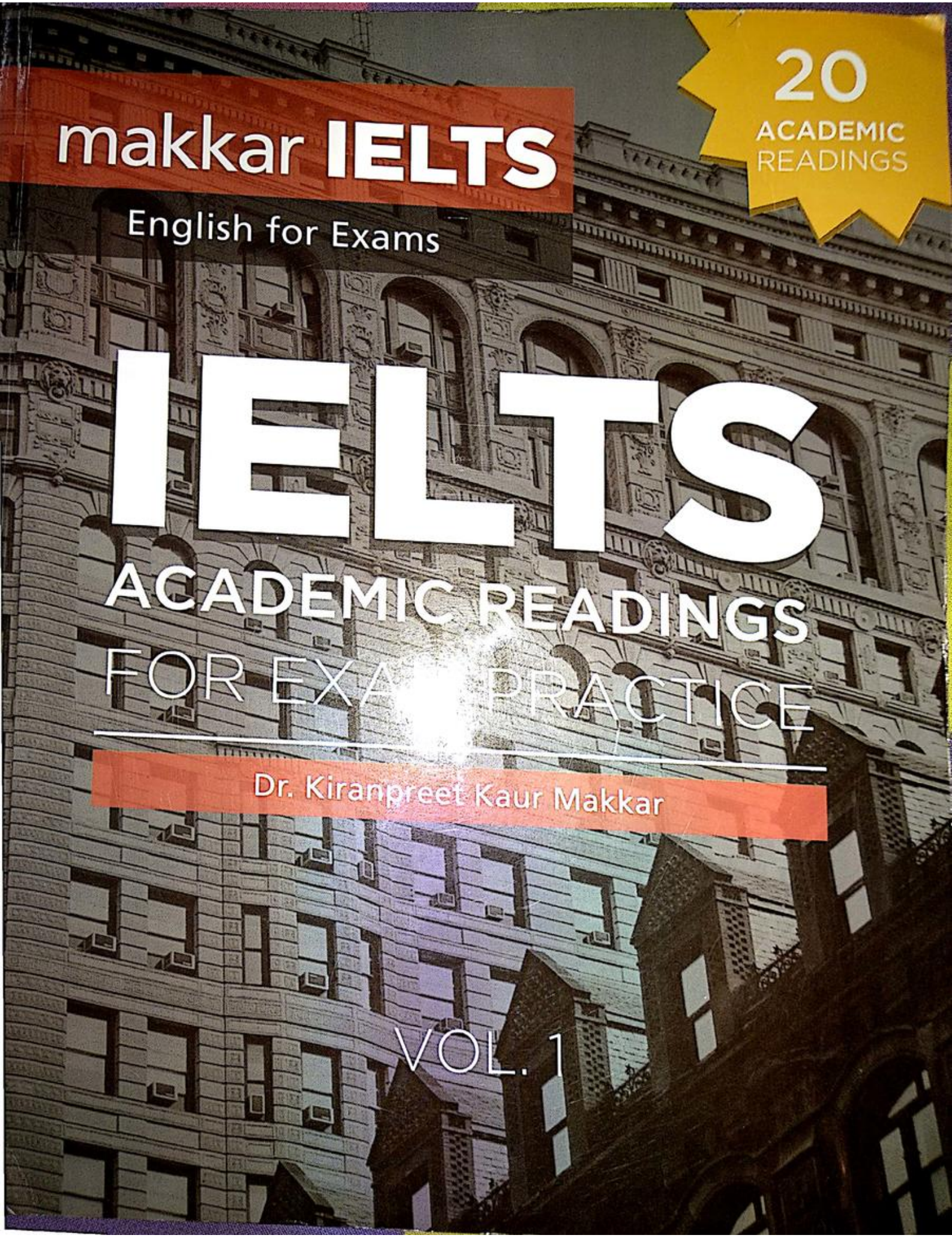

IELTS
ACADEMIC READINGS
FOR EXAM PRACTICE

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INDEX

READING 1
Passage one

The Awesome Banana

The banana is among the world's oldest crops. Agricultural scientists believe that the first edible banana was discovered around 10,000 years ago. It has been at an evolutionary standstill ever since it was first propagated in the jungles of South-East Asia at the end of the last Ice Age. Normally the wild banana, a giant jungle herb card Musa acuminata, contains a mass of hard seeds that make the fruit virtually inedible. But now-and-then, hunter-gatherers must have discovered rare mutant plants that produced seamless, edible fruits. Geneticists now know that the vast majority of these soft-fruited plants resulted from genetic accidents that gave their cells three copies of each chromosome instead of the usual two. This imbalance prevents seeds and pollens from developing normally, rendering the mutant plants sterile. And that is why some scientists believe the worst – the most popular fruit could be doomed. It lacks the genetic diversity to fight off pests and diseases that are invading the banana plantations of Central America and smallholdings of Africa and Asia alike.

In some ways, the banana today resembles the potato before blight brought famine to Ireland a century and a half ago. But it holds a lesson for other crops too, says Emile Frison, top banana at the International Network for the Improvement of Banana and Plaintain in Montpellier, France. The state of the banana, Frison warns, can teach a broader lesson: the increasing standardization of food crops around the world is threatening their ability to adapt and survive.

The first Stone Age plant breeders cultivated these sterile freaks by replanting cuttings from their stems. And the descendants of those original cuttings are the bananas we still eat today. Each is a virtual clone, almost devoid of genetic diversity. And that uniformity makes it ripe for disease like no other crop on Earth. Traditional varieties of sexually reproducing crops have always had a much broader genetic base, and the genes will recombine in new arrangements in each generation. This gives them much greater flexibility in the evolving response to disease – and far more genetic resources to draw on in the face of an attack. But that advantage is fading fast, as growers increasingly plant the same few high-yielding varieties. Plant breeders work feverishly to maintain resistance in these standardized crops. Should these efforts falter, yields of even the most productive crop could swiftly crash. "When some pests or disease comes along severe epidemics can occur," says Geoff Hawtin, director of the Rome-based International Plant Genetic Resources Institute.

The banana is an excellent case in point. Until the 1950s, one variety, the Gros Michel, dominated the world's commercial business. Found by French botanists in Asia in the 1820s, the Gros Michel was by all accounts a fine banana, richer and sweeter than today's standard banana, and without the latter's bitter aftertaste when green. But it was vulnerable to a soil fungus that produced a wilt known as Panama disease. "Once the fungus gets into the soil, it remains there for many years. There is nothing farmers can do. Even chemical spraying won't get rid of it," says Rodomiro Ortiz, director of the international Institute for Tropical Agriculture in Ibadan, Nigeria. So plantation owners played a running game, abandoning infested fields and moving to "clean" land – until they ran out of clean land in the 1950s and had to abandon the Gros Michel. Its successor, and still the reigning commercial king, is the Cavendish banana, a 19th century British discovery from southern China. The Cavendish is resistance to Panama disease and, as a result, it literally saved the international banana industry. During the 1960s, it replaced the Gros Michel on supermarket shelves. If you buy a banana today, it is almost certainly a Cavendish. But even so, it is a minority in the world's banana crop.

Half a billion people in Asia and Africa depend on bananas. Bananas provide the largest source of calories and are eaten daily. Its name is synonymous with food. But the day of reckoning maybe coming for the Cavendish and its indigenous kin. Another fungal disease, Black Sigatoka – which causes brown wounds on leaves and premature fruit ripening – cuts fruit yields by 50 to 70% and reduces the productive life of banana plants from 30 years to as little as two or three. Commercial growers keep Sigatoka at bay by a massive chemical assault. 40 sprayings of

fungicide a year is typical. But even so, diseases such as Black Sigatoka are getting more and more difficult to control. "As soon as you bring in a new fungicide, they develop resistance," says Frison. "One thing we can be sure of is that the Sigatoka won't lose in the battle." Pool farmers, who cannot afford chemicals, have it even worse. They can do little more than watch their plants die. "Most of the banana trees in Amazonia have already been destroyed by the disease" says Luadir Gesparotto, Brazil's leading banana pathologist with the government research agency EMBRAPA. Production is likely to fall by 70% as the disease spreads, he predicts. The only option would be to find a new variety.

But how? Almost all edible varieties are susceptible to the diseases, so growers cannot simply change to a different banana. With most crops, such a threat would unleash an army of breeders, scouring the world for resistant relatives whose traits they can breed into commercial varieties. Not so with the banana. Because all edible varieties are sterile, bringing in new genetic traits to help cope with pests and diseases is nearly impossible. Nearly, but not totally. Very rarely, a sterile banana will experience a genetic accident that allows an almost normal seed to develop, giving breeders a tiny window for improvement. Breeders at the Honduran Foundation of Agricultural Research have tried to exploit this to create disease-resistant varieties. Further backcrossing with wild bananas yielded a new seedless banana resistant to both black Sigatoka and Panama disease.

Neither Western supermarket consumers nor peasant growers like the new hybrid. Some accuse it of tasting more like an apple than a banana. Not surprisingly, the majority of plant breeders have until now turned their backs on the banana and got to work on easier plants. And commercial banana companies are now washing their hands of the whole breeding effort, preferring to fund a search for new fungicides instead. "We supported a breeding programme for 40 years, but it wasn't able to develop an alternative to Cavendish. It was very expensive and we got nothing back," says Ronald Romero, head of research at Chiquita, one of the Big Three companies that dominate the international banana trade.

Last year, a global consortium of scientists led by Frison announced plans to sequence the banana genome within five years. It would be the first edible fruit to be sequenced. Well, almost edible. The group will actually be sequencing inedible wild bananas from East Asia because many of these are resistant to black Sigatoka. If they can pinpoint the genes that help these wild varieties to resist black Sigatoka, the protective genes could be introduced into laboratory tissue cultures of cell from edible varieties. These could then be propagated into new, resistant plants and passed on to farmers.

It sounds promising, but the big banana companies have, until now, refused to get involved in GM research for fear of alienating their customers. "Biotechnology is extremely expensive and there are serious questions about consumer acceptance," says David McLaughlin, Chiquita's senior director for environmental affairs. With scant funding from the companies, the banana genome researchers are focusing on the other end of the spectrum. Even if they can identify the crucial genes, they will be a long way from developing new varieties that smallholders will find suitable and affordable. But whatever biotechnology's academic interest, it is the only hope for the banana. Without it, banana production worldwide will head into a tailsspin We may even see the extinction of the banana as both a lifesaver for hungry and impoverished Africans and as the most popular product on the world's supermarket shelves.

Questions 1-3

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

1. The banana was first eaten as a fruit by humans almost.....years ago.
2. Bananas were first planted in .....
3. The taste of wild bananas is adversely affected by its.....

Questions 4-10

Look at the following statements and the list of people below. Match each statement with the correct person, A-F. NB You may use any letter more than once.

4. A pest invasion may seriously damage the banana industry.
5. The effect of fungal infection in soil is often long-lasting.
6. A commercial manufacturer gave up on breeding bananas for disease resistant species.
7. Banana disease may develop resistance to chemical sprays.
8. A banana disease has destroyed a large number of banana plantations.
9. Consumers would not accept genetically altered crop.
10. Lessons can be learned from bananas for other crops.

List of people
A Rodomiro Oritz
B David McLaughlin
C Emile Frison
D Ronald Romero
E Luadir Gasparotto
F Geoff Hawtin

Questions 11-13

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

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts the information
NOT GIVEN	if there is no information on this

11. The banana is the oldest known fruit.
12. The Gros Michel is still being used as a commercial product.
13. Banana is the main food in some countries.

Passage 2 – Spend 20 minutes.

The Diverse Coastal Archaeology of Britain

The recognition of the wealth and diversity of England's coastal archaeology has been one of the most important developments of recent years. Some elements of this enormous resource have long been known. The so-called 'submerged forests' off the coasts of England, sometimes with clear evidence of human activity, had attracted the interest of antiquarians since at least the eighteenth century, but serious and systematic attention has been given to the archaeological potential of the coast only since the early 1980s.

It is possible to trace a variety of causes for this concentration of effort and interest. In the 1980s and 1990s scientific research into climate change and its environmental impact spilled over into a much broader public debate as awareness of these issues grew; the prospect of rising sea levels over the next century, and their impact on current coastal environments, has been a particular focus for concern. At the same time archaeologists were beginning to recognise that the destruction caused by natural processes of coastal erosion and by human activity was having an increasing impact on the archaeological resource of the coast.

The dominant process affecting the physical form of England in the post-glacial period has been the rise in the altitude of sea level relative to the land, as the glaciers melted and the landmass re-adjusted. The encroachment of the sea, the loss of huge areas of land now under the North Sea and the English Channel, and especially the loss of the land bridge between England and France, which finally made Britain an island, must have been immensely significant factors in the lives of our pre-historic ancestors. Yet the way in which prehistoric communities adjusted to these environmental changes has seldom been a major theme in discussions of the period. One factor contributing to this has been that, although the rise in relative sea level is comparatively well documented, we know little about the constant reconfiguration of the coastline. This was affected by many processes, mostly quite localised, which have not yet been adequately researched. The detailed reconstruction of coastline histories and the changing environments available for human use will be an important theme for future research.

