be major future problems.

3 [ ] Noise pollution seems to be a bigger problem in richer, developed countries.

4 [ ] Noises that enter the human ear are actually heard louder than they really are.

5 [ ] There is a strong relationship between hearing loss and age.

6 [ ] Loud noise exposure studies have caused government changes.

7 [ ] In Canada, police monitor the level of noise in local neighbourhoods.

Questions 8–9

Choose TWO letters, A-G.

The list of problems below can be caused by exposure to high noise levels.

Which TWO are mentioned by the writer of the text?

A ☐ increased ear sensitivity

B ☐ reduced reaction time

C ☐ increased aging of the body

D ☐ heart disease

E ☐ stomach cancer

F ☐ sleep apnea

G ☐ increased blood pressure

Questions 10 – 13

Classify the following features as applying to

A	**people from the USA**
B	**people from Ghana**
C	**both people from the USA and Ghana**

Write the correct letter A, B or C, in boxes 10-13 on your answer sheet.

10 [ ] individuals participated in a noise study

11 [ ] conducted a silence study

12 [ ] introduced air traffic regulations

13 [ ] the relationship between industrial noise and blood pressure

READING PASSAGE 2

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

UNEARTHING JÓRVÍK

A. From 1976 to 1981 in what is now known as the city of York in North Yorkshire, England, an archaeological dig was conducted in and around the street of Coppergate. This excavation played a most significant part in bringing to life the Viking kingdom of Jorvik.

B. Because most artifacts are made of materials which arc readily destroyed by Ore, coming across an abundance of them after so many years is indeed a rare thing. The five-year excavation in and around the street of Coppergate by the York Archaeological Trust, managed to uncover some breathtakingly well-preserved remains of Jorvik. Due to the unusual abundance of dense, anoxic wet clay, Jorvik's mostly timber buildings, pits and wells, work areas and animal pens were remarkably very much intact.

C. Most commonly, household items from long ago were made of organic material and therefore tended to decompose completely in oxygen-rich soil. However, the complete lack of oxygen in the earth meant that decay bacteria was unable to break down the embedded Viking objects. An oxygen-free organic 'cocoon' comprising a mix of plant debris, including remains of plants, wood chips, twigs, straw used for bedding and thatch used in building, created an environment which enabled archaeologists to uncover an abundance of relics left over from a period dating back to the 10th century. Excavations of up to nine meters comprising numerous layers of deposits uncovered a number of household articles such as pottery and eating utensils as well as items made of wood and leather – all remarkably well-preserved. Many beautifully-

decorated combs were among the most common items found at Coppergate. Combs at various stages of production, from sawn off-cuts of antler to the finished product, were all uncovered at the site.

D. The unusual number of combs found in the area indicated to archaeologists that there had been significant head lice infestations during the period. Head lice continue to be a menace in many parts of the world today and. excavations in the area revealed that such was the case for the residents of Jorvik. Though probably not too harmful to their health, also uncovered in the stomachs of many of the residents were parasitic worms, some of them up to a third of a metre long. Given the close proximity of household waste (food scraps, shells, bones) to houses, archaeologists deduced that sanitation in the area was generally poor. This poor sanitation would have impacted upon life expectancy with records indicating that most people did not live beyond the age of 50.

E Archaeologists are concerned with studying the environment of a past civilisation and, like a detective, try to reconstruct a picture of what life in a particular area must have been like. Remains from the city of Jorvik told archaeologists a story about life in the Viking kingdom. A cap made of silk which was uncovered indicated a connection with the Byzantine Empire and beyond. Coins bearing inscriptions from the Uzbekistan city of Samarkand and a cowrie shell indicated contact with the Persian Gulf or Red Sea tus showing how far some of the inhabitants must have traveled. Also uncovered side-by-side were Christian and pagan objects probably indicating that Christians were probably not in power at the time.

F It was clear from the wide range of everyday items uncovered that under the Vikings, Jorvik excelled as an important manufacturing center. The name 'Coppergate' means 'the street of cup-makers' in the old Norse language and further illustrated the manufacturing nature of the area as hundreds of wooden cores – the waste or off-cuts from wooden bowls and cups – were found in the area. This evidence points to a well-developed wood-working industry with the mass production of household wooden items. Another excavated area uncovered yet another manufacturing industry: metal work. Iron objects such as tools and knives for everyday purposes as well as moulds for making various types of jewellry were all uncovered. Shoemakers and repairers also were in significant number. Belts, straps, pouches, knife sheaths and piles of leather off-cuts all evidenced a thriving leather-craft trade. Balls of beeswax used to lubricate the needles as they passed through the leather were all tell-tail signs of a flourishing industry. Textile making materials such as needles and spindles to hold material were also uncovered.

G. Re-created from the excavation of just four Viking-Age house plots, the small Jorvik Viking Centre which was opened in April 1984 reminds tourists and visitors of life long ago. Using innovative interpretive methods, the York Archaeological Trust has recreated a model of what they believe the city of Jorvik would have been like. Mid 10th century single-storey homes with upright posts supporting thatched roofs, open fireplaces and simple earthen floors have all been constructed.

PASSAGE 2: QUESTIONS 14-26

Questions 14-15

Choose TWO letters, A-F.

Write the correct letters in boxes 14-15 on your answer sheet.

The list below gives some factors which may explain why the artifacts at Jorvik were so well preserved.

Which TWO reasons are mentioned by the writer of the passage?

A ☐ the complete absence of fires

B ☐ the clay

C ☐ the lack of oxygen in the soil

D ☐ the organic composition of the artifacts

E ☐ the abundance of decay bacteria

F ☐ the combination of plants, wood chips and twigs in the area

Questions 16 -21

Do the following statements reflect the claims of the writer?

In boxes 16-21 on your answer sheet write

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

16 [▼] The archaeological findings in Jorvik are unusual.

17 [▼] The number of combs discovered evidence large-scale head lice problems in J6rvik.

18 [▼] Poor standards in cleanliness resulted in shorter life-spans.

19 [▼] Most of the town of Jorvik has now been uncovered by archaeologists.

20 [▼] Coins from Samarkand indicated that Jorvik had visitors from other countries.

21 Coppergate was so called because many cups were made in the area.

Questions 22-26

Reading Passage 2 has seven paragraphs, A-G.
Which paragraph contains the following information?
Write the correct letter, A-G in boxes 22-26 on your answer sheet.
NB You may use any letter more than once.

22 examples of the types of industries in Jorvik

23 a reference to the material used in mid-10th century bedding in Jorvik

24 a reference to the number of Viking homes uncovered in Jorvik

25 a simple job definition

26 an example of an annoying type of

READING PASSAGE 3

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

Learning Languages

It is no small intellectual task that a child learns a language. In order to begin to communicate, a young child must first gain an understanding of the internal structure of a system that, in reality, contains tens of thousands of units, all generated from a small set of basic building blocks. In the case of English, these basic building blocks' are the alphabet and the units' are words. Although initially, a child may be able to grasp and manipulate the basic letters of a language to form an infinite number of units', he or she must progress to another higher form of comprehension – the understanding that only a subset of those combinations is correct – what are actual meaningful words. Somehow, a young child must become familiar with the structure of a particular language system such that he or she can use it to communicate with others.

Given the complexity of the process of language acquisition, the question of how infants learn to speak in their native language so rapidly is an interesting one. Among linguists, the answer to this question has been researched and debated for decades. Some researchers think that the answer to the question – if indeed there is one – may unlock a secret to faster language acquisition amongst older people. Over the years, experiments where researchers have devised an artificial language that contained certain aspects of natural language structure have been tried. The artificial language was presented to the infants one 'piece' or 'sample' at a time. Once they became familiar with one piece of the language, another piece from the same artificial language was introduced. Once the infant appeared comfortable with this process, a piece of real or bona fide language was introduced. The researchers then measured such things as surprise and interest shown in the new language samples to determine whether or not the infant related to them as being completely new or as being more of what had been previously learned. The infant's reactions to the new stimuli helped linguists to determine what mechanisms underpin the first stages of language acquisition. Experiments like this have uncovered some astonishing facts namely the rate at which an infant, even as young as 7 or 8 months, can take on the new' information. Some infants demonstrated the ability to process the new information after as little as 3 minutes of exposure. Their young minds were able to structure the linguistic input into relevant and ultimately meaningful units of information.

Much of a child's future social and intellectual development hinges upon their ability to acquire language. For this reason, language acquisition is one of the key milestones in early childhood development. Many child development experts encourage parents to start talking to their infant from the day of their birth. Some researchers maintain that the best way for a child to learn is to simply hear language as those around them talk. Repetition of structures seems to be a logical and academically defensible method of child language acquisition. Quite a large body of research has shown that optimal language development occurs when the same stories are read over and over again to young children. In one experiment, a mother exposed her son to only one book for nearly two years. The results were that the child spoke much earlier than his other siblings and was able to recite 90% of the text on each page by the age of two. Other studies have revealed that a knowledge of nursery rhymes among three-year-olds has been a significant predictor of later reading skill.

These examples of language learning, processing and producing, represent just a few of the many developments between birth and the eventual linguistic maturity that most children naturally attain. It is during this early period that children discover the raw materials in the sounds of their language, learn how they are assembled into longer strings, and then used in meaningful contexts. These processes unfold simultaneously, requiring children to organise the code of communication that surrounds them. Even though each layer is complex, young children readily solve the linguistic puzzles they encounter.

Regardless of the methods employed, the acquisition of a language is not an automatic process but rather one that occurs as a result of a process of learning. If a child does not take on a new language, then isolation and withdrawal often accompany learning difficulties and poor academic performance.

PASSAGE 3: QUESTIONS 27-40

Questions 27 – 31

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

Write the correct letter in boxes 27-31 on your answer sheet.

27 According to the writer, an 'internal language structure'

A ☐ consists only of the alphabet.

B ☐ is the starting point for communication.

C ☐ comprises an infinite number of words.

D ☐ is another term for linguistic comprehension.

28 The writer states that understanding a language occurs

A ☐ once the learner understands the 'basic building blocks'.

B ☐ once the learner grasps the 'units' of a language.

C ☐ once the alphabet is learned.

D ☐ naturally, as soon as a child is old enough.

29 An 'artificial language'

A ☐ is a new form of communication amongst young children.

B ☐ was used as a contrast with real language.

C ☐ was devised slowly, over a considerable period of time.

D ☐ is a mixture of real and artificial words.

30 According to the writer, infant surprise and interest

A ☐ indicated infant intelligence.

B ☐ was greater amongst infants exposed to a bona fide language.

C ☐ revealed how language is initially learned.

D ☐ were the most dependable indicators of gauging infant reaction to new stimuli.

31 What greatly surprised researchers of infant language acquisition was

A ☐ how readily participants demonstrated an ability to learn new languages.

B ☐ how quickly the infants learned to verbally communicate.

C ☐ how young the participants in the experiment were.

D ☐ how quickly some infants learned new information.

Questions 32–35

Complete the summary.

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

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

If a child does not 32 _____ in early childhood, he or she will be greatly restricted in both the ability to interact with others and academic growth and development.

To teach infants language, some researchers recommend that they 33 _____ it, while others feel that 34 _____ is the most effective way for them to learn.

Regardless of which method of language acquisition is used, most children reach 35 _____ as they grow and develop.

Questions 36–39

Do the following statements reflect the claims of the writer?

In boxes 36-40 on your answer sheet write

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

36 _____ Understanding how children learn language may help adults learn language.

37 _____ The reactions of infants to artificial languages were quite similar.

38 _____ Learning about organising and then using sounds occurs regularly among children.

39 _____ Language learning ability impacts upon writing ability.

Question 40

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

Write your answer in box 40 on your answer sheet.

40 What is the best title for Reading Passage 3?

A ☐ Clues for adult language learning.

B ☐ Language acquisition in infants and young children.

C ☐ Measuring speaking ability amongst infants.

D ☐ Acquiring language: The key to future learning.

E ☐ Experiments in infant language acquisition

TEST READING Answer Keys:

1 FALSE
2 TRUE
3 FALSE
4 TRUE
5 FALSE
6 TRUE
7 NOT GIVEN
8-9 D,G
10 C
11 A
12 C
13 C
1415 B,C
16 YES
17 YES
18 YES
19 NOT GIVEN
20 NO
21 YES
22 F
23 C
24 G
25 E
26 D
27 B
28 B
29 B
30 C
31 D
32 acquire/learn language
33 hear
34 repetition (of structures)
35 linguistic maturity
36 YES
37 NOT GIVEN
38 YES
39 NOT GIVEN
40 B

READING ACADEMIC

VOCABULARY - POLLUTING SOUND : IN SEARCH OF SILENCE

1. **MENACE** - A person or thing that is likely to cause harm
2. **DEPRIVATION** - Lack of basic necessity
3. **ENORMOUS** - very big or very great
4. **TRAUMA** - Disturbing experience
5. **PERSISTENCE** - Lasting for a long time
6. **BREATHTAKING** - Wonderful, Awesome
7. **EMBEDDED** - To fix something firmly and deeply
8. **ACQUISITION** - The act of obtaining or buying something
9. **BONAFIDE** - Real or Genuine
10. **LINGUISTIC** - Connected with language or study of a language
11. **GRASP** - To understand something completely
12. **DEFENSIBLE** - Things or an argument that can be justified

ACADEMIC READING TEST

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

The megafires of California

Drought, housing expansion, and oversupply of tinder make for bigger, hotter fires in the western United States

Wildfires are becoming an increasing menace in the western United States, with Southern California being the hardest hit area. There's a reason fire squads battling more frequent blazes in Southern California are having such difficulty containing the flames, despite better preparedness than ever and decades of experience fighting fires fanned by the 'Santa Ana Winds'. The wildfires themselves, experts say, are generally hotter, faster, and spread more erratically than in the past.

Megafires, also called 'siege fires', are the increasingly frequent blazes that burn 500,000 acres or more - 10 times the size of the average forest fire of 20 years ago. Some recent wildfires are among the biggest ever in California in terms of acreage burned, according to state figures and news reports.

One explanation for the trend to more superhot fires is that the region, which usually has dry summers, has had significantly below normal precipitation in many recent years. Another reason, experts say, is related to the century- long policy of the US Forest Service to stop wildfires as quickly as possible.

The unintentional consequence has been to halt the natural eradication of underbrush, now the primary fuel for megafires.

Three other factors contribute to the trend, they add. First is climate change, marked by a 1-degree Fahrenheit rise in average yearly temperature across the western states. Second is fire seasons that on average are 78 days longer than they were 20 years ago. Third is increased construction of homes in wooded areas.

'We are increasingly building our homes in fire-prone ecosystems,' says Dominik Kulakowski, adjunct professor of biology at Clark University Graduate School of Geography in Worcester, Massachusetts. 'Doing that in many of the forests of the western US is like building homes on the side of an active volcano.'

In California, where population growth has averaged more than 600,000 a year for at least a decade, more residential housing is being built. 'What once was open space is now residential homes providing fuel to make fires burn with greater intensity,' says Terry McHale of the California Department of Forestry firefighters' union. 'With so much dryness, so many communities to catch fire, so many fronts to fight, it becomes an almost incredible job.'

That said, many experts give California high marks for making progress on preparedness in recent years, after some of the largest fires in state history scorched thousands of acres, burned thousands of homes, and killed numerous people. Stung in the past by criticism of bungling that allowed fires to spread when they might have been contained, personnel are meeting the peculiar challenges of neighborhood - and canyon- hopping fires better than previously, observers say.

State promises to provide more up-to-date engines, planes, and helicopters to fight fires have been fulfilled. Firefighters' unions that in the past complained of dilapidated equipment, old fire engines, and insufficient blueprints for fire safety are now praising the state's commitment, noting that funding for firefighting has increased, despite huge cuts in many other programs. 'We are pleased that the current state administration has been very proactive in its support of us, and [has] come through with budgetary support of the infrastructure needs we have long sought,' says Mr. McHale of the firefighters' union.

Besides providing money to upgrade the fire engines that must traverse the mammoth state and wind along serpentine canyon roads, the state has invested in better command-and-control facilities as well as in the strategies to run them. 'In the fire sieges of earlier years, we found that other jurisdictions and states were willing to offer mutual-aid help, but we were not able to communicate adequately with them,' says Kim Zagaris, chief of the state's Office of Emergency Services Fire and Rescue Branch.

After a commission examined and revamped communications procedures, the statewide response 'has become far more professional and responsive,' he says. There is a sense among both government officials and residents that the speed, dedication, and coordination of firefighters from several states and jurisdictions are resulting in greater efficiency than in past 'siege fire' situations.

In recent years, the Southern California region has improved building codes, evacuation procedures, and procurement of new technology. 'I am extraordinarily impressed by the improvements we have witnessed,' says Randy Jacobs, a Southern California- based lawyer who has had to evacuate both his home and business to escape wildfires. 'Notwithstanding all the damage that will continue to be caused by wildfires, we will no longer suffer the loss of life endured in the past because of the fire prevention and firefighting measures that have been put in place,' he says.

Questions 1-6

Complete the notes below.