So great has been the rise in sea level and the consequent regression of the coast that much of the archaeological evidence now exposed in the coastal zone, whether being eroded or exposed as a buried land surface, is derived from what was originally terrestrial occupation. Its current location in the coastal zone is the product of later unrelated processes, and it can tell us little about past adaptation to the sea. Estimates of its significance will need to be made in the context of other related evidence from dry land sites. Nevertheless, its physical environment means that preservation is often excellent, for example in the case of the Neolithic structure excavated at the Stumble in Essex.

In some cases these buried land surfaces do contain evidence for human exploitation of what was a coastal environment, and elsewhere along the modern coast there is similar evidence. Where the evidence does relate to past human exploitation of the resources and the opportunities offered by the sea and the coast, it is both diverse and as yet little understood. We are not yet in a position to make even preliminary estimates of answers to such fundamental questions as the extent to which the sea and the coast affected human life in the past, what percentage of the population at any time lived within reach of the sea, or whether human settlements in coastal environments showed a distinct character from those inland.

The most striking evidence for use of the sea is in the form of boats, yet we still have much to learn about their production and use. Most of the known wrecks around our coast are not unexpectedly of post-medieval date, and offer an unparalleled opportunity for research, which has as yet been little used. The prehistoric sewn-plank boats such as those from the Humber estuary and Dover all seem to belong to the second millennium BC; after this there is a gap in the record of a millennium, which cannot yet be explained, before boats reappear, but built using a very different technology. Boatbuilding must have been an extremely important activity around much of our coast, yet we know almost nothing about it. Boats were some of the most complex artefacts produced by pre-modern

societies, and further research on their production and use make an important contribution to our understanding of past attitudes to technology and technological change.

Boats needed landing places, yet here again our knowledge is very patchy. In many cases the natural shores and beaches would have sufficed, leaving little or no archaeological trace, but especially in later periods, many ports and harbours, as well as smaller faculties such as quays, wharves, and jetties, were built. Despite a growth of interest in the waterfront archaeology of some of our more important Roman and medieval towns, very little attention has been paid to the multitude of smaller landing places. Redevelopment of harbour sites and other development and natural pressures along the coast are subjecting these important locations to unprecedented threats, yet few surveys of such sites have been undertaken.

One of the most important revelations of recent research has been the extent of industrial activity along the coast. Fishing and salt production are among the better documented activities, but even here our knowledge is patchy. Many forms of fishing will leave little archaeological trace, and one of the surprises of recent survey has been the extent of past investment in facilities for procuring fish and shellfish. Elaborate wooden fish weirs, often of considerable extent and responsive to aerial photography in shallow water, have been identified in areas such as Essex and the Severn estuary. The production of salt, especially in the late Iron Age and early Roman periods, has been recognised for some time, especially in the Thames estuary and around the Solent and Poole Harbour, but the reasons for the decline of that industry and the nature of later coastal salt working are much less well understood. Other industries were also located along the coast, either because the raw materials outcropped there or for ease of working and transport: mineral resources such as sand, gravel, stone, coal, ironstone, and alum were all exploited. These industries are poorly documented, but their remains are sometimes extensive and striking

Some appreciation of the variety and importance of the archaeological remains preserved in the coastal zone, albeit only in preliminary form, can thus be gained from recent work, but the complexity of the problem of managing that resource is also being realised. The problem arises not only from the scale and variety of the archaeological remains, but also from two other sources: the very varied natural and human threats to the resource, and the complex web of organisations with authority over, or interests in, the coastal zone. Human threats include the redevelopment of historic towns and old dockland areas, and the increased importance of the coast for the leisure and tourism industries, resulting in pressure for the increased provision of facilities such as marinas. The larger size of ferries has also caused an increase in the damage caused by their wash to fragile deposits in the intertidal zone. The most significant natural threat is the predicted rise in sea level over the next century, especially in the south and east of England. Its impact on archaeology is not easy to predict, and though it is likely to be highly localised, it will be at a scale much larger than that of most archaeological sites. Thus protecting one site may simply result in transposing the threat to a point further along the coast. The management of the archaeological remains will have to be considered in a much longer time scale and a much wider geographical scale than is common in the case of dry land sites, and this will pose a serious challenge for archaeologists.

Questions 14-16

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

14. What has caused public interest in coastal archaeology in recent years?
    A. The rapid development of England's coastal archaeology
    B. The rising awareness of climate change
    C. The discovery of an underwater forest
    D. The systematic research conducted on coastal archaeological findings
15. What does the passage say about the evidence of boats?
    A. There's enough knowledge of the boatbuilding technology of the pre-historic people.
    B. Many of the boats discovered were found in harbours.
    C. The use of boats had not been recorded for a thousand years.
    D. Boats were first used for fishing.
16. What can be discovered from the air?
    A. Salt mines
    B. Roman towns
    C. Harbours
    D. Fisheries

QUESTIONS 17-23

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

17. England lost much of its land after the Ice Age due to the rising sea level.
18. The coastline of England has changed periodically.
19. Coastal archaeological evidence may be well-protected by sea water.
20. The design of boats used by pre-modern people was very simple.
21. Similar boats were also discovered in many other European countries.
22. There are few documents relating to mineral exploitation.
23. Large passenger boats are causing increasing damage to the seashore.

Questions 24-26

Choose THREE letters from A-G. Which THREE of the following statements are mentioned in the passage?

A How coastal archaeology was originally discovered.
B It is difficult to understand how many people lived close to the sea.
C How much the prehistoric communities understand the climate change.
D Our knowledge of boat evidence is limited.
E Some fishing grounds were converted to ports.
F Human development threatens the archaeological remains.
G Coastal archaeology will become more important in the future.

Passage 3

The Importance of Travel Books

There are many reasons why individuals have traveled beyond their own societies. Some travelers may have simply desired to satisfy curiosity about the larger world. Until recent times, however, did travelers start their journey for reasons other than mere curiosity. While the travelers' accounts give much valuable information on these foreign lands and provide a window for the understanding of the local cultures and histories, they are also a mirror to the travelers themselves, for these accounts help them to have a better understanding of themselves.

Records of foreign travel appeared soon after the invention of writing, and fragmentary travel accounts appeared in both Mesopotamia and Egypt in ancient times. After the formation of large, imperial states in the classical world, travel accounts emerged as a prominent literary genre in many lands, and they held especially strong appeal for rulers desiring useful knowledge about their realms. The Greek historian Herodotus reported on his travels in Egypt and Anatolia in researching the history of the Persian wars. The Chinese envoy Zhang Qian described much of central Asia as far west as Bactria (modern-day Afghanistan) on the basis of travels undertaken in the first century BCE while searching for allies for the Han dynasty. Hellenistic and Roman geographers such as Ptolemy, Strabo, and Pliny the Elder relied on their own travels through much of the Mediterranean world as well as reports of other travelers to compile vast compendia of geographical knowledge.

During the postclassical era (about 500 to 1500 CE), trade and pilgrimage emerged as major incentives for travel to foreign lands. Muslim merchants sought trading opportunities throughout much of the eastern hemisphere. They described lands, peoples, and commercial products of the Indian Ocean basin from east Africa to Indonesia, and they supplied the first written accounts of societies in Sub-Saharan West Africa. While merchants set out in search of trade and profit, devout Muslims traveled as pilgrims to Mecca to make their hajj and visit the holy sites of Islam. Since the prophet Muhammad's original pilgrimage to Mecca, untold millions of Muslims have followed his example, and thousands of hajj accounts have related their experiences. East Asian travelers were not quite so prominent as Muslims during the postclassical era, but they too followed many of the highways and sea lanes of the eastern hemisphere. Chinese merchants frequently visited southeast Asia and India, occasionally venturing even to east Africa, and devout East Asian Buddhists undertook distant pilgrimages. Between the 5th and 9th centuries CE, hundreds and possibly even thousands of Chinese Buddhists traveled to India to study with Buddhist teachers, collect sacred texts, and visit holy sites. Written accounts recorded the experiences of many pilgrims, such as Faxian, Xuanzang, and Yijing. Though not so numerous as the Chinese pilgrims, Buddhists from Japan, Korea, and other lands also ventured abroad in the interests of spiritual enlightenment.

Medieval Europeans did not hit the roads in such large numbers as their Muslim and East Asian counterparts during the early part of the postclassical era, although gradually increasing crowds of Christian pilgrims flowed to Jerusalem, Rome, Santiago de-Compostela (in northern Spain), and other sites. After the 12th century, however, merchants, pilgrims, and missionaries from medieval Europe traveled widely and left numerous travel accounts, of which Marco Polo's description of his travels and sojourn in China is the best known. As they became familiar with the larger world of the eastern hemisphere—-and the profitable commercial opportunities that it offered—European people worked to find new and more direct routes to Asian and African markets. Their efforts took them not only to all parts of the eastern hemisphere, but eventually to the Americas and Oceania as well.

If Muslim and Chinese peoples dominated travel and travel writing in postclassical times, European explorers, conquerors, merchants, and missionaries took center stage during the early modern era (about 1500 to 1800 CE). By no means did Muslim and Chinese travel come to a halt in early modern times. But European peoples ventured to the distant corners of the globe, and European printing presses churned out thousands of travel accounts that described foreign lands and peoples for a reading public with an apparently insatiable appetite for news about the larger world. The volume of travel literature was so great that several editors, including Giambattista Ramusio,

Richard Hakluyt, Theodore de Bry, and Samuel Purchas, assembled numerous travel accounts and made them available in enormous published collections.

During the 19th century, European travelers made their way to the interior regions of Africa and the Americas, generating a fresh round of travel writing as they did so. Meanwhile, European colonial administrators devoted numerous writings to the societies of their colonial subjects, particularly in Asian and African colonies they established. By midcentury, attention was flowing also in the other direction. Painfully aware of the military and technological prowess of European and Euro-American societies, Asian travelers in particular visited Europe and the United States in hopes of discovering principles useful for the reorganisation of their own societies. Among the most prominent of these travelers who made extensive use of their overseas observations and experiences in their own writings were the Japanese reformer Fukuzawa Yukichi and the Chinese revolutionary Sun Yat-sen.

With the development of inexpensive and reliable means of mass transport, the 20th century witnessed explosions both in the frequency of long-distance travel and in the volume of travel writing. While a great deal of travel took place for reasons of business, administration, diplomacy, pilgrimage, and missionary work, as in ages past, increasingly effective modes of mass transport made it possible for new kinds of travel to flourish. The most distinctive of them was mass tourism, which emerged as a major form of consumption for individuals living in the world's wealthy societies. Tourism enabled consumers to get away from home to see the sights in Rome, take a cruise through the Caribbean, walk the Great Wall of China, visit some wineries in Bordeaux, or go on safari in Kenya. A peculiar variant of the travel account arose to meet the needs of these tourists: the guidebook, which offered advice on food, lodging, shopping, local customs, and all the sights that visitors should not miss seeing. Tourism has had a massive economic impact throughout the world, but other new forms of travel have also had considerable influence in contemporary times.

(peoples – The human beings of a particular nation , community or ethnic group) Anywhere else the use of the word peoples is wrong

Questions 27-28 *Choose the correct letter, A, B, C or D.*

27 What were most people traveling for in the early days?

A Studying their own cultures
B Business
C Knowing other people and places better
D Writing travel books

28. Why did the author say writing travel books is also "a mirror" for travelers themselves?

A Because travelers record their own experiences.
B Because travelers reflect upon their own society and life.
C Because it increases knowledge of foreign cultures.
D Because it is related to the development of human society.

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Questions 29-36

Complete the table below. Write NO MORE THAN TWO WORDS from passage 3

TIME	TRAVELER	DESTINATION	PURPOSE OF TRAVEL
Classical Greece	Herodotus	Egypt and Anatolia	To gather information for the study of 29 .....
Han Dynasty	Zhang Qian	Central Asia	To seek 30 .....
Roman Empire	Ptolemy, Strabo, Pliny the Elder	Mediterranean	To acquire 31.....
Post-classical Era (about 500 to 1500 CE)	Muslims	From east Africa to Indonesia Mecca	Trading and 32 .....
5th to 9th centuries CE	Chinese Buddhists	33	To collect Buddhist texts and for spiritual enlightenment
Early modern era (about 1500 to 1800CE)	European explorers	New World	To satisfy public curiosity for the New World
During 19th century	Colonial administrator	Asia, Africa	To provide information for the 34 ..... they set up
By the mid-century of the 1900s	Sun Yat-sen Fukuzawa Yukichi	Europe and United States	To study the 35..... for the reorganization of their societies
20th century	People from 36 ..... countries	Mass tourism	Entertainment and pleasure

Questions 37-40

Choose the correct letter, A, B, C or D. Write your answers in boxes 37-40

37. Why were the imperial rulers especially interested in these travel stories?
    - A. Reading travel stories was a popular pastime.
    - B. The accounts are often truthful rather than fictional.
    - C. Travel books played an important role in literature.
    - D. They desired knowledge of their empire.
38. Who were the largest group to record their spiritual trip during the postclassical era?
    - A. Muslim traders
    - B. Muslim pilgrims
    - C. Chinese Buddhists
    - D. Indian Buddhist teachers
39. During the early modern era, a large number of travel books were published to
    - A. Meet the public's interest.
    - B. Explore new business opportunities.
    - C. Encourage trips to the new world.
    - D. Record the larger world.
40. What's the main theme of the passage?
    - A. The production of travel books
    - B. The literary status of travel books
    - C. The historical significance of travel bookss
    - D. The development of travel books

READING 1 ANSWERS

1. TEN THOUSAND
2. SOUTH-EAST ASIA
3. (HARD) SEEDS
4. F
5. A
6. D
7. C
8. E
9. B
10. C
11. NOT GIVEN
12. FALSE TRUE
13. TRUE
14. B
15. C
16. D
17. TRUE
18. FALSE
19. TRUE
20. FALSE
21. NOT GIVEN
22. TRUE
23. TRUE
24. B
25. D
26. F
27. C
28. B
29. PERSIAN WARS
30. ALLIES
31. GEOGRAPHICAL KNOWLEDGE
32. PILGRIMAGE
33. INDIA
34. COLONIES
35. PRINCIPLES
36. WEALTHY
37. D
38. B
39. A
40. D

READING 2

PASSAGE 1

Ambergris – Sown in dishonor, raised in glory

What is it and where does it come from?