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

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

Wildfires

• Characteristics of wildfires and wildfire conditions today compared to the past:

- occurrence: more frequent
- temperature: hotter
- speed: faster
- movement: 1)_____ more unpredictably
- size of fires: 2)_____ greater on average than two decades ago

• Reasons wildfires cause more damage today compared to the past:

- rainfall: 3)_____average
- more brush to act as 4)_____
- increase in yearly temperature
- extended fire 5)_____
- more building of 6)_____ in vulnerable places

Questions 7-13

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

In boxes 7-13 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

7 The amount of open space in California has diminished over the last ten years.

8 Many experts believe California has made little progress in readying itself to fight fires.

9 Personnel in the past have been criticised for mishandling fire containment.

10 California has replaced a range of firefighting tools.

11 More firefighters have been hired to improve fire-fighting capacity.

12 Citizens and government groups disapprove of the efforts of different states and agencies working together.

13 Randy Jacobs believes that loss of life from fires will continue at the same levels, despite changes made.

Reading Passage 2

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

Second nature

Your personality isn't necessarily set in stone. With a little experimentation, people can reshape their temperaments and inject passion, optimism, joy and courage into their lives

A Psychologists have long held that a person's character cannot undergo a transformation in any meaningful way and that the key traits of personality are determined at a very young age. However, researchers have begun looking more closely at ways we can change. Positive psychologists have identified 24 qualities we admire, such as loyalty and kindness, and are studying them to find out why they come so naturally to some people. What they're discovering is that many of these qualities amount to habitual behaviour that determines the way we respond to the world. The good news is that all this can be learned.

Some qualities are less challenging to develop than others, optimism being one of them. However, developing qualities requires mastering a range of skills which are diverse and sometimes surprising. For example, to bring more joy and passion into your life, you must be open to experiencing negative emotions. Cultivating such qualities will help you realise your full potential.

B 'The evidence is good that most personality traits can be altered,' says Christopher Peterson, professor of psychology at the University of Michigan, who cites himself as an example. Inherently introverted, he realised early on that as an academic, his reticence would prove disastrous in the lecture hall. So he learned to be more outgoing and to entertain his classes. 'Now my extroverted behaviour is spontaneous,' he says.

C David Fajgenbaum had to make a similar transition. He was preparing for university, when he had an accident that put an end to his sports career. On campus, he quickly found that beyond ordinary counselling, the university had no services for

students who were undergoing physical rehabilitation and suffering from depression like him. He therefore launched a support group to help others in similar situations. He took action despite his own pain - a typical response of an optimist.
D Suzanne Segerstrom, professor of psychology at the University of Kentucky, believes that the key to increasing optimism is through cultivating optimistic behaviour, rather than positive thinking. She recommends you train yourself to pay attention to good fortune by writing down three positive things that come about each day. This will help you convince yourself that favourable outcomes actually happen all the time, making it easier to begin taking action.
E You can recognise a person who is passionate about a pursuit by the way they are so strongly involved in it. Tanya Streeter's passion is freediving - the sport of plunging deep into the water without tanks or other breathing equipment. Beginning in 1998, she set nine world records and can hold her breath for six minutes. The physical stamina required for this sport is intense but the psychological demands are even more overwhelming. Streeter learned to untangle her fears from her judgment of what her body and mind could do. 'In my career as a competitive freediver, there was a limit to what I could do - but it wasn't anywhere near what I thought it was/ she says.
F Finding a pursuit that excites you can improve anyone's life. The secret about consuming passions, though, according to psychologist Paul Silvia of the University of North Carolina, is that 'they require discipline, hard work and ability, which is why they are so rewarding.' Psychologist Todd Kashdan has this advice for those people taking up a new passion: 'As a newcomer, you also have to tolerate and laugh at your own ignorance. You must be willing to accept the negative feelings that come your way,' he says.
G In 2004, physician-scientist Mauro Zappaterra began his PhD research at Harvard Medical School. Unfortunately, he was miserable as his research wasn't compatible with his curiosity about healing. He finally took a break and during eight months in Santa Fe, Zappaterra learned about alternative healing techniques not taught at Harvard. When he got back, he switched labs to study how cerebrospinal fluid nourishes the developing nervous system. He also vowed to look for the joy in everything, including failure, as this could help him learn about his research and himself.
One thing that can hold joy back is a person's concentration on avoiding failure rather than their looking forward to doing something well. 'Focusing on being safe might get in the way of your reaching your goals,' explains Kashdan. For example, are you hoping to get through a business lunch without embarrassing yourself, or are you thinking about how fascinating the conversation might be?
H Usually, we think of courage in physical terms but ordinary life demands s omething else. For marketing executive Kenneth Pedeleose, it meant speaking out against something he thought was ethically wrong. The new manager was intimidating staff so Pedeleose carefully recorded each instance of bullying and eventually took the evidence to a senior director, knowing his own job security would be threatened. Eventually the manager was the one to go. According to Cynthia Pury, a psychologist at Clemson University, Pedeleose's story proves the point that courage is not motivated by fearlessness, but by moral obligation. Pury also believes that people can acquire courage. Many of her students said that faced with a risky situation, they first tried to calm themselves down, then looked for a way to mitigate the danger, just as Pedeleose did by documenting his allegations.
Over the long term, picking up a new character trait may help you move toward being the person you want to be. And in the short term, the effort itself could be surprisingly rewarding, a kind of internal adventure.

Questions 14-18
Choose NO MORE THAN TWO WORDS from the passage for each answer.
Write your answers in boxes 14-18 on your answer sheet.
Psychologists have traditionally believed that a personality 14)_____ was impossible and that by a 15)_____ a person's character tends to be fixed. This is not true according to positive psychologists, who say that our personal qualities can be seen as habitual behaviour. One of the easiest qualities to acquire is 16)_____ . However, regardless of the quality, it is necessary to learn a wide variety of different 17)_____ in order for a new quality to develop; for example, a person must understand and feel some 18)_____ in order to increase their happiness.

Questions 19-22
Match each statement with the correct person, A-G.
Write the correct letter, A-G, in boxes 19-22 on your answer sheet.
19 People must accept that they do not know much when first trying something new.
20 It is important for people to actively notice when good things happen.
21 Courage can be learned once its origins in a sense of responsibility are understood.
22 It is possible to overcome shyness when faced with the need to speak in public.

List of People
A Christopher Peterson
B David Fajgenbaum
C Suzanne Segerstrom
D Tanya Streeter
E Todd Kashdan
F Kenneth Pedeleose
G Cynthia Pury

Questions 23-26
Reading Passage 2 has eight sections, A-H.
Which section contains the following information?
Write the correct letter, A-H, in boxes 23-26 on your answer sheet.
23 a mention of how rational thinking enabled someone to achieve physical goals
24 an account of how someone overcame a sad experience
25 a description of how someone decided to rethink their academic career path
26 an example of how someone risked his career out of a sense of duty

Reading Passage 3
*You should spend about **20 minutes on Questions 27-40**, which are based on **Reading Passage 3 below.***
When evolution runs backwards
Evolution isn't supposed to run backwards - yet an increasing number of examples show that it does and that it can sometimes represent the future of a species.
The description of any animal as an 'evolutionary throwback' is controversial. For the better part of a century, most biologists have been reluctant to use those words, mindful of a principle of evolution that says 'evolution cannot run backwards. But as more and more examples come to light and modern genetics enters the scene, that principle is having to be rewritten. Not only are evolutionary throwbacks possible, they sometimes play an important role in the forward march of evolution.
The technical term for an evolutionary throwback is an 'atavism', from the Latin atavus, meaning forefather. The word has ugly connotations thanks largely to Cesare Lombroso, a 19th-century Italian medic who argued that criminals were born not made and could be identified by certain physical features that were throwbacks to a primitive, sub-human state.
While Lombroso was measuring criminals, a Belgian palaeontologist called Louis Dollo was studying fossil records and coming to the opposite conclusion. In 1890 he proposed that evolution was irreversible: that 'an organism is unable to return, even partially, to a previous stage already realised in the ranks of its ancestors. Early 20th-century biologists came to a similar conclusion, though they qualified it in terms of probability, stating that there is no reason why evolution cannot run backwards -it is just very unlikely. And so the idea of irreversibility in evolution stuck and came to be known as 'Dollo's law.
If Dollo's law is right, atavisms should occur only very rarely, if at all. Yet almost since the idea took root, exceptions have been cropping up. In 1919, for example, a humpback whale with a pair of leglike appendages over a metre long, complete with a full set of limb bones, was caught off Vancouver Island in Canada. Explorer Roy Chapman Andrews argued at the time that the whale must be a throwback to a land-living ancestor. 'I can see no other explanation, he wrote in 1921.
Since then, so many other examples have been discovered that it no longer makes sense to say that evolution is as good as irreversible. And this poses a puzzle: how can characteristics that disappeared millions of years ago suddenly reappear?
In 1994, Rudolf Raff and colleagues at Indiana University in the USA decided to use genetics to put a number on the probability of evolution going into reverse. They reasoned that while some evolutionary changes involve the loss of genes and are therefore irreversible, others may be the result of genes being switched off. If these silent genes are somehow switched back on, they argued, longlost traits could reappear.

Raff's team went on to calculate the likelihood of it happening. Silent genes accumulate random mutations, they reasoned, eventually rendering them useless. So how long can a gene survive in a species if it is no longer used? The team calculated that there is a good chance of silent genes surviving for up to 6 million years in at least a few individuals in a population, and that some might survive as long as 10 million years. In other words, throwbacks are possible, but only to the relatively recent evolutionary past.

As a possible example, the team pointed to the mole salamanders of Mexico and California. Like most amphibians these begin life in a juvenile 'tadpole' state, then metamorphose into the adult form – except for one species, the axolotl, which famously lives its entire life as a juvenile. The simplest explanation for this is that the axolotl lineage alone lost the ability to metamorphose, while others retained it. From a detailed analysis of the salamanders' family tree, however, it is clear that the other lineages evolved from an ancestor that itself had lost the ability to metamorphose. In other words, metamorphosis in mole salamanders is an atavism. The salamander example fits with Raff's 10million-year time frame.

More recently, however, examples have been reported that break the time limit, suggesting that silent genes may not be the whole story. In a paper published last year, biologist Gunter Wagner of Yale University reported some work on the evolutionary history of a group of South American lizards called Bachia. Many of these have minuscule limbs; some look more like snakes than lizards and a few have completely lost the toes on their hind limbs. Other species, however, sport up to four toes on their hind legs. The simplest explanation is that the toed lineages never lost their toes, but Wagner begs to differ. According to his analysis of the Bachia family tree, the toed species re-evolved toes from toeless ancestors and, what is more, digit loss and gain has occurred on more than one occasion over tens of millions of years.

So what's going on? One possibility is that these traits are lost and then simply reappear, in much the same way that similar structures can independently arise in unrelated species, such as the dorsal fins of sharks and killer whales. Another more intriguing possibility is that the genetic information needed to make toes somehow survived for tens or perhaps hundreds of millions of years in the lizards and was reactivated. These atavistic traits provided an advantage and spread through the population, effectively reversing evolution.

But if silent genes degrade within 6 to million years, how can long-lost traits be reactivated over longer timescales? The answer may lie in the womb. Early embryos of many species develop ancestral features. Snake embryos, for example, sprout hind limb buds. Later in development these features disappear thanks to developmental programs that say 'lose the leg'. If for any reason this does not happen, the ancestral feature may not disappear, leading to an atavism.

QUESTIONS 27-31

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

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

27. When discussing the theory developed by Louis Dollo, the writer says that

A it was immediately referred to as Dollo's law.

B it supported the possibility of evolutionary throwbacks.

C it was modified by biologists in the early twentieth century.

D it was based on many years of research.

28. The humpback whale caught off Vancouver Island is mentioned because of

A the exceptional size of its body.

B the way it exemplifies Dollo's law.

C the amount of local controversy it caused.

D the reason given for its unusual features.

29. What is said about 'silent genes'?

A Their numbers vary according to species.

B Raff disagreed with the use of the term.

C They could lead to the re-emergence of certain characteristics.

D They can have an unlimited life span.

30. The writer mentions the mole salamander because

A it exemplifies what happens in the development of most amphibians.

B it suggests that Raffs theory is correct.

C it has lost and regained more than one ability.

D its ancestors have become the subject of extensive research.

31. Which of the following does Wagner claim?
A Members of the Bachia lizard family have lost and regained certain features several times.
B Evidence shows that the evolution of the Bachia lizard is due to the environment.
C His research into South American lizards supports Raffs assertions.
D His findings will apply to other species of South American lizards.

Questions 32-36
Complete each sentence with the correct ending, A-G, below.
Write the correct letter, A-G, in boxes 32-36 on your answer sheet.
32 For a long time biologists rejected
33 Opposing views on evolutionary throwbacks are represented by
34 Examples of evolutionary throwbacks have led to
35 The shark and killer whale are mentioned to exemplify
36 One explanation for the findings of Wagner's research is
A the question of how certain long-lost traits could reappear.
B the occurrence of a particular feature in different species.
C parallels drawn between behaviour and appearance.
D the continued existence of certain genetic information.
E the doubts felt about evolutionary throwbacks.
F the possibility of evolution being reversible.
G Dollo's findings and the convictions held by Lombroso.

Questions 37 – 40
Do the following statements agree with the claims of the writer in Reading Passage 3?
In boxes 37 – 40 on your answer sheet, write
YES if the statement agrees with the claims of the writer
NO if the statement contradicts the claims of the writer
NOT GIVEN if it is impossible to say what the writer thinks about this
37 Wagner was the first person to do research on South American lizards.
38 Wagner believes that Bachia lizards with toes had toeless ancestors.
39 The temporary occurence of longlost traits in embryos is rare.
40 Evolutionary throwbacks might be caused by developmental problems in the womb.

ACADEMIC READING – ANSWERS

1. spread:
2. 10/ten times:
3. below:
4. fuel:
5. seasons:
6. homes/housing:
7. TRUE:
8. FALSE:
9. TRUE:
10. TRUE:
11. NOT GIVEN:
12. FALSE:
13. FALSE:
14. transformation/change:
15. young age:
16. optimism:
17. skills/techniques:
18. negative emotions / feelings:
19. E:
20. C:
21. G:
22. A:
23. E:
24. C:
25. G:
26. H:
27. C:
28. D:
29. C:
30. B:
31. A:
32. F:
33. G:
34. A:
35. B:
36. D:
37. NOT GIVEN:
38. YES:
39. NO:
40. YES:

Vocabulary of Reading-The Mega fires Of California

1) Tinder- Small Dry Sticks
2) Menace-Danger, Perceived Threat
3) Blaze- Fast Burning Flame
4) Preparedness- State Of Being Prepared
5) Erratically- Unpredictably
6) Acreage- Size Measured In Acres
7) Siege- A Seat, Home, Residence
8) Halt- To Stand In Doubt Whether To Proceed
9) Eradication- Act Of Plucking By Roots
10) Adjunct-Something Attached To Something Else
11) Peculiar- Odd, Strange
12) Dilapidated- To Remove Lipids From
13) Traverse- To Travel Across, Route Or Authority
14) Jurisdiction- The Power, Right Or Authority
15) Procurement- Attainment, Act Of Procuring
16) Endured- To Continue, Carry On
17) Optimism- Tendency To Expect The Best
18) Reticence- Reserve, Secrecy
19) Cerebrospinal-Related To Brain Or Spinal Cord
20) Atavism- Reappearance Of An Ancestral Characteristic In An Organism After Several Generations
21) Mutations- Alterations, Change
22) Dorsal- The Side On Which Backbone Is Situated

TEST READING

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

Striking Back at Lightning With Lasers

Seldom is the weather more dramatic than when thunderstorms strike. Their electrical fury inflicts death or serious injury on around 500 people each year in the United States alone. As the clouds roll in, a leisurely round of golf can become a terrifying dice with death - out in the open, a lone golfer maybe a lightning bolt's most inviting target. And there is damage to property too. Lightning damage costs American power companies more than $100 million a year.

But researchers in the United States and Japan are planning to hit back. Already in laboratory trials they have tested strategies for neutralising the power of thunderstorms, and this winter they will brave real storms, equipped with an armoury of lasers that they will be pointing towards the heavens to discharge thunderclouds before lightning can strike.

The idea of forcing storm clouds to discharge their lightning on command is not new. In the early 1960s, researchers tried firing rockets trailing wires into thunderclouds to set up an easy discharge path for the huge electric charges that these clouds generate. The technique survives to this day at a test site in Florida run by the University of Florida, with support from the Electrical Power Research Institute (EPRI), based in California. EPRI, which is funded by power companies, is looking at ways to protect the United States' power grid from lightning strikes. 'We can cause the lightning to strike where we want it to using rockets': says Ralph Bernstein, manager of lightning projects at EPRI. The rocket site is providing precise measurements of lightning voltages and allowing engineers to check how electrical equipment bears up.

Bad behaviour

But while rockets are fine for research, they cannot provide the protection from lightning strikes that everyone is looking for. The rockets cost around $1,200 each, can only be fired at a limited frequency and their failure rate is about 40 per cent. And even when they do trigger lightning, things still do not always go according to plan. 'Lightning is not perfectly well behaved: says Bernstein. 'Occasionally, it will take a branch and go someplace it wasn't supposed to go.'

And anyway, who would want to fire streams of rockets in a populated area? 'What goes up must come down,' points out Jean-Claude Diels of the University of New Mexico. Diets is leading a project, which is backed by EPRI, to try to use lasers to discharge lightning safely — and safety is a basic requirement since no one wants to put themselves or their expensive equipment at risk. With around $500,000 invested so far, a promising system is just emerging from the laboratory.