Ambergris was used to perfume cosmetics in the days of ancient Mesopotamia and almost every civilization on the earth has a brush with Ambergris. Before 1,000 AD, the Chinese names ambergris as *lung sien hiang,* "dragon's spittle perfume," as they think that it was produced from the drooling of dragons sleeping on rocks at the edge of a sea. The Arabs knew ambergris as *anbar* who believed that it is produced from springs near seas. It also gets its name from here. For centuries, this substance has also been used as a flavouring for food.

During the Middle Ages, Europeans used ambergris as a remedy for headaches, colds, epilepsy, and other ailments. In the 1851 whaling novel *Moby-Dick,* Herman Melville claimed that ambergris was "largely used in perfumery." But nobody ever knew where it really came from. Experts were still guessing its origin thousands of years later, until the long ages of guesswork ended in the 1720's, when Nantucket whalers found gobs of the costly material inside the stomachs of sperm whales. Industrial whaling quickly burgeoned. By 20th century ambergris was mainly recovered from inside the carcasses of sperm whales.

Through countless ages, people have found pieces of ambergris on sandy beaches. It was named *grey amber* to distinguish it from golden amber, another rare treasure. Both of them were among **the** most sought-after substances in the world, almost as valuable as gold. (Ambergris sells for roughly $20 a gram, slightly less than gold at $30 a gram.) Amber floats in salt water, and in old times the origin of both these substances was mysterious. But it turned out that amber and ambergris have little in common. Amber is a fossilized resin from trees that was quite familiar to Europeans long before the discovery of the New World, and prized for jewelry Although considered a gem, amber is a hard, transparent, wholly-organic material derived from the resin of extinct species of trees, mainly pines.

To the earliest Western chroniclers, ambergris was variously thought to come from the same bituminous sea founts as amber, from the sperm of fishes or whales, from the droppings of strange sea birds (probably because of confusion over the included beaks of squid) or from the large hives of bees living near the sea. Marco Polo was the first Western chronicler who correctly attributed ambergris to sperm whales and its vomit.

As sperm whales navigate in the oceans, they often dive down to 2 km or more below the sea level to prey on squid, most famously the Giant Squid. It's commonly accepted that ambergris forms in the whale's gut or intestines as the creature attempts to "deal" with squid beaks. Sperm whales are rather partial to squid, but seemingly struggle to digest the hard, sharp, parrot-like beaks. It is thought their stomach juices become hyperactive trying to process the irritants, and eventually hard, resinous lumps are formed around the beaks, and then expelled from their innards by vomiting. When a whale initially vomits up ambergris, it is soft and has a terrible smell. Some marine biologists compare it to the unpleasant smell of cow dung. But after floating on the salty ocean for about a decade, the substance hardens with air and sun into a smooth, waxy, usually rounded piece of nostril heaven. The dung smell is gone, replaced by a sweet, smooth, musky and pleasant earthy aroma.

Since ambergris is derived from animals, naturally a question of ethics arises, and in the case of ambergris, it is very important to consider. Sperm whales are an endangered species, whose populations started to decline as far back as the 19th century due to the high demand for their highly emollient oil, and today their stocks still have not recovered. During the 1970's, the *Save the Whales* movement brought the plight of whales to international recognition. Many people now believe that whales are "saved". This couldn't be further from the truth. All around the world, whaling still exists. Many countries continue to hunt whales, in spite of international treaties to protect them. Many marine researchers are concerned that even the trade in naturally found ambergris can be harmful by creating further incentives to hunt whales for this valuable substance.

One of the forms ambergris is used today is as a valuable fixative in perfumes to enhance and prolong the scent. But nowadays, since ambergris is rare and expensive, and big fragrance suppliers that make most of the fragrances on the market today do not deal in it for reasons of cost, availability and murky legal issues, most perfumeries prefer to add a chemical derivative which mimics the properties of ambergris. As a fragrance consumer, you can assume that there is no natural ambergris in your perfume bottle, unless the company advertises this fact and unless you own vintage fragrances created before the 1980s. If you are wondering if you have been wearing a perfume with this legendary ingredient, you may want to review your scent collection. Here are a few of some of the top ambergris containing perfumes: Givenchy Amarige, Chanel No. 5, and Gucci Guilty.

Questions 1-6 *Classify the following information as referring to*

A ambergris only
B amber only
C both ambergris and amber
D neither ambergris nor amber

Write the correct letter, A, B, C, or D in boxes 1-6 on your answer sheet.

1. being expensive
2. adds flavor to food
3. used as currency
4. being see-through
5. referred to by Herman Melville
6. produces sweet smell

Questions 7-9

Complete the sentences below with NO MORE THAN ONE WORD from the passage. Write your answers in boxes 7-9 on your answer sheet.

Sperm whales can't digest the **7.** _____of the squids.
Sperm whales drive the irritants out of their intestines by **8.**_____
The vomit of sperm whale gradually **9.**.....on contact of air before having pleasant smell.

Questions 10-13 Do the following statements agree with the information given in Reading Passage 1? *In boxes 10-13 on your answer sheet, write*

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

10 Most ambergris comes from the dead whales today.
11 Ambergris is becoming more expensive than before.
12 Ambergris is still a popular ingredient in perfume production today.
13 New uses of ambergris have been discovered recently.

PASSAGE 2

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-xi, in boxes 14-20 on your answer sheet.*

List of Headings

i. Why better food helps students' learning
ii. Becoming the headmaster of Msekeni
iii. Surprising use of school premises
iv. Global perspective
v. Why students were undernourished
vi. Surprising academic outcome
vii. An innovative program to help girls
viii. How food program is operated
ix. How food program affects school attendance
x. None of the usual reasons
xi. How to maintain academic standard

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

Food – The priceless teaching aid – Proven in Msekeni

A. There are not enough classrooms at the Msekeni primary school, so half the lessons take place in the shade of yellow-blossomed acacia trees. Given this shortage, it might seem odd that one of the school's purpose-built classrooms has been emptied of pupils and turned into a storeroom for sacks of grain. But it makes sense. Food matters more than shelter.

B. Msekeni is in one of the poorer parts of Malawi, a landlocked southern African country of exceptional beauty and great poverty. No war lays waste Malawi, nor is the land unusually crowded or infertile, but Malawians still have trouble finding enough to eat. Half of the children under five are underfed to the point of stunting. Hunger blights most aspects of Malawian life, so the country is as good a place as any to investigate how nutrition affects development, and vice versa.

C. The headmaster at Msekeni, Bernard Kumanda, has strong views on the subject. He thinks food is a priceless teaching aid. Since 1999, his pupils have received free school lunches. Donors such as the World Food Programme (WFP) provide the food: those sacks of grain (mostly mixed maize and soyabean flour, enriched with vitamin A) in that converted classroom. Local volunteers do the cooking— turning the dry ingredients into a bland but nutritious slop, and spooning it out on to plastic plates. The children line up in large crowds, cheerfully singing a song called "We are getting porridge".

D. When the school's feeding programme was introduced, enrolment at Msekeni doubled. Some of the new pupils had switched from nearby schools that did not give out free porridge, but most were children whose families had previously kept them at home to work. These families were so poor that the long-term benefits of education

seemed unattractive when set against the short-term gain of sending children out to gather firewood or help in the fields. One plate of porridge a day completely altered the calculation. A child fed at school will not howl so plaintively for food at home. Girls, who are more likely than boys to be kept out of school, are given extra snacks to take home.

E. When a school takes in a horde of extra students from the poorest homes, you would expect standards to drop. Anywhere in the world, poor kids tend to perform worse than their better-off classmates. When the influx of new pupils is not accompanied by any increase in the number of teachers, as was the case at Msekeni, you would expect standards to fall even further. But they have not. Pass rates at Msekeni improved dramatically, from 30% to 85%. Although this was an exceptional example, the nationwide results of school feeding programmes were still pretty good. On average, after a Malawian school started handing out free food it attracted 38% more girls and 24% more boys. The pass rate for boys stayed about the same, while for girls it improved by 9.5%.

F. Better nutrition makes for brighter children. Most immediately, well-fed children find it easier to concentrate. It is hard to focus the mind on long division when your stomach is screaming for food. Mr Kumanda says that it used to be easy to spot the kids who were really undernourished. "They were the ones who stared into space and didn't respond when you asked them questions," he says. More crucially, though, more and better food helps brains grow and develop. Like any other organ in the body, the brain needs nutrition and exercise. But if it is starved of the necessary calories, proteins and micronutrients, it is stunted, perhaps not as severely as a muscle would be, but stunted nonetheless. That is why feeding children at schools works so well. And the fact that the effect of feeding was more pronounced on girls than on boys gives a clue to who eats first in rural Malawian households. It isn't the girls.

G. On a global scale, the good news is that people are eating better than ever before. Homo sapiens has grown 50% bigger since the industrial revolution. Three centuries ago, chronic malnutrition was more or less universal. Now, it is extremely rare in rich countries. In developing countries, where most people live, plates and rice bowls are also fuller than ever before. The proportion of children under five in the developing world who are malnourished to the point of stunting fell from 39% in 1990 to 30% in 2000, says the World Health Organisation (WHO). In other places, the battle against hunger is steadily being won. Better nutrition is making people cleverer and more energetic, which will help them grow more prosperous. And when they eventually join the ranks of the well-off, they can start fretting about growing too fat.

Questions 21-24

Complete the sentences below using ***NO MORE THAN TWO WORDS / OR A*** *NUMBER from the passage. Write your answers in boxes 21-24 on your answer sheet.*

21 In Kumanda's school _____ are given to girls after the end of the school day.

22 Many children from poor families were sent to collect _____ from the field.

23 Thanks to the free food program,_____ of students passed the test.

24 The modern human is_____ bigger than before after the industrial revolution.

Questions 25-26

Choose ***TWO*** *letters, A-E Write the correct letters in boxes 25 and 26 on your answer sheet.*

Which **TWO** of the following statements are true?

A. Some children are taught in the open air.
B. Bernard Kumanda became the headmaster in 1991.
C. No new staffs were recruited when attendance rose.
D. Girls are often treated equally with boys in Malawi.
E. Scientists have devised ways to detect the most underfed students in school.
F. WHO is worried about malnutrition among kids in developing countries.

PASSAGE 3

Alternative Medicine compared with the Placebo effect
The Power of Nothing

Want to devise a new form of alternative medicine? No problem. Here's the recipe. Be warm, sympathetic, reassuring and enthusiastic. Your treatment should involve physical contact, and each session with your patients should last at least half an hour. Encourage your patients to take an active part in their treatment and understand how their disorders relate to the rest of their lives. Tell them that their own bodies possess the true power to heal. Make them pay you out of their own pockets. Describe your treatment in familiar words, but embroidered with a hint of mysticism: energy fields, energy flows, energy blocks, meridians, forces, auras, rhythms and the like. Refer to the knowledge of an earlier age: wisdom carelessly swept aside by the rise and rise of blind, mechanistic science. Oh, come off it, you're saying. Something invented off the top of your head couldn't possibly work, could it?

Well yes, it could—and often well enough to earn you a living. A good living if you are sufficiently convincing or, better still, really believe in your therapy. Many illnesses get better on their own, so if you are lucky and administer your treatment at just the right time you'll get the credit. But that's only part of it. Some of the improvement really would be down to you. Not necessarily because you'd recommended ginseng rather than camomile tea or used this crystal as opposed to that pressure point. Nothing so specific. Your healing power would be the outcome of a paradoxical force that conventional medicine recognises but remains oddly ambivalent about: the placebo effect.

Placebos are treatments that have no direct effect on the body, yet still work because the patient has faith in their power to heal. Most often the term refers to a dummy pill, but it applies just as much to any device or procedure, from a sticking plaster to a crystal to an operation. The existence of the placebo effect implies that even quackery may confer real benefits, which is why any mention of placebo is a touchy subject for many practitioners of complementary and alternative medicine (CAM), who are likely to regard it as tantamount to a charge of charlatanism. In fact, the placebo effect is a powerful part of all medical care, orthodox or otherwise, though its role is often neglected and misunderstood.

One of the great strengths of CAM may be its practitioners' skill in deploying the placebo effect to accomplish real healing. "Complementary practitioners are miles better at producing non-specific effects and good therapeutic relationships," says Edzard Ernst, professor of CAM at Exeter University. The question is whether CAM could be integrated into conventional medicine, as some would like, without losing much of this power.