The idea began some 20 years ago, when high-powered lasers were revealing their ability to extract electrons out of atoms and create ions. If a laser could generate a line of ionisation in the air all the way up to a storm cloud, this conducting path could be used to guide lightning to Earth, before the electric field becomes strong enough to break down the air in an uncontrollable surge. To stop the laser itself being struck, it would not be pointed straight at the clouds. Instead, it would be directed at a mirror, and from there into the sky. The mirror would be protected by placing lightning conductors dose by. Ideally, the cloud-zapper (gun) would be cheap enough to be installed around all key power installations, and portable enough to be taken to international sporting events to beam up at brewing storm clouds.

A stumbling block

However, there is still a big stumbling block. The laser is no nifty portable: it's a monster that takes up a whole room. Diels is trying to cut down the size and says that a laser around the size of a small table is in the offing. He plans to test this more manageable system on live thunderclouds next summer.

Bernstein says that Diels's system is attracting lots of interest from the power companies. But they have not yet come up with the $5 million that EPRI says will be needed to develop a commercial system, by making the lasers yet smaller and cheaper. `I cannot say I have money yet, but I'm working on it,' says Bernstein. He reckons that the forthcoming field tests will be the turning point — and he's hoping for good news. Bernstein predicts `an avalanche of interest and support' if all goes well. He expects to see loud-zappers eventually costing $50,000 to $100,000 each.

Other scientists could also benefit. With a lightning `switch' at their fingertips, materials scientists could find out what happens when mighty currents meet matter. Diels also hopes to see the birth of `interactive meteorology' — not just forecasting the weather but controlling it. `If we could discharge clouds, we might affect the weather,' he says.

And perhaps, says Diels, we'll be able to confront some other meteorological menaces. `We think we could prevent hail by inducing lightning,' he says. Thunder, the shock wave that comes from a lightning flash, is thought to be the trigger for the torrential rain that is typical of storms. A laser thunder factory could shake the moisture out of clouds, perhaps preventing the formation of the giant hailstones that threaten crops. With luck, as the storm clouds gather this winter, laser-toting researchers could, for the first time, strike back.

Questions 1-3
Choose the correct letter, A, B, C or D.
Write the correct letter in boxes **1-3** on your answer sheet.

1 The main topic discussed in the text is
A. the damage caused to US golf courses and golf players by lightning strikes.
B. the effect of lightning on power supplies in the US and in Japan.
C. a variety of methods used in trying to control lightning strikes.
D. a laser technique used in trying to control lightning strikes.

2 According to the text, every year lightning
A. does considerable damage to buildings during thunderstorms.
B. kills or injures mainly golfers in the United States.
C. kills or injures around 500 people throughout the world.
D. damages more than 100 American power companies.

3 Researchers at the University of Florida and at the University of New Mexico
A. receive funds from the same source.
B. are using the same techniques.
C. are employed by commercial companies.
D. are in opposition to each other.

Questions 4-6
Complete the sentences below.
Choose **NO MORE THAN TWO WORDS** from the passage for each answer.
Write your answers in boxes **4-6** on your answer sheet.

4 EPRI receives financial support from .....

5 The advantage of the technique being developed by Diets is that it can be used .....

6 The main difficulty associated with using the laser equipment is related to its .....

Questions 7-10
Complete the summary using the list of words, A-I, below.
Write the correct letter, **A-I**, in boxes **7-10** on your answer sheet.

In this method, a laser is used to create a line of ionisation by removing electrons from **7 .....** This laser is then directed at **8 .....** in order to control electrical charges, a method which is less dangerous than using **9 .....** As a protection for the lasers, the beams are aimed firstly at **10 .....**

A cloud-zappers	**B** atoms	**C** storm clouds
D mirrors	**E** technique F ions	**F** icons
G rockets	**H** conductors I thunder	**I** thunder

Questions 11-13
Do the following statements agree with the information given in Reading Passage 115?
In boxes 11-13 on your answer sheet write:
YES if the statement agrees with the claims of the writer
NO if the statement contradicts the claims of the writer
NOT GIVEN if it is impossible to say what the writer thinks about this

11 Power companies have given Diels enough money to develop his laser.

12 Obtaining money to improve the lasers will depend on tests in real storms.

13 Weather forecasters are intensely interested in Diels's system.

Reading Passage 2
You should spend about **20 minutes on Questions 14-26**, which are based on **Reading Passage2 below.**

The Nature of Genius

There has always been an interest in geniuses and prodigies. The word 'genius', from the Latin gens (= family) and the term 'genius', meaning 'begetter', comes from the early Roman cult of a divinity as the head of the family. In its earliest form, genius was concerned with the ability of the head of the family, the paterfamilias, to perpetuate himself. Gradually, genius came to represent a person's characteristics and thence an individual's highest attributes derived from his 'genius' or guiding spirit. Today, people still look to stars or genes, astrology or genetics, in the hope of finding the source of exceptional abilities or personal characteristics.

The concept of genius and of gifts has become part of our folk culture, and attitudes are ambivalent towards them. We envy the gifted and mistrust them. In the mythology of giftedness, it is popularly believed that if people are talented in one area,

they must be defective in another, that intellectuals are impractical, that prodigies burn too brightly too soon and burn out, that gifted people are eccentric, that they are physical weaklings, that there's a thin line between genius and madness, that genius runs in families, that the gifted are so clever they don't need special help, that giftedness is the same as having a high IQ, that some races are more intelligent or musical or mathematical than others, that genius goes unrecognised and unrewarded, that adversity makes men wise or that people with gifts have a responsibility to use them. Language has been enriched with such terms as 'highbrow', 'egghead', 'blue-stocking', 'wiseacre', 'know-all', 'boffin' and, for many, 'intellectual' is a term of denigration.

The nineteenth century saw considerable interest in the nature of genius, and produced not a few studies of famous prodigies. Perhaps for us today, two of the most significant aspects of most of these studies of genius are the frequency with which early encouragement and teaching by parents and tutors had beneficial effects on the intellectual, artistic or musical development of the children but caused great difficulties of adjustment later in their lives, and the frequency with which abilities went unrecognised by teachers and schools. However, the difficulty with the evidence produced by these studies, fascinating as they are in collecting together anecdotes and apparent similarities and exceptions, is that they are not what we would today call norm-referenced. In other words, when, for instance, information is collated about early illnesses, methods of upbringing, schooling, etc., we must also take into account information from other historical sources about how common or exceptional these were at the time. For instance, infant mortality was high and life expectancy much shorter than today, home tutoring was common in the families of the nobility and wealthy, bullying and corporal punishment were common at the best independent schools and, for the most part, the cases studied were members of the privileged classes. It was only with the growth of paediatrics and psychology in the twentieth century that studies could be carried out on a more objective, if still not always very scientific, basis.

Geniuses, however, they are defined, are but the peaks which stand out through the mist of history and are visible to the particular observer from his or her particular vantage point. Change the observers and the vantage points, clear away some of the mist, and a different lot of peaks appear. Genius is a term we apply to those whom we recognise for their outstanding achievements and who stand near the end of the continuum of human abilities which reaches back through the mundane and mediocre to the incapable. There is still much truth in Dr Samuel Johnson's observation, The true genius is a mind of large general powers, accidentally determined to some particular direction'. We may disagree with the 'general', for we doubt if all musicians of genius could have become scientists of genius or vice versa, but there is no doubting the accidental determination which nurtured or triggered their gifts into those channels into which they have poured their powers so successfully. Along the continuum of abilities are hundreds of thousands of gifted men and women, boys and girls.

What we appreciate, enjoy or marvel at in the works of genius or the achievements of prodigies are the manifestations of skills or abilities which are similar to, but so much superior to, our own. But that their minds are not different from our own is demonstrated by the fact that the hard-won discoveries of scientists like Kepler or Einstein become the commonplace knowledge of schoolchildren and the once outrageous shapes and colours of an artist like Paul Klee so soon appear on the fabrics we wear. This does not minimise the supremacy of their achievements, which outstrip our own as the sub-four-minute milers outstrip our jogging.

To think of geniuses and the gifted as having uniquely different brains is only reasonable if we accept that each human brain is uniquely different. The purpose of instruction is to make us even more different from one another, and in the process of being educated, we can learn from the achievements of those mom gifted than ourselves. But before we try to emulate geniuses or encourage our children to do so we should note that some of the things we learn from them may prove unpalatable. We may envy their achievements and fame, but we should also recognise the price they may have paid in terms of perseverance, single-mindedness, dedication, restrictions on their personal lives, the demands upon their energies and time, and how often they had to display great courage to preserve their integrity or to make their way to the top.

Genius and giftedness are relative descriptive terms of no real substance. We may, at best, give them some precision by defining them and placing them in a context but, whatever we do, we should never delude ourselves into believing that gifted children or geniuses are different from the rest of humanity, save in the degree to which they have developed the performance of their abilities.