At one level, it should come as no surprise that our state of mind can influence our physiology: anger opens the superficial blood vessels of the face; sadness pumps the tear glands. But exactly how placebos work their medical magic is still largely unknown. Most of the scant research to date has focused on the control of pain, because it's one of the commonest complaints and lends itself to experimental study. Here, attention has turned to the endorphins, natural counterparts of morphine that are known to help control pain. "Any of the neurochemicals involved in transmitting pain impulses or modulating them might also be involved in generating the placebo response," says Don Price, an oral surgeon at the University of Florida who studies the placebo effect in dental pain.

"But endorphins are still out in front." That case has been strengthened by the recent work of Fabrizio Benedetti of the University of Turin, who showed that the placebo effect can be abolished by a drug, naloxone, which blocks the effects of endorphins. Benedetti induced pain in human volunteers by inflating a blood-pressure cuff on the forearm. He did this several times a day for several days, using morphine each time to control the pain. On the final day, without saying anything, he replaced the morphine with a saline solution. This still relieved the subjects' pain: a placebo effect. But when he added naloxone to the saline the pain relief disappeared. Here was direct proof that placebo analgesia is mediated, at least in part, by these natural opiates.

Still, no one knows how belief triggers endorphin release, or why most people can't achieve placebo pain relief simply by willing it. Though scientists don't know exactly how placebos work, they have accumulated a fair bit of knowledge

about how to trigger the effect. A London rheumatologist found, for example, that red dummy capsules made more effective painkillers than blue, green or yellow ones. Research on American students revealed that blue pills make better sedatives than pink, a colour more suitable for stimulants. Even branding can make a difference: if Aspro or Tylenol are what you like to take for a headache, their chemically identical generic equivalents may be less effective.

It matters, too, how the treatment is delivered. Decades ago, when the major tranquilliser chlorpromazine was being introduced, a doctor in Kansas categorised his colleagues according to whether they were keen on it, openly sceptical of its benefits, or took a "let's try and see" attitude. His conclusion: the more enthusiastic the doctor, the better the drug performed. And this year Ernst surveyed published studies that compared doctors' bedside manners. The studies turned up one consistent finding: "Physicians who adopt a warm, friendly and reassuring manner," he reported, "are more effective than those whose consultations are formal and do not offer reassurance."

Warm, friendly and reassuring are precisely CAM's strong suits, of course. Many of the ingredients of that opening recipe—the physical contact, the generous swathes of time, the strong hints of supernormal healing power—are just the kind of thing likely to impress patients. It's hardly surprising, then, that complementary practitioners are generally best at mobilising the placebo effect, says Arthur Kleinman, professor of social anthropology at Harvard University.

Questions 27-32

Complete the following sentences with the correct ending. Choose the correct letter, A-H, for each sentence below. Write your answers in boxes 27-32 on your answer sheet.

27 Appointments with alternative practitioner
28 An alternative practitioner's description of treatment
29 An alternative practitioner who has faith in what he does
30 The illness of patients convinced of alternative practice
31 Improvements of patients receiving alternative practice
32 Conventional medical doctors

A. should be easy to understand.
B. ought to improve by itself.
C. should not involve any mysticism.
D. ought to last a minimum length of time.
E. needs to be treated at the right time.
F. should give more recognition.
G. can earn high income.
H. do not rely on any specific treatment.

Questions 33-35

Choose the correct letter, A, B, C or D. Write your answers in boxes 33-35

33. In the fifth paragraph, the writer uses the example of anger and sadness to illustrate that
    A. people's feelings could affect their physical behavior.
    B. how placebo achieves its effect is yet to be understood.
    C. scientists don't understand how the mind influences the body.
    D. research on the placebo effect is very limited.

34. Research on pain control attracts most of the attention because
    A. only a limited number of researches have been conducted so far.
    B. scientists have discovered that endorphins can help to reduce pain.
    C. pain reducing agents might also be involved in placebo effect.
    D. patients often experience pain and like to complain about it.

35. Fabrizio Benedetti's research on endorphins indicates that
    A. they are widely used to regulate pain.
    B. they can be produced by willful thoughts.
    C. they can be neutralized by introducing naloxone.
    D. their pain-relieving effects do not last long enough.

Questions 36-40

TRUE	*if the statement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

36. There is enough information for scientists to fully understand the placebo effect.
37. A London based researcher discovered that red pills should be taken off the market.
38. People's preference on brands would also have effect on their healing.
39. Medical doctors have a range of views of the newly introduced drug of chlorpromazine.
40. Alternative practitioners are seldom known for applying placebo effect.

READING 2 ANSWERS

1. C
2. A
3. D
4. B
5. A
6. A
7. BEAKS
8. VOMITING
9. HARDENS
10. TRUE
11. NOT GIVEN
12. FALSE
13. NOT GIVEN
14. III
15. X
16. VIII
17. IX
18. VI
19. I
20. IV
21. EXTRA SNACKS
22. FIREWOOD
23. 85%
24. 50%
25. A
26. C
27. D
28. A
29. G
30. B
31. H
32. F
33. A
34. D
35. C
36. FALSE
37. NOT GIVEN
38. TRUE
39. TRUE
40. FALSE

READING 3

PASSAGE 1

The future of getting around in Cities – PRT vs RUF

THIS is ludicrous! We can talk to people anywhere in the world or fly to meet them in a few hours. We can even send probes to other planets. But when it comes to getting around our cities, we depend on systems that have scarcely changed since the days of Gottlieb Daimler.

In recent years, the pollution belched out by millions of vehicles has dominated the debate about transport. The problem has even persuaded California - that home of car culture - to curb traffic growth. But no matter how green they become, cars are unlikely to get us around crowded cities any faster. And persuading people to use trains and buses will always be an uphill struggle. Cars, after all, are popular for very good reasons, as anyone with small children or heavy shopping knows.

So politicians should be trying to lure people out of their cars, not forcing them out. There's certainly no shortage of alternatives. Perhaps the most attractive is the concept known as personal rapid transit (PRT), independently invented in the US and Europe in the 1950s.

The idea is to go to one of many stations and hop into a computer-controlled car, which can whisk you to your destination along a network of guideways. You wouldn't have to share your space with strangers, and with no traffic lights, pedestrians or parked cars to slow things down, PRT guideways can carry far more traffic, nonstop, than any inner city road.

It's a wonderful vision, but the odds are stacked against PRT for a number of reasons. The first cars ran on existing roads, and it was only after they became popular – and after governments started earning revenue from them-that a road network designed specifically for motor vehicles was built. With PRT, the infrastructure would have to come first-and that would cost megabucks. What's more, any transport system that threatened the car's dominance would be up against all those with a stake in maintaining the status quo, from private car owners to manufacturers and oil multinationals. Even if PRTs were spectacularly successful in trials, it might not make much difference. Superior technology doesn't always triumph, as the VHS versus Betamax and Windows versus Apple Mac battles showed.

But "dual-mode" systems might just succeed where PRT seems doomed to fail. The Danish RUF system envisaged by Palle Jensen, for example, resembles PRT but with one key difference: vehicles have wheels as well as a slot allowing them to travel on a monorail, so they can drive off the rail onto a normal road. Once on a road, the occupant would take over from the computer, and the RUF vehicle - the term comes from a Danish saying meaning to "go fast" - would become an electric car.

Build a fast network of guideways in a busy city centre and people would have a strong incentive not just to use public RUF vehicles, but also to buy their own dual-mode vehicle. Commuters could drive onto the guideway, sit back and read as they are chauffeured into the city. At work, they would jump out, leaving their vehicles to park themselves. Unlike PRT, such a system could grow organically, as each network would serve a large area around it and people nearby could buy into it. And a dual-mode system might even win the support of car manufacturers, who could easily switch to producing dual-mode vehicles.

Of course, creating a new transport system will not be cheap or easy. But unlike adding a dedicated bus lane here or extending the underground railway there, an innovative system such as Jensen's could transform cities.

And it's not just a matter of saving a few minutes a day. According to the Red Cross, more than 30 million people have died in road accidents in the past century-three times the number killed in the First World War-and the annual death toll is rising. And what's more, the Red Cross believes road accidents will become the third biggest cause of death and disability by 2020, ahead of diseases such as AIDS and tuberculosis. Surely we can find a better way to get around?

Questions 1-6

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

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 City transport developed slower than other means of communication.
2 The pollution caused by city transport has been largely ignored.
3 Most states in America have taken actions to reduce vehicle growth.
4 Public transport is particularly difficult to use on steep hills.
5 Private cars are much more convenient for those who tend to buy a lot of things during shopping.
6 Government should impose compulsory restrictions on car use.

Questions 7-12 *Classify the following descriptions as referring to*

A PRT only
B RUF only
C both PRT and RUF

Write the correct letter, A, B, or C in boxes 7-12 on your answer sheet.

7 It is likely to be resisted by both individuals and manufacturers.
8 It can run at high speed in cities.
9 It is not necessary to share with the general public.
10 It is always controlled by a computer.
11 It can run on existing roads.
12 It can be bought by private buyers.

Question 13

Choose THREE letters, A-G. Which THREE of the following are advantages of the new transport system?

A. economy
B. space
C. low pollution
D. suitability for families
E. speed
F. safety
G. suitability for children

PASSAGE 2

THE SEEDHUNTERS – Preserving the Botanical Treasure

With Quarter of the world's plants set to vanish within the next 50 years, Dough Alexander reports on the scientists working against the clock to preserve the Earth's botanical heritage.

They travel the four corners of the globe, scouring jungles, forests and savannas. But they're not looking for ancient artefacts, lost treasure or undiscovered tombs. Just pods. It may lack the romantic allure of archaeology, or the whiff of danger that accompanies going after big game, but seed hunting is an increasingly serious business. Some seek seeds for profit — hunters in the employ of biotechnology firms, pharmaceutical companies and private corporations on the lookout for species that will yield the drugs or crops of the future. Others collect to conserve, working to halt the sad slide into extinction facing so many plant species.

Among the pioneers of this botanical treasure hunt was John Tradescant, an English royal gardener who brought back plants and seeds from his journeys abroad in the early 1600s. Later, the English botanist Sir Joseph Banks — who was the first director of the Royal Botanic Gardens at Kew and travelled with Captain James Cook on his voyages near the end of the 18th century — was so driven to expand his collections that he sent botanists around the world at his own expense.

Those heady days of exploration and discovery may be over, but they have been replaced by a pressing need to preserve our natural history for the future. This modern mission drives hunters such as Dr Michiel van Slageren, a good-natured Dutchman who often sports a wide-brimmed hat in the field — he could easily be mistaken for the cinematic hero Indiana Jones. He and three other seed hunters work at the Millennium Seed Bank, an £80million international conservation project that aims to protect the world's most endangered wild plant species.

The group's headquarters are in a modern glass-and-concrete structure on a 200-hectare estate at Wakehurst Place in the West Sussex countryside. Within its underground vaults are 260 million dried seeds from 122 countries, all stored at -20 Celsius to survive for centuries. Among the 5,100 species represented are virtually all of Britain's 1,400 native seed-bearing plants, the most complete such collection of any country's flora.

Overseen by the Royal Botanic Gardens, the Millennium Seed Bank is the world's largest wild-plant depository. It aims to collect 24,000 species by 2010. The reason is simple: thanks to humanity's efforts, an estimated 25 per cent of the world's plants are on the verge of extinction and may vanish within 50 years. We're currently responsible for habitat destruction on an unprecedented scale, and during the past 400 years, plant species extinction rates have been about 70 times greater than those indicated by the geological record as being 'normal'. Experts predict that during the next 50 years a further one billion hectares of wilderness will be converted to farmland in developing countries alone.

The implications of this loss are enormous. Besides providing staple food crops, plants are a source of many medicines and the principal supply of fuel and building materials in many parts of the world. They also protect soil and help regulate the climate. Yet, across the globe, plant species are being driven to extinction before their potential benefits are discovered.

The World Conservation Union has listed 5,714 threatened plant species worldwide, but it admits this is only scratching the surface. With only four per cent of the world's described plants having been evaluated, the true number of threatened species is sure to be much higher In the UK alone, 300 wild plant species are classified as endangered. The Millennium Seed Bank aims to ensure that even if a plant becomes extinct in the wild, it won't be lost forever. Stored seeds can be used to help restore damaged or destroyed environments or in scientific

research to find new benefits for society — in medicine, agriculture or local industry — that would otherwise be lost.

Seed banks are an 'insurance policy' to protect the world's plant heritage for the future, explains Dr. Paul Smith, another Kew seed hunter. "Seed conservation techniques were originally developed by farmers," he says. "Storage is the basis of what we do, conserving seeds until you can use them — just as in farming." Smith says there's no reason why any plant species should become extinct, given today's technology. But he admits that the biggest challenge is finding, naming and categorising all the world's plants. And someone has to gather these seeds before it's too late. "There aren't a lot of people out there doing this," he says, "The key is to know the flora from a particular area, and that knowledge takes years to acquire."

There are about 1,470 seed banks scattered around the globe, with a combined total of 5.4 million samples, of which perhaps two million are distinct non-duplicates. Most preserve genetic material for agricultural use in order to ensure crop diversity others aim to conserve wild species, although only 15 per cent of all banked plants are wild.

Many seed banks are themselves under threat due to a lack of funds. Last year, Imperial College, London, examined crop collections from 151 countries and found that while the number of plant samples had increased in two thirds of the countries, budgets had been cut in a quarter and remained static in another 35 per cent. The UN's Food and Agriculture Organisation and the Consultative Group on International Agricultural Research has since set up the Global Conservation Trust, which aims to raise US$260 million (£156 million) to protect seed banks in perpetuity.

Questions 14-18

*Complete the summary below using **NO MORE** THAN **TWO WORDS** from the passage.*

People collect seeds for different purposes: some collect to protect certain species from 14.....; others collect seeds for their potential to produce 15..... .

They are called the seed hunters. The 16.....of them included both gardeners and botanists, such as 17....., who sponsored collectors out of his own pocket.

The seeds collected are often stored in seed banks. The most famous among them is known as the Millennium Seed Bank, where seeds are all stored in the 18.....at low temperature.

Questions 19-24

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

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. The reason to collect seeds is different from the past.
20. The Millennium Seed Bank is one of the earliest seed banks.
21. A major reason for plant species extinction is farmland expansion.
22. The method scientists use to store seeds is similar to that used by farmers.
23. Technological development is the only hope to save plant species.
24. The works of seed conservation are often limited by insufficient financial resources.

Questions 25-26

Choose TWO letters, A-E. Write the correct letters in boxes 25 and 26 on your answer sheet. Which TWO of the following are provided by plants to the human world?

A food
B artefact
C treasure
D energy
E clothes

PASSAGE 3

Calculating the Risk

How do we judge whether it is right to go ahead with a new technology? Apply the precautionary principle properly and you won't go far wrong, says Colin Tudge.

Section 1

As a title for a supposedly unprejudiced debate on scientific progress, "Panic attack: interrogating our obsession with risk" did not bode well. Held last week at the Royal Institution in London, the event brought together scientists from across the world to ask why society is so obsessed with risk and to call for a "more rational" approach. "We seem to be organising society around the grandmotherly maxim of 'better safe than sorry'," exclaimed *Spiked,* the online publication that organised the event. "What are the consequences of this overbearing concern with risks?"

The debate was preceded by a survey of 40 scientists who were invited to describe how awful our lives would be if the "precautionary principle" had been allowed to prevail in the past. Their response was: no heart surgery or antibiotics, and hardly any drugs at all; no aeroplanes, bicycles or high-voltage power grids; no pasteurisation, pesticides or bio-technology; no quantum mechanics; no wheel; no "discovery" of America. In short, their message was: no risk, no gain.

They have absolutely missed the point. The precautionary principle is a subtle idea. It has various forms, but all of them generally include some notion of cost-effectiveness. Thus the point is not simply to ban things that are not known to be absolutely safe. Rather, it says: "Of course you can make no progress without risk. But if there is no obvious gain from taking the risk, then don't take it."

Clearly, all the technologies listed by the 40 well-chosen savants were innately risky at their inception, as all technologies are. But all of them would have received the green light under the precautionary principle because they all had the potential to offer tremendous benefits — the solutions to very big problems — if only the snags could be overcome.

If the precautionary principle had been in place, the scientists tell us, we would not have antibiotics. But of course we would — if the version of the principle that sensible people now understand had been applied. When penicillin was discovered in the 1920s, infective bacteria were laying waste to the world. Children died from diphtheria and whooping cough, every open drain brought the threat of typhoid, and any wound could lead to septicaemia and even gangrene.

Penicillin was turned into a practical drug during the Second World War, when the many pestilences that result from war threatened to kill more people than the bombs. Of course antibiotics were a priority. Of course the risks, such as they could be perceived, were worth taking.

And so with the other items on the scientists' list: electric light bulbs, blood transfusions, CAT scans, knives, the measles vaccine — the precautionary principle would have prevented all of them, they tell us. But this is just plain wrong. If the precautionary principle had been applied properly, all these creations would have passed muster, because all offered incomparable advantages compared to the risks perceived at the time.

Section 2

Another issue is at stake here. Statistics are not the only concept people use when weighing up risk. Human beings, subtle and evolved creatures that we are, do not survive to threescore years and ten simply by thinking like pocket calculators. A crucial issue is consumer's choice. In deciding whether to pursue the development of a new technology, the consumer's right to choose should be considered alongside considerations of risk and benefit. Clearly, skiing is more dangerous than genetically modified tomatoes. But people who ski choose to do so; they do not have skiing thrust upon them by portentous experts of the kind who now feel they have the right to reconstruct our crops. Even with skiing, there is the matter of cost effectiveness to consider: skiing, I am told, is exhilarating. Where is the exhilaration in GM soya?

Indeed, in contrast to all the other items on *Spiked's* list, GM crops stand out as an example of a technology whose benefits are far from clear. Some of the risks can at least be defined. But in the present economic climate, the benefits that might accrue from them seem dubious. Promoters of GM crops believe that the future population of the world cannot be fed without them. That is untrue. The crops that really matter are wheat and rice, and there is no GM research in the pipeline that will seriously affect the yield of either. GM is used to make production cheaper and hence more profitable, which is an extremely questionable ambition.

The precautionary principle provides the world with a very important safeguard. If it had been in place in the past, it might, for example, have prevented insouciant miners from polluting major rivers with mercury. We have come to a sorry pass when scientists, who should above all be dispassionate scholars, feel they should misrepresent such a principle for the purposes of commercial and political propaganda. People at large continue to mistrust science and the high technologies it produces, partly because they doubt the wisdom of scientists. On such evidence as this, these doubts are fully justified.

Questions 27-32

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

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

27. The title of the debate is not unbiased.
28. All the scientists invited to the debate were from the field of medicine.
29. The message those scientists who conducted the survey were sending was people shouldn't take risks.
30. All the listed technologies are riskier than other technologies.
31. It is worth taking the risks to invent antibiotics.
32. All the other inventions on the list were also judged by the precautionary principle.

Questions 33-39

*Complete the summary below using **NO MORE THAN THREE WORDS** from the passage.*

When applying precautionary principle to decide whether to invent a new technology, people should also take into consideration of the 33....., along with the usual consideration of 34..... For example, though risky and dangerous enough, people still enjoy 35.....for the excitement it provides. On the other hand, experts believe the future population desperately needs 36.....inspite of their undefined risks. However, the researches conducted so far have not been directed towards increasing the yield of 37....., but to reduce the cost of 38.....and to bring more profit out of it. In the end, such selfish use of precautionary principle for business and political gain has often led people to 39.....science for they believe scientists are not to be trusted.

Question 40

Choose the correct letter, A, B, C or D. Write your answer in box 40 on your answer sheet.

What is the main theme of the passage?

A. People have the right to doubt science and technologies.
B. The precautionary principle could have prevented the development of science and technology.
C. There are not enough people who truly understand the precautionary principle.
D. The precautionary principle bids us to take risks at all costs.

READING 3 ANSWERS

1. TRUE
2. FALSE
3. NOT GIVEN
4. NOT GIVEN
5. TRUE
6. FALSE
7. A
8. C
9. C
10. A
11. B
12. B
13. C,E,F
14. EXTINCTION
15. DRUGS, CROPS
16. PIONEERS
17. SIR JOSEPH BANKS
18. UNDERGROUND VAULTS
19. TRUE
20. NOT GIVEN
21. TRUE
22. TRUE
23. FALSE
24. TRUE
25. A
26. D
27. TRUE
28. NOT GIVEN
29. FALSE
30. NOT GIVEN
31. TRUE
32. TRUE
33. CONSUMERS CHOICE
34. RISK AND BENEFIT
35. SKIING
36. GM CROPS
37. WHEAT AND RICE
38. PRODUCTION
39. MISTRUST
40. A

Reading test 4

Passage 1

Laughter – How long has it been around

While joking and wit are uniquely human inventions, laughter certainly is not. Other creatures, including chimpanzees, gorillas and even rats, laugh. The fact that they laugh suggests that laughter has been around for a lot longer than we have.

There is no doubt that laughing typically involves groups of people. "Laughter evolved as a signal to others – it almost disappears when we are alone," says Robert Provine, a neuroscientist at the University of Maryland. Provine found that most laughter comes as a polite reaction to everyday remarks such as "see you later", rather than anything particularly funny. And the way we laugh depends on the company we're keeping. Men tend to laugh longer and harder when they are with other men, perhaps as a way of bonding. Women tend to laugh more and at a higher pitch when men are present, possibly indicating flirtation or even submission.

To find the origins of laughter, Provine believes we need to look at play. He points out that the masters of laughing are children, and nowhere is their talent more obvious than in the boisterous antics, and the original context is play. Well-known primate watchers, including Dian Fossey and Jane Goodall, have long argued that chimps laugh while at play. The sound they produce is known as a pant laugh. It seems obvious when you watch their behavior — they even have the same ticklish spots as we do. But after removing the context, the parallel between human laughter and a chimp's characteristic pant laugh is not so clear. When Provine played a tape of the pant laughs to 119 of his students, for example, only two guessed correctiy what it was.

These findings underline how chimp and human laughter vary- When we laugh the sound is usually produced by chopping up a single exhalation into a series of shorter with one sound produced on each inward and outward breath. The question is: does this pant laughter have the same source as our own laughter? New research lends weight to the idea that it does. The findings come from Elke Zimmerman, head of the Institute for Zoology in Germany, who compared the sounds made by babies and chimpanzees in response to tickling during the first year of; their life. Using sound spectrographs to reveal the pitch and intensity of vocalizations, she discovered that chimp and human baby laughter follow broadly the same pattern. Zimmerman believes the closeness of baby laughter to chimp laughter supports the idea that laughter was around long before humans arrived on the scene. What started simply as a modification of breathing associated with enjoyable and playful interactions has acquired a symbolic meaning as an indicator of pleasure.

Pinpointing when laughter developed is another matter. Humans and chimps share a common ancestor that lived perhaps 8 million years ago, but animals might have been laughing long before that. More distantly related primates, including gorillas, laugh, and anecdotal evidence suggests that other social mammals can do too. Scientists are currently testing such stories with a comparative analysis of just how common laughter is among animals. So far, though, the most compelling evidence for laughter beyond primates comes from research done by Jaak Panksepp from Bowling Green State University, Ohio, into the ultrasonic chirps produced by rats during play and in response to tickling.

All this still doesn't answer the question of why we laugh at all. One idea is that laughter and tickling originated as a way of sealing the relationship between mother and child. Another is that the reflex response to tickling is protective, alerting us to the presence of crawling creatures that might harm us or compelling us to defend the parts of our bodies that are most vulnerable in hand-to-hand combat. But the idea that has gained the most popularity in recent years is that laughter in response to tickling is a way for two individuals to signal

and test their trust in one another. This hypothesis starts from the observation that although a little tickle can be enjoyable, if it goes on too long it can be torture. By engaging in a bout of tickling, we put ourselves at the mercy of another individual, and laughing is what makes it a reliable signal of trust, according to Tom Flamson, a laughter researcher at the University of California, Los Angels. "Even in rats, laughter, tickle, play and trust are linked. Rats chirp a lot when they play," says Flamson. "These chirps can be aroused by tickling. And they get bonded to us as a result, which certainly seems like a show of trust."

We'll never know which animal laughed the first laugh, or why. But we can be sure it wasn't in response to a prehistoric joke. The funny thing is that while the origins of laughter are probably quite serious, we owe human laughter and our language-based humor to the same unique skill. While other animals pant, we alone can control our breath well enough to produce the sound of laughter. Without that control there would also be no speech — and no jokes to endure.

Questions 1-6

Look at the following research findings (Questions 1-6) and the list of people below. Match each finding with the correct person, A, B, C or D. Write the correct letter, A, B, C or D, in boxes 1-6 on your answer sheet. NB You may use any letter more than once.

1. Babies and some animals produce laughter which sounds similar.
2. Primates are not the only animals who produce laughter.
3. Laughter can be used to show that we feel safe and secure with others.
4. Most human laughter is not a response to a humorous situation.
5. Animal laughter evolved before human laughter.
6. Laughter is a social activity.

List of People

A. Provine
B. Zimmerman
C. Panksepp
D. Flamson

Questions 7-10

Complete the summary using the list of words, A-K, below. Write the correct letter, A-K, in boxes 7-10 on your answer sheet.

A. combat	B. chirps	C. pitch	D. origins	E. play
F. Rats	G. primates	H. confidence	I. fear	J. babies
K. tickling				

Some scientists believe that laughter first developed out of 7..... Research has revealed that human and chimp laughter may have the same 8..... Scientists have long been aware that 9.....laugh, but it now appears that laughter might be more widespread than once thought. Although the reasons why humans started to laugh are still unknown, it seems that laughter may result from the 10.....we feel with another person.

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 agrees with the information
False If the statement contradicts the information
Not given if there is no information on this

11. Both men and women laugh more when they are with members of the same sex
12. Primates lack sufficient breath control to be able to produce laughs the way humans do.
13. Chimpanzees produce laughter in a wider range of situations than rats do.

PASSAGE 2

THE LOST CITY - PTERIA

Thanks to modern remote-sensing techniques, a ruined city in Turkey is slowly revealing itself as one of the greatest and most mysterious cities of the ancient world. Sally Palmer uncovers more.