Questions 14-18
Choose FIVE letters, A—K.
Write the correct letters in boxes 14-18 on your answer sheet.
NB Your answers maybe given in any order.
Below are listed some popular beliefs about genius and giftedness.
Which FIVE **of these beliefs are reported by the writer of the text?**
A Truly gifted people are talented in all areas.
B The talents of geniuses are soon exhausted.
C Gifted people should use their gifts.
D A genius appears once in every generation.
E Genius can be easily destroyed by discouragement.
F Genius is inherited.
G Gifted people are very hard to live with.
H People never appreciate true genius.
I Geniuses are natural leaders.
J Gifted people develop their greatness through difficulties.
K Genius will always reveal itself.

Do the following statements agree with the information given in Reading Passage 2 ?
In boxes 19-26 on your answer sheet,
TRUE if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this
19 Nineteenth-century studies of the nature of genius failed to take into account the uniqueness of the person's upbringing.
20 Nineteenth-century studies of genius lacked both objectivity and a proper scientific approach.
21 A true genius has general powers capable of excellence in any area
22 The skills of ordinary individuals are in essence the same as the skills of prodigies.
23 The ease with which truly great ideas are accepted and taken for granted fails to lessen their significance.
24 Giftedness and genius deserve proper scientific research into their true nature so that all talent may be retained for the human race.
25 Geniuses often pay a high price to achieve greatness.
26 To be a genius is worth the high personal cost.

Reading Passage 3
You should spend **about 20 minutes on Questions 27-40**, which are based on **Reading Passage 3**
Questions 27-32
Reading Passage 117 has seven paragraphs, A—G.
Choose the correct heading for paragraphs B—G from the list of headings below.
Write the correct number, **i—x**, in boxes **27-32** on your answer sheet.

List of Headings
i The biological clock
ii Why dying is beneficial
iii The ageing process of men and women
iv Prolonging your life
v Limitations of life span
vi Modes of development of different species
vii A stable lifespan despite improvements
viii Energy consumption
ix Fundamental differences in ageing of objects and organisms
x Repair of genetic material

Example	**Answer**
Paragraph A	**v**
27 Paragraph **B**	
28Paragraph **C**	
29Paragraph **D**	
30Paragraph **E**	
31Paragraph **F**	
32Paragraph **G**	

HOW DOES THE BIOLOGICAL CLOCK TICK?
A Our life span is restricted. Everyone accepts this as 'biologically' obvious. 'Nothing lives forever!' However, in this statement, we think of artificially produced, technical objects, products which are subjected to natural wear and tear during use. This leads to the result that at some time or other the object stops working and is unusable ('death' in the biological sense). But are the wear and tear and loss of function of technical objects and the death of living organisms really similar or comparable
B Our 'dead' products are 'static', closed systems. It is always the basic material which constitutes the object and which, in the natural course of things, is worn down and becomes 'older'. Agei, in this case, must occur according to the laws of physical chemistry and of thermodynamics. Although the same law holds for a living organism, the result of this law is not inexorable in the same way. At least as long as a biological system has the ability to renew itself it could actually become older without ageing; an organism is an open, dynamic system through which new material continuously flows. Destruction of old material and formation of new material are thus in permanent dynamic equilibrium. The material of which the

organism is formed changes continuously. Thus our bodies continuously exchange old substance for new, just like a spring which more or less maintains its form and movement, but in which the water molecules are always different.

C Thus ageing and death should not be seen as inevitable, particularly as the organism possesses many mechanisms for repair. It is not, in principle, necessary for a biological system to age and die. Nevertheless, a restricted life span, ageing, and then death are basic characteristics of life. The reason for this is easy to recognise: in nature, the existent organisms either adapt or are regularly replaced by new types. Because of changes in the genetic material (mutations), these have new characteristics and in the course of their individual lives, they are tested for optimal or better adaptation to the environmental conditions. Immortality would disturb this system — it needs room for new and better life. This is the basic problem of evolution.

D Every organism has a life span which is highly characteristic. There are striking differences in life span between different species, but within one species the parameter is relatively constant. For example, the average duration of human life has hardly changed in thousands of years. Although more and more people attain an advanced age as a result of developments in medical care and better nutrition, the characteristic upper limit for most remains 80 years. A further argument against the simple wear and tear theory is the observation that the time within which organisms age lies between a few days (even a few hours for unicellular organisms) and several thousand years, as with mammoth trees.

E If a life span is a genetically determined biological characteristic, it is logically necessary to propose the existence of an internal clock, which in some way measures and controls the ageing process and which finally determines death as the last step in a fixed programme. Like the life span, the metabolic rate has for different organisms a fixed mathematical relationship to the body mass. In comparison to the life span this relationship is 'inverted': the larger the organism the lower its metabolic rate. Again this relationship is valid not only for birds, but also, similarly on average within the systematic unit, for all other organisms (plants, animals, unicellular organisms).

F Animals which behave 'frugally' with energy become particularly old, for example, crocodiles and tortoises. Parrots and birds of prey are often held chained up. Thus they are not able to 'experience life' and so they attain a high life pan in captivity. Animals which save energy by hibernation or lethargy (e.g. bats or hedgehogs) live much longer than those which are always active. The metabolic rate of mice can be reduced by a very low consumption of food (hunger diet). They then may live twice as long as their well-fed comrades. Women become distinctly (about 10 per cent) older than men. If you examine the metabolic rates of the two sexes you establish that the higher male metabolic rate roughly accounts for the lower male life span. That means that they live life 'energetically' — more intensively, but not for as long.

G It follows from the above that sparing use of energy reserves should tend to extend life. Extreme high-performance sports may lead to optimal cardiovascular performance, but they quite certainly do not prolong life. Relaxation lowers metabolic rate, as does adequate sleep and in general an equable and balanced personality. Each of as can develop his or her own 'energy saving programme' with a little self-observation, critical self-control and, above all, logical consistency. Experience will show that to live in this way not only increases the lifespan but is also very healthy. This final aspect should not be forgotten.

Questions 33-36

Complete the notes below.

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

*Write your answers in boxes **33-36** on your answer sheet.*

Objects age in accordance with principles of **33** ..... and of **34** .....

• Through mutations, organisms can **35** ..... better to the environment

• **36** ..... would pose a serious problem for the theory of evolution

Questions 37-40

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

In boxes 37-40 on your answer sheet, write:

YES if the statement agrees with the views of the writer

NO if the statement contradicts the views of the writer

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

37 The wear and tear theory applies to both artificial objects and biological systems.

38 In principle, it is possible for a biological system to become older without ageing.

39 Within seven years, about 90 per cent of a human body is replaced as new.

40 Conserving energy may help to extend a human's life.

READING KEY

1. D	
2. A	
3. A	
4. power companies	
5. safely	
6. size	
7. B	
8. C	
9. G	
10. D	
11. NO	
12. YES	
13. NOT GIVEN	

14 - 18 (In any Order)
B
C
F
H
J
19 TRUE
20 TRUE
21 FALSE
22 TRUE
23 TRUE
24 NOT GIVEN
25 TRUE
26 NOT GIVEN

27 ix
28 ii
29 vii
30 i
31 viii
32 iv
33 & 34 physical chemistry (and) thermodynamics (*In either Order***)**
35 adapt
36 immortality
37 NO
38 YES
39 NOT GIVEN
40 YES

Vocabulary Of Reading-Striking Back At Lighting

1)Neutralising-Stop Something From Having An Effect
2)Nifty- Particularly Fast
3)Avalanche-An Overwhelming Amount
4)Divinity- The Study Of Religion
5)Perpetuate-Cause Something To Continue For Long Time
6)Ambivalent- Mixed Feeling About Something Or Someone
7)Prodigies- A Young Person With Exceptional Abilities
8)Eccentric- Unconventional And Rather Strange
9)Supermacy- Being Superior
10) Emulate- Try To Do

TEST READING Passage 1

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

AUSTRALIA'S SPORTING SUCCESS

A They play hard, they play often, and they play to win. Australian sports teams win more than their fair share of titles, demolishing rivals with seeming ease. How do they do it? A big part of the secret is an extensive and expensive network of sporting academies underpinned by science and medicine. At the Australian Institute of Sport (AIS), hundreds of youngsters and pros live and train under the eyes of coaches. Another body, the Australian Sports Commission (ASC), finances programmes of excellence in a total of 96 sports for thousands of sportsmen and women. Both provide intensive coaching, training facilities and nutritional advice.

B Inside the academies, science takes centre stage. The AIS employs more than 100 sports scientists and doctors, and collaborates with scores of others in universities and research centres. AIS scientists work across a number of sports, applying skills learned in one - such as building muscle strength in golfers - to others, such as swimming and squash. They are backed up by technicians who design instruments to collect data from athletes. They all focus on one aim: winning. 'We can't waste our time looking at ethereal scientific questions that don't help the coach work with an athlete and improve performance.' says Peter Fricker, chief of science at AIS.