A. The low granite mountain, known as Kerkenes Dag, juts from the northern edge of the Cappadocian plain in Turkey. Sprawled over the mountainside are the ruins of an enormous city, contained by crumbling defensive walls seven kilometers long. Many respected archaeologists believe these are the remains of the fabled city of Pteria, the sixth-century BC stronghold of the Medes that the Greek historian Herodotus described in his famous work *The Histories*. The short-lived city came under Median control and only fifty years later was sacked, burned and its strong stone walls destroyed.

B. British archaeologist Dr Geoffrey Summers has spent ten years studying the site. Excavating the ruins is a challenge because of the vast area they cover. The 7 km perimeter walls run around a site covering 271 hectares. Dr Summers quickly realised it would take far too long to excavate the site using traditional techniques alone. So he decided to use modern technology as well to map the entire site, both above and beneath the surface, to locate the most interesting areas and priorities to start digging.

C. In 1993, Dr Summers hired a special hand-held balloon with a remote-controlled camera attached. He walked over the entire site holding the balloon and taking photos. Then one afternoon, he rented a hot-air balloon and floated over the site, taking yet more pictures. By the end of the 1994 season, Dr Summers and his team had a jigsaw of aerial photographs of the whole site. The next stage was to use remote sensing, which would let them work out what lay below the intriguing outlines and ruined walls. "Archaeology is a discipline that lends itself very well to remote sensing because it revolves around space," says Scott Branting, an associated director of the project. He started working with Dr Summers in 1995.

D. The project used two main remote-sensing techniques. The first is magnetometry, which works on the principle that magnetic fields at the surface of the Earth are influenced by what is buried beneath. It measures localised variations in the direction and intensity of this magnetic field. "The Earth s magnetic field can vary from place to place, depending on what happened there in the past says Brantmg. "If something containing iron oxide was heavily burnt, by natural or human actions, the iron particles in it can be permanently reoriented, like a compass needle, to align with the Earth's magnetic field present at that point in time and space." The magnetometer detects differences in the orientations and intensities of these iron particles from the present-day magnetic field and uses them to produce an image of what lies below ground.

E. Kerkenes Dag lends itself particularly well to magnetometry because it was all burnt once in a savage fire. In places the heat was sufficient to turn sandstone to glass and to melt granite. The fire was so hot that there were strong magnetic signatures set to the Earth's magnetic field from the time - around 547 BC - resulting in extremely clear pictures. Furthermore, the city was never rebuilt. "If you have multiple layers, it

can confuse pictures, because you have different walls from different periods giving signatures that all go in different directions," says Branting. "We only have one going down about 1.5 meters, so we can get a good picture of this fairly short-lived city."

F. The other main sub-surface mapping technique, which is still being used at the site, is resistivity. This technique measures the way electrical pulses are conducted through sub-surface soil. It's done by shooting pulses into the ground through a thin metal probe. Different materials have different electrical conductivity. For example, stone and mudbrick are poor conductors, but looser, damp soil conducts very well. By walking around the site and taking about four readings per metre, it is possible to get a detailed idea of what is where beneath the surface. The teams then build up pictures of walls, hearths and other remains. "It helps a lot if it has rained, because the electrical pulse can get through more easily," says Branting. "Then if something is more resistant, it really shows up." This is one of the reasons that the project has a spring season, when most of the resistivity work is done. Unfortunately, testing resistivity is a lot slower than magnetometry. "If we did resistivity over the whole site it would take about 100 years," says Branting. Consequently, the team is concentrating on areas where they want to clarify pictures from the magnetometry.

G. Remote sensing does not reveal everything about Kerkenes Dag, but it shows the most interesting sub-surface areas of the site. The archaeologists can then excavate these using traditional techniques. One surprise came when they dug out one of the gates in the defensive walls. "Our observations in early seasons led us to assume that we were looking at a stone base from a mudbrick city wall, such as would be found at most other cities in the Ancient Near East," says Dr Summers. "When we started to excavate we were staggered to discover that the walls were made entirely from stone and that the gate would have stood at least ten metres high. After ten years of study, Pteria is gradually giving up its secrets."

Questions 14-17

Which paragraph contains the following information? *Write the correct letter, A-G, in boxes 14-17 on your answer sheet.*

14 The reason for the deployment of a variety of investigative methods
15 An example of an unexpected find
16 How the surface of the site was surveyed from above
17 The reason why experts are interested in the site

Questions 18-25

*Complete the summary below. Choose **NO MORE THAN THREE WORDS** from the passage for each answer. Write your answers in boxes 18-25 on your answer sheet.*

Exploring the ancient city of Pteria

Archaeologists began working ten years ago. They started by taking photographs of the site from the ground and then from a distance in a 18..... They focused on what lay below the surface using a magnetometer, which identifies variations in the magnetic field. These variations occur when the 19.....in buried structures have changed direction as a result of great heat. They line up with the surrounding magnetic field just as a 20.....would do.

The other remote-sensing technique employed was resistivity. This uses a 21..... to fire electrical pulses into the earth. The principle is that building materials like 22.....and stone do not conduct electricity well, while 23.....does this much more effectively. This technique is mainly employed during the 24....., when conditions are more favourable. Resistivity is mainly being used to 25..... some images generated by the magnetometer.

Question 26 *Choose the correct letter, A, B, C or D. Write the correct letter in box 26 on your answer sheet.*

How do modern remote-sensing techniques help at the Pteria site?

A. They detect minute buried objects for the archaeologists to dig up.
B. They pinpoint key areas, which would be worth investigating closely.
C. They remove the need for archaeologists to excavate any part of the site.
D. They extend the research period as they can be used at any time of year.

PASSAGE 3

Sustainable Designing: Could Better Design Cure Our Throwaway Culture?

Jonathan Chapman, a senior lecturer at the University of Brighton, UK, is one of a new breed of 'sustainable designers'. Like many of us, they are concerned about the huge waste associated with Western consumer culture and the damage this does to the environment. Some, like Chapman, aim to create objects we will want to keep rather than discard. Others are working to create more efficient or durable consumer goods, or goods designed with recycling in mind. The waste entailed in our fleeting relationships with consumer durables is colossal.

Domestic power tools, such as electric drills, are a typical example of such waste. However much DIY the purchaser plans to do, the truth is that these things are thrown away having been used, on average, for just ten minutes. Most will serve 'conscience time', gathering dust on a shelf in the garage; people are reluctant to admit that they have wasted their money. However, the end is inevitable: thousands of years in land-fill waste sites. In its design, manufacture, packaging, transportation and disposal, a power tool consumes many times its own weight of resources, all for a shorter active lifespan than that of the average small insect.

To understand why we have become so wasteful, we should look to the underlying motivation of consumers. "People own things to give expression to who they are, and to show what group of people they feel they belong to," Chapman says. In a world of mass production, however, that symbolism has lost much of its potency. For most of human history, people had an intimate relationship with objects they used or treasured. Often they made the objects themselves, or family members passed them on. For more specialised objects, people relied on expert manufacturers living close by, whom they probably knew personally. Chapman points out that all these factors gave objects a history — a narrative — and an emotional connection that today's mass-produced goods cannot possibly match. Without these personal connections, consumerist culture idolizes novelty instead. People know that they cannot buy happiness, but the chance to remake themselves with glossy, box-fresh products seems irresistible. When the novelty fades, they simply renew the excitement by buying more.

Chapman's solution is what he calls 'emotionally durable design'. He says the challenge for designers is to create things we want to keep. This may sound like a tall order but it can be surprisingly straightforward. A favorite pair of old jeans, for example, just do not have the right feel until they have been worn and washed a hundred times. It is as if they are sharing the wearer's life story. The look can be faked, but it is simply not the same. Walter Stahel, visiting professor at the University of Surrey, UK, calls this 'the teddy bear factor'. No matter how ragged and worn a favorite teddy becomes, we don't rush out and buy another one. As adults, our teddy bear connects us to our childhood and this protects it from obsolescence. Stahel argues that this is what sustainable design needs to do with more products.

The information age was supposed to lighten our economies and reduce our impact on the environment, but, in fact, the reverse seems to be happening. We have simply added information technology to the industrial

era and speeded up the developed world's metabolism. The cure is hardly rocket science: minimise waste, stop moving things around so much and use people more. So what will post-throwaway consumerism look like? It might be as simple as installing energy-saving light bulbs, more efficient washing machines or choosing locally produced groceries with less packaging. In general, we will spend less on goods and more on services. Instead of buying a second car, for example, we might buy into a car-sharing network. Rather than following our current wasteful practices, we will buy less and rent a lot more; why own things such as tools that you use infrequently, especially things are likely to be updated all the time?

Consumer durables will increasingly be sold with plans for their disposal. Electronic goods such as mobile phones will be designed to be recyclable, with the extra cost added into the retail price. Following Chapman's notion of emotionally durable design, there will be a move away from mass production and towards tailor-made articles and products designed and manufactured with greater craftsmanship, products which will be repaired rather than replaced, in the same way as was done in our grandparents' time. Companies will replace profit from bulk sales by servicing and repairing products chosen because we want them to last.

Chapman acknowledges that it will be a challenge to persuade people to buy fewer goods, and ones that they intend to keep. At the moment, price competition between retailers makes it cheaper for consumers to replace rather than repair.

Products designed to be durable and emotionally satisfying are likely to be more expensive, so how will we be persuaded to choose sustainability? Tim Cooper, from Sheffield Hallam University in the UK, points out that many people are already happy to pay a premium for quality, and that they also tend to value and care more for expensive goods. Chapman is also positive: "People are ready to keep things for longer," he says, "The problem is that a lot of industries don't know how to do that." Chapman believes that sustainable design is here to stay. "The days when large corporations were in a position to choose whether to jump on the sustainability band-wagon or not are coming to an end," he says. Whether this is also the beginning of the end of the throwaway society remains to be seen.

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 In the second paragraph, the expression 'conscience time' refers to the fact that the owners
- A. wish they had not bought the power tool.
- B. want to make sure the tool is stored safely.
- C. feel that the tool will increase in value in the future.
- D. would feel guilty if they threw the tool away immediately.

28 Jonathan Chapman uses the word 'narrative' in the third paragraph to refer to the fact that the owner
- A. told a story about how the item was bought.
- B. was aware of how the item had come into being.
- C. felt that the item became more useful over time.
- D. was told that the item had been used for a long time.

29 In the third paragraph, the writer suggests that mass-produced goods are
- A. inferior in quality.
- B. less likely to be kept for a long time.
- C. attractive because of their lower prices.
- D. less tempting than goods which are traditionally produced.

30 Lack of personal connection to goods is described as producing
- A. a belief that older goods are superior.
- B. an attraction to well-designed packaging.
- C. a desire to demonstrate status through belongings.
- D. a desire to purchase a constant stream of new items.

31 Jeans and teddy bears are given as examples of goods which
- A. have been very well designed.
- B. take a long time to show wear.
- C. are valued more as they grow older.
- D. are used by the majority of the population.

Questions 32-35

Do the following statements agree with the views of the writer in reading Passage 3?
In boxes 32-35 on your answer sheet, write

TRUE *if the statement agrees with the views of the writer*
FALSE *if the statement contradicts the views of the writer*
NOT GIVEN *if it is impossible to say what the writer thinks about this*

32 People often buy goods that they make little use of.
33 Understanding the reasons for buying goods will help to explain why waste occurs.
34 People already rent more goods than they buy.
35 Companies will charge less to repair goods in the future.

Questions 36-40

Complete the summary using the list of words, A-I, below Write the correct letter, A-I, in boxes 36-40 on your answer sheet.

A cure for our wasteful habits

The writer believes that the recipe for reducing our impact on the environment is a simple one. He states that we should use less energy for things such as lighting or 36....., and buy 37..... that will not need to be moved across long distances.
Some expensive items such as 38.....could be shared, and others which may be less expensive but which are not needed often, such as 39 ....., could be rented instead of being purchased. He believes that manufacturers will need to design high-technology items such as 40.....so that they can be recycled more easily.

A. mobile phones	B. clothing	C. tools	D. laundry	E. computers	
F. food	G. heating	H. cars	I. teddy bears		

READING 4 ANSWERS

1. B
2. C
3. D
4. A
5. B
6. A
7. E
8. D
9. G
10. H
11. NOT GIVEN
12. TRUE
13. NOT GIVEN
14. B
15. G
16. C
17. A
18. HOT-AIR BALLOON
19. IRON PARTICLES
20. COMPASS (NEEDLE)
21. THIN METAL PROBE
22. MUDBRICK
23. LOOOSER DAMP SOIL
24. SPRING SEASON
25. CLARIFY
26. B
27. D
28. B
29. B
30. D
31. C
32. TRUE
33. TRUE
34. NOT GIVEN
35. NOT GIVEN
36. D
37. F
38. H
39. C
40. A

Reading 5

PASSAGE 1

Alfred Nobel and the Nobel Prize

Since 1901, the Nobel Prize has been honoring men and women from all corners of the globe for outstanding achievements in physics, chemistry, medicine, literature, and for work in peace. The foundations for the prize were laid in 1895 when Alfred Nobel wrote his last will, leaving much of his wealth to the establishment of the Nobel Prize.

Alfred Nobel was born in Stockholm on October 21, 1833. His father Immanuel Nobel was an engineer and inventor who built bridges and buildings in Stockholm. In connection with his construction work Immanuel Nobel also experimented with different techniques for blasting rocks. Successful in his industrial and business ventures, Immanuel Nobel was able, in 1842, to bring his family to St. Petersburg. There, his sons were given a first class education by private teachers. The training included natural sciences, languages and literature. By the age of 17 Alfred Nobel was fluent in Swedish, Russian, French, English and German. His primary interests were in English literature and poetry as well as in chemistry and physics. Alfred's father, who wanted his sons to join his enterprise as engineers, disliked Alfred's interest in poetry and found his son rather introverted.

In order to widen Alfred's horizons his father sent him abroad for further training in chemical engineering. During a two year period Alfred Nobel visited Sweden, Germany, France and the United States. In Paris, the city he came to like best, he worked in the private laboratory of Professor T. J. Pclouze, a famous chemist. There he met the young Italian chemist Ascanio Sobrero who, three years earlier, had invented nitroglycerine, a highly explosive liquid. But it was considered too dangerous to be of any practical use. Although its explosive power greatly exceeded that of gunpowder, the liquid would explode in a very unpredictable manner if subjected to heat and pressure. Alfred Nobel became very interested in nitroglycerine and how it could be put to practical use in construction work. He also realized that the safety problems had to be solved and a method had to be developed for the controlled detonation of nitroglycerine.

After his return to Sweden in 1863, Alfred Nobel concentrated on developing nitroglycerine as an explosive. Several explosions, including one (1864) in which his brother Emil and several other persons were killed, convinced the authorities that nitroglycerine production was exceedingly dangerous. They forbade further experimentation with nitroglycerine within the Stockholm city limits and Alfred Nobel had to move his experimentation to a barge anchored on Lake Malaren. Alfred was not discouraged and in 1864 he was able to start mass production of nitroglycerine. To make the handling of nitroglycerine safer Alfred Nobel experimented with different additives. He soon found that mixing nitroglycerine with kieselguhr would turn the liquid into a paste which could be shaped into rods of a size and form suitable for insertion into drilling holes. In 1867 he patented this material under the name of dynamite. To be able to detonate the dynamite rods he also invented a detonator (blasting cap) which could be ignited by lighting a fuse. These inventions were made at the same time as the pneumatic drill came into general use. Together these inventions drastically reduced the cost of blasting rock, drilling tunnels, building canals and many other forms of construction work.

The market for dynamite and detonating caps grew very rapidly and Alfred Nobel also proved himself to be a very skillful entrepreneur and businessman. Over the years he founded factories and laboratories in some 90 different places in more than 20 countries. Although he lived in Paris much of his life he was constantly traveling. When he was not traveling or engaging in business activities Nobel himself worked intensively in his various laboratories, first in Stockholm and later in other places. He focused on the development of

explosives technology as well as other chemical inventions including such materials as synthetic rubber and leather, artificial silk, etc. By the time of his death in 1896 he had 355 patents.

Intensive work and travel did not leave much time for a private life. At the age of 43 he was feeling like an old man. At this time he advertised in a newspaper "wealthy, highly-educated elderly gentleman seeks lady of mature age, versed in languages, as secretary and supervisor of household." The most qualified applicant turned out to be an Austrian woman, Countess Bertha Kinsky. After working a very short time for Nobel she decided to return to Austria to marry Count Arthur von Suttner. In spite of this Alfred Nobel and Bertha von Suttner remained friends and kept writing letters to each other for decades. Over the years Bertha von Suttner became increasingly critical of the arms race. She wrote a famous book, *Lay Down Your Arms* and became a prominent figure in the peace movement. No doubt this influenced Alfred Nobel when he wrote his final will which was to include a Prize for persons or organizations who promoted peace. Several years after the death of Alfred Nobel, the Norwegian Storting (Parliament) decided to award the 1905 Nobel Peace Prize to Bertha von Suttner.

Alfred Nobel died in San Remo, Italy, on December 10, 1896. When his will was opened it came as a surprise that his fortune was to be used for Prizes in Physics, Chemistry, Physiology or Medicine, Literature and Peace. The executors of his will were two young engineers, Ragnar Sohlman and Rudolf Lilljequist. They set about forming the Nobel Foundation as an organization to take care of the financial assets left by Nobel for this purpose and to coordinate the work of the Prize-Awarding Institutions. This was not without its difficulties since the will was contested by relatives and questioned by authorities in various countries.

Alfred Nobel's greatness lay in his ability to combine the penetrating mind of the scientist and inventor with the forward-looking dynamism of the industrialist. Nobel was very interested in social and peace-related issues and held what were considered radical views in his era. He had a great interest in literature and wrote his own poetry and dramatic works. The Nobel Prizes became an extension and a fulfillment of his lifetime interests.

Questions 1-6

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

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

1 The first Nobel Prize was awarded in 1895.
2 Nobel's father wanted his son to have better education than what he had had.
3 Nobel was an unsuccessful businessman.
4 Bertha von Suttner was selected by Nobel himself for the first peace prize.
5 The Nobel Foundation was established after the death of Nobel
6 Nobel's social involvement was uncommon in the 1800s.

Questions 7-13

Complete the notes below using ***NO MORE*** *THAN* ***TWO WORDS*** *from the passage. Write your answers in boxes 7-13 on your answer sheet.*

Education:

Having accumulated a great fortune in his business, Nobel's father determined to give his son the best education and sent him abroad to be trained in 7..... During Nobel's study in Paris, he worked in a private laboratory, where he came in contact with a young engineer 8.....and his invention nitroglycerine, a more powerful explosive than 9.....

Benefits in construction works:

Nobel became really interested in this new explosive and experimented on it. But nitroglycerine was too dangerous and was banned for experiments within the city of 10..... So Nobel had to move his experiments to a lake. To make nitroglycerine easily usable, Nobel invented dynamite along with 11....., while in the meantime 12.....became popular, all of which dramatically lowered the 13.....of construction works.

PASSAGE 2

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-x, in boxes 14-20 on your answer sheet.*

List of headings

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

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

The Mystery Of Bird Migration

A. Birds have many unique design features that enable them to perform such amazing feats of endurance. They are equipped with lightweight, hollow bones, intricately designed feathers providing both lift and thrust for rapid flight, navigation systems superior to any that man has developed, and an ingenious heat conserving design that, among other things, concentrates all blood circulation beneath layers of warm, waterproof plumage, leaving them fit to face life in the harshest of climates. Their respiratory systems have to perform efficiently during sustained flights at altitude, so they have a system of extracting oxygen

from their lungs that far exceeds that of any other animal. During the later stages of the summer breeding season, when food is plentiful, their bodies are able to accumulate considerable layers of fat, in order to provide sufficient energy for their long migratory flights.

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

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

D. One of the greatest mysteries is how young birds know how to find the traditional wintering areas without parental guidance. Very few adults migrate with juveniles in tow, and youngsters may even have little or no inkling of their parents' appearance. A familiar example is that of the cuckoo, which lays its eggs in another species' nest and never encounters its young again. It is mind boggling to consider that, once raised by its host species, the young cuckoo makes it own way to ancestral wintering grounds in the tropics before returning single-handedly to northern Europe the next season to seek out a mate among its own kind. The obvious implication is that it inherits from its parents an inbuilt route map and direction-finding capability, as well as a mental image of what another cuckoo looks like. Yet nobody has the slightest idea as to how this is possible.

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

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

Yet they return to Holland ahead of a thaw, their arrival linked to a pressure change presaging an improvement in the weather.

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

Questions 21-22

*Choose **TWO** letters, A-E. Write the correct letters in your answer sheet.* Which **TWO** of the following statements are true of bird migration?

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

Question 23-26

*Complete the sentences below using **NO MORE THAN ONE WORD OR NUMBER** from the passage. Write your answers in your answer sheet.*

23 It is a great mystery that young birds like cuckoos can find their wintering grounds without .....
24 Evidence shows birds can tell directions like a.....by observing the sun and the stars.
25 One advantage for birds flying at night is that they can avoid contact with .....
26 Laboratory tests show that birds can detect weather without __ signs.

PASSAGE 3

The Ingenuity Gap
what we need and how much we get

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

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

How much and what kinds of ingenuity a society supplies also depends on many factors, such as the nature of human inventiveness and understanding, the rewards an economy gives to the producers of useful knowledge, and the strength of political opposition to social and institutional reforms.
A good supply of the right kind of ingenuity is essential, but it isn't, of course, enough by itself. We know that the creation of wealth, for example, depends not only on an adequate supply of useful ideas but also on the availability of other, more conventional factors of production, like capital and labor. Similarly, prosperity, stability and justice usually depend on the resolution, or at least the containment, of major political struggles over wealth and power. Yet within our economies ingenuity often supplants labor, and growth in the stock of physical plant is usually accompanied by growth in the stock of ingenuity. And in our political systems, we need

great ingenuity to set up institutions that successfully manage struggles over wealth and power. Clearly, our economic and political processes are intimately entangled with the production and use of ingenuity.

The past century's countless incremental changes in our societies around the planet, in our technologies and our interactions with our surrounding natural environments, have accumulated to create a qualitatively new world. Because these changes have accumulated slowly, it's often hard for us to recognize how profound and sweeping they've been. They include far larger and denser populations; much higher per capita consumption of natural resources; and far better and more widely available technologies for the movement of people, materials, and especially information.

In combination, these changes have sharply increased the density, intensity, and pace of our interactions with each other; they have greatly increased the burden we place on our natural environment; and they have helped shift power from national and international institutions to individuals and subgroups, such as political special interests and ethnic factions.

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

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

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

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

In this book, I explore a wide range of other factors that will limit our ability to supply the ingenuity required in the coming century. For example, many people believe that new communication technologies strengthen democracy and will make it easier to find solutions to our societies' collective problems, but the story is less clear

than it seems. The crush of information in our everyday lives is shortening our attention span, limiting the time we have to reflect on critical matters of public policy, and making policy arguments more superficial.

Modern markets and science are an important part of the story of how we supply ingenuity. Markets are critically important, because they give entrepreneurs an incentive to produce knowledge. As for science, although it seems to face no theoretical limits, at least in the foreseeable future, practical constraints often slow its progress. The cost of scientific research tends to increase as it delves deeper into nature. And science's rate of advance depends on the characteristic of the natural phenomena it investigates, simply because some phenomena are intrinsically harder to understand than others, so the production of useful new knowledge in these areas can be very slow. Consequently, there is often a critical time lag between the recognition between a problem and the delivery of sufficient ingenuity, in the form of technologies, to solve that problem. Progress in the social sciences is especially slow, for reasons we don't yet understand; but we desperately need better social scientific knowledge to build the sophisticated institutions today's world demands.

Questions 27-30

Complete each sentence with the appropriate answer, A, B, C, or D. Write the correct answer in boxes 27-30 on your answer sheet.

27 The definition of ingenuity
28 The requirement for ingenuity
29 The creation of social wealth
30 The stability of society

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

Questions 31-33

Choose the correct letter, A, B, C or D. Write your answers in boxes 31-33 on your answer sheet.

31. What does the author say about the incremental change of the last 100 years

A It has become a hot scholastic discussion among environmentalists.
B Its significance is often not noticed.
C It has reshaped the natural environments we live in.
D It benefited a much larger population than ever.

32. The combination of changes has made life:

A easier
B faster
C slower
D less sophisticated

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

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

Questions 34-40

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

In boxes 34-40 on your answer sheet, write

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

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

READING 5 ANSWERS

1. FALSE
2. NOT GIVEN
3. FALSE
4. FALSE
5. TRUE
6. TRUE
7. CHEMICAL ENGINEERING
8. ASCANIO SOBRERO
9. GUNPOWDER
10. STOCKHOLM
11. DETONATOR
12. PNEUMATIC DRILL
13. COST
14. IV
15. V
16. II
17. X
18. VII
19. I
20. VIII
21. A
22. C
23. PARENTAL-GUIDANCE
24. COMPASS
25. PREDATORS
26. VISIBLE
27. C
28. A
29. D
30. B
31. B
32. B
33. C
34. TRUE
35. TRUE
36. TRUE
37. FALSE
38. NOT GIVEN
39. TRUE
40. FALSE

READING 6

PASSAGE 1

Artificial Intelligence

MIT's humanoid robots showcase both human creativity and contemporary pessimism.

Humanoid robots were once the stuff of political and science fiction. Today, scientists working in Japan and the USA have been turning fiction into a physical reality.

A. During July 2003, the Museum of Science in Cambridge, Massachusetts exhibited what Honda calls 'the world's most advanced humanoid robot', ASIMO (the Advanced Step in Innovative Mobility). Honda's brainchild is on tour in North America and delighting audiences wherever it goes. After 17 years in the making, ASIMO stands at four feet tall, weighs around 115 pounds and bob like a child in an astronaut's suit. Though it is difficult to see ASIMO's face at a distance, on closer inspection it has a smile and two large 'eyes' that conceal cameras. The robot cannot work autonomously — its actions are 'remote controlled' by scientists through the computer in its backpack. Yet watching ASMIO perform at a show in Massachusetts it seemed uncannily human. The audience cheered as ASIMO walked forwards and backwards, side to side and up and downstairs. It can even dance to the Hawaiian Hula.