C A lot of their work comes down to measurement - everything from the exact angle of a swimmers dive to the second-by-second power output of a cyclist. This data is used to wring improvements out of athletes. The focus is on individuals, tweaking performances to squeeze an extra hundredth of a second here, an extra millimetre there. No gain is too slight to bother with. It's the tiny, gradual improvements that add up to world-beating results. To demonstrate how the system works, Bruce Mason at AIS shows off the prototype of a 3D analysis tool for studying swimmers. A wire-frame model of a champion swimmer slices through the water, her arms moving in slow motion. Looking side-on, Mason measures the distance between strokes. From above, he analyses how her spine swivels. When fully developed, this system will enable him to build a biomechanical profile for coaches to use to help budding swimmers. Mason's contribution to sport also includes the development of the SWAN (SWimming ANalysis) system now used in Australian national competitions. It collects images from digital cameras running at 50 frames a second and breaks down each part of a swimmers performance into factors that can be analysed individually - stroke length, stroke frequency, average duration of each stroke, velocity, start, lap and finish times, and so on. At the end of each race, SWAN spits out data on each swimmer.

D 'Take a look.' says Mason, pulling out a sheet of data. He points out the data on the swimmers in second and third place, which shows that the one who finished third actually swam faster. So why did he finish 35 hundredths of a second down? 'His turn times were 44 hundredths of a second behind the other guy,' says Mason. 'If he can improve on his turns, he can do much better.' This is the kind of accuracy that AIS scientists' research is bringing to a range of sports. With the Cooperative Research Centre for Micro Technology in Melbourne, they are developing unobtrusive sensors that will be embedded in an athlete's clothes or running shoes to monitor heart rate, sweating, heat production or any other factor that might have an impact on an athlete's ability to run. There's more to it than simply measuring performance. Fricker gives the example of athletes who may be down with coughs and colds 11 or 12 times a year. After years of experimentation, AIS and the University of Newcastle in New South Wales developed a test that measures how much of the immune-system protein immunoglobulin A is present in athletes' saliva. If IgA levels suddenly fall below a certain level, training is eased or dropped altogether. Soon, IgA levels start rising again, and the danger passes. Since the tests were introduced, AIS athletes in all sports have been remarkably successful at staying healthy.

E Using data is a complex business. Well before a championship, sports scientists and coaches start to prepare the athlete by developing a 'competition model', based on what they expect will be the winning times. 'You design the model to make that time.' says Mason. 'A start of this much, each free-swimming period has to be this fast, with a certain stroke frequency and stroke length, with turns done in these times'. All the training is then geared towards making the athlete hit those targets, both overall and for each segment of the race. Techniques like these have transformed Australia into arguably the world's most successful sporting nation.

F Of course, there's nothing to stop other countries copying - and many have tried. Some years ago, the AIS unveiled coolant-lined jackets for endurance athletes. At the Atlanta Olympic Games in 1996, these sliced as much as two per cent off cyclists' and rowers times. Now everyone uses them. The same has happened to the altitude tent', developed by AIS to

replicate the effect of altitude training at sea level. But Australia's success story is about more than easily copied technological fixes, and up to now no nation has replicated its all-encompassing system.

Questions 1-7

Reading Passage 1 has six sections, **A-F**.

Which paragraph contains the following information?

*Write the correct letter **A-F** in boxes 1-7 on your answer sheet.*

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

1 a reference to the exchange of expertise between different sports

2 an explanation of how visual imaging is employed in investigations

3 a reason for narrowing the scope of research activity

4 how some AIS ideas have been reproduced

5 how obstacles to optimum achievement can be investigated

6 an overview of the funded support of athletes

7 how performance requirements are calculated before an event

Questions 8-11

Classify the following techniques according to whether the writer states they

A are currently exclusively used by Australians

B will be used in the future by Australians

C are currently used by both Australians and their rivals

*Write the correct letter **A, B, C** or **D** in boxes 8-11 on your answer sheet.*

8 cameras

9 sensors

10 protein tests

11 altitude tents

Questions 12 and 13

Answer the questions below.

Choose **NO MORE THAN THREE WORDS AND/OR A NUMBER** from the Reading Passage 1 for each answer.

Write your answers in boxes 12 and 13 on your answer sheet.

12 What is produced to help an athlete plan their performance in an event?

13 By how much did some cyclists' performance improve at the 1996 Olympic Games?

READING PASSAGE 2

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

DELIVERING THE GOODS

The vast expansion in international trade owes much to a revolution in the business of moving freight

A International trade is growing at a startling pace. While the global economy has been expanding at a bit over 3% a year, the volume of trade has been rising at a compound annual rate of about twice that. Foreign products, from meat to machinery, play a more important role in almost every economy in the world, and foreign markets now tempt businesses that never much worried about sales beyond their nation's borders.

B What lies behind this explosion in international commerce? The general worldwide decline in trade barriers, such as customs duties and import quotas, is surely one explanation. The economic opening of countries that have traditionally been minor players is another. But one force behind the import-export boom has passed all but unnoticed: the rapidly falling cost

of getting goods to market. Theoretically, in the world of trade, shipping costs do not matter. Goods, once they have been made, are assumed to move instantly and at no cost from place to place. The real world, however, is full of frictions. Cheap labour may make Chinese clothing competitive in America, but if delays in shipment tie up working capital and cause winter coats to arrive in spring, trade may lose its advantages.

C At the turn of the 20th century, agriculture and manufacturing were the two most important sectors almost everywhere, accounting for about 70% of total output in Germany, Italy and France, and 40-50% in America, Britain and Japan. International commerce was therefore dominated by raw materials, such as wheat, wood and iron ore, or processed commodities, such as meat and steel. But these sorts of products are heavy and bulky and the cost of transporting them relatively high.

D Countries still trade disproportionately with their geographic neighbours. Over time, however, world output has shifted into goods whose worth is unrelated to their size and weight. Today, it is finished manufactured products that dominate the flow of trade, and, thanks to technological advances such as lightweight components, manufactured goods themselves have tended to become lighter and less bulky. As a result, less transportation is required for every dollar's worth of imports or exports.

E To see how this influences trade, consider the business of making disk drives for computers. Most of the world's disk-drive manufacturing is concentrated in South-east Asia. This is possible only because disk drives, while valuable, are small and light and so cost little to ship. Computer manufacturers in Japan or Texas will not face hugely bigger freight bills if they import drives from Singapore rather than purchasing them on the domestic market. Distance, therefore, poses no obstacle to the globalisation of the disk-drive industry.

F This is even more true of the fast-growing information industries. Films and compact discs cost little to transport, even by aeroplane. Computer software can be 'exported' without ever loading it onto a ship, simply by transmitting it over telephone lines from one country to another, so freight rates and cargo-handling schedules become insignificant factors in deciding where to make the product. Businesses can locate based on other considerations, such as the availability of labour, while worrying less about the cost of delivering their output.

G In many countries deregulation has helped to drive the process along. But, behind the scenes, a series of technological innovations known broadly as containerisation and inter-modal transportation has led to swift productivity improvements in cargo-handling. Forty years ago, the process of exporting or importing involved a great many stages of handling, which risked portions of the shipment being damaged or stolen along the way. The invention of the container crane made it possible to load and unload containers without capsizing the ship and the adoption of standard container sizes allowed almost any box to be transported on any ship. By 1967, dual-purpose ships, carrying loose cargo in the hold* and containers on the deck, were giving way to all-container vessels that moved thousands of boxes at a time.

H The shipping container transformed ocean shipping into a highly efficient, intensely competitive business. But getting the cargo to and from the dock was a different story. National governments, by and large, kept a much firmer hand on truck and railroad tariffs than on charges for ocean freight. This started changing, however, in the mid-1970s, when America began to deregulate its transportation industry. First airlines, then road hauliers and railways, were freed from restrictions on what they could carry, where they could haul it and se what price they could charge. Big productivity gains resulted. Between 1985 and 1996, for example, America's freight railways dramatically reduced their employment, trackage, and their fleets of locomotives - while increasing the amount of cargo they hauled. Europe's railways have also shown marked, albeit smaller, productivity improvements.

I In America the period of huge productivity gains in transportation may be almost over, but in most countries, the process still has far to go. State ownership of railways and airlines, regulation of freight rates and toleration of anti-competitive practices, such as cargo-handling monopolies, all keep the cost of shipping unnecessarily high and deter international trade. Bringing these barriers down would help the world's economies grow even closer.

Questions 14-17

Reading Passage **2** has **9** sections, **A-I.**

Which paragraph contains the following information?

Write the correct letter **A-I** in boxes **14-17** on your answer sheet.

14 a suggestion for improving trade in the future

15 the effects of the introduction of electronic delivery

16 the similar cost involved in transporting a product from abroad or from a local supplier

17 the weakening relationship between the value of goods and the cost of their delivery

Questions 18-22

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

*In boxes **18-22** on your answer sheet, write -*

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

18 International trade is increasing at a greater rate than the world economy.

19 Cheap labour guarantees effective trade conditions.

20 Japan imports more meat and steel than France.

21 Most countries continue to prefer to trade with nearby nations.

22 Small computer components are manufactured in Germany.

Questions 23-26

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

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

THE TRANSPORT REVOLUTION

Modern cargo-handling methods have had a significant effect on **23** ..... as the business of moving freight around the world becomes increasingly streamlined.

Manufacturers of computers, for instance, are able to import **24** ..... from overseas, rather than having to rely on a local supplier. The introduction of **25** ..... has meant that bulk cargo can be safely and efficiently moved over long distances. While international shipping is now efficient, there is still a need for governments to reduce **26** ..... in order to free up the domestic cargo sector.

A tariffs	**B** components	**C** container ships	**D** output
E employees	**F** insurance costs	**G** trade	**H** freight
I fares	**J** software	**K** international standards	

Reading Passage 3

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

Questions 27-32

Reading Passage 3 has seven paragraphs, **A-G**.

Choose the correct heading for paragraphs **B-G** from the list of headings below..

Write the correct number **i-ix**, in boxes **27-32** on your answer sheet

List of Headings

i The reaction of the Inuit community to climate change

ii Understanding of climate change remains limited

iii Alternative sources of essential supplies

iv Respect for Inuit opinion grows

v A healthier choice of food

vi A difficult landscape

vii Negative effects on well-being

viii Alarm caused by unprecedented events in the Arctic

ix The benefits of an easier existence

Example	**Answer**
Paragraph A	viii

27 Paragraph B

28 Paragraph C

29 Paragraph D

30 Paragraph E

31 Paragraph F

32 Paragraph G

Reading Passage 3

Climate change and the Inuit

The threat posed by climate change in the Arctic and the problems faced by Canada's Inuit people

A Unusual incidents are being reported across the Arctic. Inuit families going off on snowmobiles to prepare their summer hunting camps have found themselves cut off from home by a sea of mud, following early thaws. There are reports of igloos losing their insulating properties as the snow drips and refreezes, of lakes draining into the sea as permafrost melts, and sea ice breaking up earlier than usual, carrying seals beyond the reach of hunters. Climate change may still be a rather abstract idea to most of us, but in the Arctic, it is already having dramatic effects - if summertime ice continues to shrink at its present rate, the Arctic Ocean could soon become virtually ice-free in summer. The knock-on effects are likely to include more warming, cloudier skies, increased precipitation and higher sea levels. Scientists are increasingly keen to find out what's going on because they consider the Arctic the 'canary in the mine' for global warming - a warning of what's in store for the rest of the world.

B For the Inuit the problem is urgent. They live in precarious balance with one of the toughest environments on earth. Climate change, whatever its causes, is a direct threat to their way of life. Nobody knows the Arctic as well as the locals, which is why they are not content simply to stand back and let outside experts tell them what's happening. In Canada, where the Inuit people are jealously guarding their hard-won autonomy in the country's newest territory, Nunavut, they

believe their best hope of survival in this changing environment lies in combining their ancestral knowledge with the best of modern science. This is a challenge in itself.

C The Canadian Arctic is a vast, treeless polar desert that's covered with snow for most of the year. Venture into this terrain and you get some idea of the hardships facing anyone who calls this home. Farming is out of the question and nature offers meagre pickings. Humans first settled in the Arctic a mere 4,500 years ago, surviving by exploiting sea mammals and fish. The environment tested them to the limits: sometimes the colonists were successful, sometimes they failed and vanished. But around a thousand years ago, one group emerged that was uniquely well adapted to cope with the Arctic environment. These Thule people moved in from Alaska, bringing kayaks, sleds, dogs, pottery and iron tools. They are the ancestors of today's Inuit people.

D Life for the descendants of the Thule people is still harsh. Nunavut is 1.9 million square kilometres of rock and ice, and a handful of islands around the North Pole. It's currently home to 2,500 people, all but a handful of them indigenous Inuit. Over the past 40 years, most have abandoned their nomadic ways and settled in the territory's 28 isolated communities, but they still rely heavily on nature to provide food and clothing. Provisions available in local shops have to be flown into Nunavut on one of the most costly air networks in the world, or brought by supply ship during the few ice-free weeks of summer. It would cost a family around £7,000 a year to replace meat they obtained themselves through hunting with imported meat. Economic opportunities are scarce, and for many people state benefits are their only income.

E While the Inuit may not actually starve if hunting and trapping are curtailed by climate change, there has certainly been an impact on people's health. Obesity, heart disease and diabetes are beginning to appear in a people for whom these have never before been problems. There has been a crisis of identity as the traditional skills of hunting, trapping and preparing skins have begun to disappear. In Nunavut's 'igloo and email' society, where adults who were born in igloos have children who may never have been out on the land, there's a high incidence of depression.

F With so much at stake, the Inuit are determined to play a key role in teasing out the mysteries of climate change in the Arctic. Having survived there for centuries, they believe their wealth of traditional knowledge is vital to the task. And Western scientists are starting to draw on this wisdom, increasingly referred to as 'Inuit Qaujimajatugangit', or IQ. 'In the early days, scientists ignored us when they came up here to study anything. They just figured these people don't know very much so we won't ask them,' says John Amagoalik, an Inuit leader and politician. 'But in recent years IQ has had much more credibility and weight.' In fact it is now a requirement for anyone hoping to get permission to do research that they consult the communities, who are helping to set the research agenda to reflect their most important concerns. They can turn down applications from scientists they believe will work against their interests or research projects that will impinge too much on their daily lives and traditional activities.

G Some scientists doubt the value of traditional knowledge because the occupation of the Arctic doesn't go back far enough. Others, however, point out that the first weather stations in the far north date back just 50 years. There are still huge gaps in our environmental knowledge, and despite the scientific onslaught, many predictions are no more than best guesses. IQ could help to bridge the gap and resolve the tremendous uncertainty about how much of what we're seeing is natural capriciousness and how much is the consequence of human activity.

Questions 33-40

Complete the summary of paragraphs C and D below.

Choose **NO MORE THAN TWO WORDS** from paragraphs **C** and **D** for each answer.

Write your answers in boxes 33-40 on your answer sheet.

If you visit the Canadian Arctic, you immediately appreciate the problems faced by people for whom this is home. It would clearly be impossible for the people to engage in **33 .....**. as a means of supporting themselves. For thousands of years they have had to rely on catching **34 .....** and **35 .....** as a means of sustenance. The harsh surroundings saw many who tried to settle there pushed to their limits, although some were successful. The **36 .....** people were an example of the latter and for them the environment did not prove unmanageable. For the present inhabitants, life continues to be a struggle. The territory of Nunavut consists of little more than ice, rock and a few **37 .....** . In recent years, many of them have been obliged to give up their **38 .....** lifestyle, but they continue to depend mainly on **39 .....** their food and clothes. **40 .....** produce is particularly expensive.

Reading **Answer:**

1. B
2. C
3. B
4. F
5. D
6. A
7. E
8. A
9. B 10. A
11. C
12. (a) competition model
13. (by) 2 per cent
14. I
15. F
16. E
17. D
18. TRUE
19. FALSE
20. NOT GIVEN
21. TRUE
22. NOT GIVEN
23. trade
24. components
25. container ships
26. tariffs

27 i
28 vi
29 iii
30 vii
31 iv
32 ii
33 farming
34 sea mammals
35 fish
36 Thule
37 islands
38 nomadic
39 nature
40 Imported

Vocabulary of Reading -Australian Sporting Success

1) Wring- Squeezes and Twists Someone's Hand Tightly.
2) Underpinned- Strengthen From Below.
3) Tweaking- Twist or Pull Sharply.
4) Unobtrusive- Not Attracting Attention.
5) Unveiled- To Remove A Covering From.
6) Startling- Shocking or Surprising.
7) Containerisation- Control or Restrain.
8) Capsizing- Overturn
9) Dock- An Enclosed Area of Water for the Loading, Unloading and Repair Of Ships.
10) Tariffs- A Tax Paid On Export Or Import.
11) Hauliers- A Person or Company Transporting Goods by Road.
12) Fleets- A Group of Ship, Vehicles or Aircrafts Travelling Together or Having the Same Owner.
13) Locomotive- Powered Railway Vehicle for Pulling.
14) Hauled- Pull Or Drag With Effort.
15) Freight- Goods Transported In Bulk.
16) Abstract- Summary of a Book of Article.
17) Precarious- Unsafe or Uncertain.
18) Venture- Business Project or Other Activity Involving Risk.
19) Curtailed- Reduce Or Restrict.
20) Capriciousness- Prone To Sudden Change of Mood.
21) Onslaught- Fierce Attack.