B. While the Japanese have made huge strides in solving some of the engineering problems of human kinetics and bipedal movements, for the past 10 years scientists at MIT's former Artificial Intelligence (AI) lab (recently renamed the Computer Science and Artificial Intelligence Laboratory, CSAIL) have been making robots that can behave like humans and interact with humans. One of MIT's robots, Kismet, is an anthropomorphic head and has two eyes (complete with eyelids), ears, a mouth, and eyebrows. It has several facial expressions, including happy, sad, frightened and disgusted. Human interlocutors are able to read some of the robot's facial expressions, and often change their behaviour towards the machine as a result - for example, playing with it when it appears 'sad'. Kismet is now in MIT's museum, but the ideas developed here continue to be explored in new robots.

C. Cog (short for Cognition) is another pioneering project from MIT's former Al lab. Cog has a head, eyes, two arms, hands and a torso — and its proportions were originally measured from the body of a researcher in the lab. The work on Cog has been used to test theories of embodiment and developmental robotics, particularly getting a robot to develop intelligence by responding to its environment via sensors, and to learn through these types of interactions. This approach to Al was thought up and developed by a team of students and researchers led by the head of MIT's former Al lab, Rodney Brooks (now head of CSAIL), and represented a completely new development.

D. This work at MIT is getting furthest down the road to creating human-like and interactive robots. Some scientists argue that ASIMO is a great engineering feat but not an intelligent machine — because it is unable to interact autonomously with unpredictabilities in its environment in meaningful ways, and learn from experience. Robots like Cog and Kismet and new robots at MIT's CSAIL and media lab, however, are beginning to do this.

E. These are exciting developments. Creating a machine that can walk, make gestures and learn from its environment is an amazing achievement. And watch this space: these achievements are likely rapidly to be improved upon. Humanoid robots could have a plethora of uses in society, helping to free people from everyday tasks. In Japan, for example, there is an aim to create robots that can do the tasks similar to an average

human, and also act in more sophisticated situations as firefighters, astronauts or medical assistants to the elderly in the workplace and in homes — partly in order to counterbalance the effects of an ageing population.

F. So in addition to these potentially creative plans there lies a certain dehumanisation. The idea that companions can be replaced with machines, for example, suggests a mechanical and degraded notion of human relationships. On one hand, these developments express human creativity — our ability to invent, experiment, and to extend our control over the world. On the other hand, the aim to create a robot like a human being is spurred on by dehumanised ideas — by the sense that human companionship can be substituted by machines; that humans lose their humanity when they interact with technology; or that we are little more than surface and ritual behaviours, that can be simulated with metal and electrical circuits.

G. The tension between the dehumanised and creative aspects of robots has long been explored in culture. In Karel Capek's *Rossum's Universal Robots,* a 1921 play in which the term 'robot' was first coined, although Capek's robots had human-like appearance and behaviour, the dramatist never thought these robots were human. For Capek, being human was about much more than appearing to be human. In part, it was about challenging a dehumanising system, and struggling to become recognised and given the dignity of more than a machine. A similar spirit would guide us well through twenty-first century experiments in robotics.

Questions 1-7

Reading Passage 1 has seven paragraphs, A-G. *Which paragraph contains the following information? Write the correct letter, A-G, in boxes 1-7 on your answer sheet.*

1. The different uses of robots in society
2. How robot is used in the artistic work
3. A robot that was modelled on an adult
4. A comparison between two different types of robots
5. A criticism of the negative effects of humanoid robots on the society
6. A reference to the first use of the word "robot"
7. People feel humanity may be replaced by robots

Questions 8-13

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage. Write your answers in boxes 8-13 on your answer sheet.*

It took Honda 8.....years to make ASIMO, a human-looking robot that attracted broad interests from audiences. Unlike ASIMO, which has to be controlled through a computer installed in the 9....., MIT's scientists aimed to make robot that can imitate human behavior and 10.....with humans. One of such particular inventions can express its own feelings through 11..... Another innovative project is a robot called 12.....,, which is expected to learn from its environment to gain some 13.....

PASSAGE 2
Questions 14-26

The Megafires of California

Drought, housing expansion, and oversupply of tinder make for bigger, hotter fires.

There's a reason fire squads now battling more than a dozen blazes in southern California are having such difficulty containing the flames, despite better preparedness than ever and decades of experience fighting fires fanned by the notorious Santa Ana winds. The wildfires themselves, experts say, generally are hotter, move faster, and spread more erratically than in the past.

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. One of the current wildfires is the sixth biggest in California ever, in terms of acreage burned, according to state figures and news reports.

The short-term explanation is that the region, which usually has dry summers, has had nine inches less rainfall than normal this year. Longer term, climate change across the West is leading to hotter days on average and longer fire seasons. The trend to more superhot fires, experts say, has been driven by a century-long policy of the US Forest Service to stop wildfires as quickly as possible. The unintentional consequence was to halt the natural eradication of underbrush, now the primary fuel for megafires.

Three other factors contribute to the trend, they add. First is climate change marked by a 1-degree F rise in average yearly temperature across the West. Second is a fire season that on average is 78 days longer than in the late 1980s. Third is increased building of homes and other structures in wooded areas. "We are increasingly building our homes ... in fireprone ecosystems," says Dominik Kulakowski, adjunct professor of biology at Clark University Graduate School of Geography in Worcester, Mass. Doing that "in many of the forests of the Western US ... is like building homes on the side of an active volcano."

In California, where population growth has averaged more than 600,000 a year for at least a decade, housing has pushed into such areas. "What once was open space is now residential homes providing fuel to make fires burn with greater intensity," says Terry McHale of the California Department of Forestry firefighters union. "With so much dryness, so many communities to catch fire, so many fronts to fight, it becomes an almost incredible job."

That said, many experts give California high marks for making progress on preparedness since 2003, when the largest fires in state history scorched 750,000 acres, burned 3,640 homes, and killed 22 people. Stung then by criticism of bungling that allowed fires to spread when they might have been contained, personnel are meeting the peculiar challenges of neighborhood and canyon-hopping fires better than in recent years, observers say.

State promises to provide newer engines, planes, and helicopters have been fulfilled. Firefighters unions that then complained of dilapidated equipment, old fire engines, and insufficient blueprints for fire safety are now praising the state's commitment, noting that funding for firefighting has increased despite huge cuts in many other programs. We are pleased that the Schwarzenegger administration has been very proactive in its support of us and come through with budgetary support of the infrastructure needs we have long sought," says Mr. McHale with the firefighters union.

Besides providing money to upgrade the fire engines that must traverse the mammoth state and wind along serpentine canyon roads, the state has invested in better command-and-control facilities as well as the

strategies to run them. "In the fire sieges of earlier years, we found out that we had the willingness of mutual-aid help from other jurisdictions and states, but we were not able to communicate adequately with them," says Kim Zagaris, chief of the state's Office of Emergency Services, fire and rescue branch. After a 2004 blue-ribbon commission examined and revamped those procedures, the statewide response ' has become far more professional and responsive," he says.

Besides ordering the California National Guard on Monday to make 1,500 guardsmen available for firefighting efforts, Gov. Arnold Schwarzenegger asked the Pentagon to send all available Modular Airborne Fighting Systems to the area. The military Lockheed C-130 cargo/utility aircraft carry a pressurized 3,000-gallon tank that can eject fire retardant or water in fewer than five seconds through two tubes at the rear of the plane. This load can cover an area 1/4-mile long and 60 feet wide to create a fire barrier. Governor Schwarzenegger also directed 2,300 inmate firefighters and 170 custody staff from the California Department of Corrections and Rehabilitation to work hand in hand with state and local firefighters.

Residents and government officials alike are noting the improvements with gratitude, even amid the loss of homes, churches, businesses, and farms. Despite such losses, there is a sense that the speed, dedication, and coordination of firefighters from several states and jurisdictions are resulting in greater efficiency than in past "siege fire" situations.

"I am extraordinarily impressed by the improvements we have witnessed between the last big fire and this," says Ross Simmons, a San Diego-based lawyer who had to evacuate both his home and business on Monday, taking up residence at a Hampton Inn 30 miles south of his home in Rancho Bernardo. After fires consumed 172,000 acres there in 2003, the San Diego region turned communitywide soul-searching into improved building codes, evacuation procedures, and procurement of new technology. Mr. Simmons and neighbors began receiving automated phone calls at 3:30 a.m. Monday morning telling them to evacuate. "Notwithstanding all the damage that will be caused by this, we will not come close to the loss of life because of what we have ... put in place since then," he says.

Questions 14-18

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage.*

Fighting Californian wildfires is still not an easy task because the fires the fire-fighters now face 14.....in more unpredictable manner in addition to the raging heat and faster speed than ever. Megafires, as they are called, are often 15.....bigger than average forest fire. The reasons for this include 16.....below the average and the extended 17.....due to climate change. And according to experts, the government policy has also contributed to this by accidentally making the underbrush the 18 ..... for megafires.

Questions 19-23

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

19 Open space has been disappearing in the past 10 years.

20 The equipment firefighters use today is better than before.

21 The state recruited new firefighters.

22 In the early years, no other states wished to help California to fight the fire.

23 The 2004 blue-ribbon commission did not make any achievements.

Questions 24-26

Choose the correct letter. A, B, C or D. Write your answers in boxes 24-26 on your answer sheet.

24. Why does the author mention Governor Schwarzenegger, California National Guard, Pentagon and the California Department of Corrections and Rehabilitation?

A. To show the active involvement of the Schwarzenegger's administration
B. To illustrate the cross-state and cross-jurisdiction cooperation in fire-fighting
C. To demonstrate how the military is more effective at fighting fire than others
D. To give an example of how resources should be mobilised to fight fires

25. How do the locals feel about the improvements made by the state government?

A. glad
B. unsatisfied
C. unconcerned
D. bitter

26. According to Ross Simmons, which of the following statements is true?

A. It's harder to evacuate people in daytime.
B. People refuse to improve their house in fire resisting ability.
C. People can hardly believe the magnitude of damage today.
D. People are less likely to die in fires now

PASSAGE 3

Rain in the Desert

Sometimes ideas just pop up out of the blue. Or in Charlie Paton's case, out of the rain. "I was in a bus in Morocco travelling through the desert," he remembers. "It had been raining and the bus was full of hot, wet people. The windows steamed up and I went to sleep with a towel against the glass. When I woke, the thing was soaking wet. I had to wring it out. And it set me thinking. Why was it so wet?"

The answer, of course, was condensation. Back home in London, a physicist friend, Philip Davies, explained that the glass, chilled by the rain outside, had cooled the hot humid air inside the bus below its dew point, causing droplets of water to form on the inside of the window. Intrigued, Paton — a lighting engineer by profession — started rigging up his own equipment. "I made my own solar stills. It occurred to me that you might be able to produce water in this way in the desert, simply by cooling the air. I wondered whether you could make enough to irrigate fields and grow crops."

Today, a decade on, his dream has taken shape as a giant greenhouse on a desert island off Abu Dhabi in the Persian Gulf — the first commercially viable version of his "seawater greenhouse". Local scientists, working with Paton under a licence from his company Light Works, are watering the desert and growing vegetables in what is basically a giant dew-making machine that produces fresh water and cool air from sun and seawater. In awarding Paton first prize in a design competition two years ago, Marco Goldschmied, president of the Royal Institute of British Architects, called it "a truly original idea which has the potential to impact on the lives of millions of people living in coastal water-starved areas around the world".

The design has three main parts (see Graphic). The greenhouse faces into the prevailing wind so that hot, dry desert air blows in through the front wall of perforated cardboard, kept wet and cool by a constant trickle of seawater pumped up from the nearby shoreline. The evaporating seawater cools and moistens the air. Last June, for example, when the temperature outside the Abu Dhabi greenhouse was 46 °C, it was in the low 30s inside. While the air outside was dry, the humidity in the greenhouse was 90 per cent. The cool, moist air allows the plants to grow faster, and because much less water evaporates from the leaves their demand for moisture drops dramatically. Paton's crops thrived on a single litre of water per square metre per day, compared to 8 litres if they were growing outside.

The second feature also cools the air for the plants. Paton has constructed a double-layered roof with an outer layer of clear polythene and an inner, coated layer that reflects infrared light. Visible light can stream through to maximise photosynthesis, while heat from the infrared radiation is trapped in the space between the layers, away from the plants.

At the back of the greenhouse sits the third element, the main water-production unit. Just before entering this unit, the humid air of the greenhouse mixes with the hot, dry air from between the two layers of the roof. This means the air can absorb more moisture as it passes through a second moist cardboard wall. Finally, the hot saturated air hits a condenser. This is a metal surface kept cool by still more seawater - the equivalent of the window on Paton's Moroccan bus. Drops of pure distilled water form on the condenser and flow into a tank for irrigating the crops.

The greenhouse more or less runs itself. Sensors switch everything on when the sun rises and alter flows of air and seawater through the day in response to changes in temperature, humidity and sunlight. On windless days, fans ensure a constant flow of air through the greenhouse. "Once it is tuned to the local environment, you don't need anyone there for it to work," says Paton. "We can run the entire operation off one 13-amp plug, and in future we could make it entirely independent of the grid, powered from a few solar panels."

The net effect is to evaporate seawater into hot desert air, then recondense the moisture as fresh water. At the same time, cool moist air flows through the greenhouse to provide ideal conditions for the crops. The key to the seawater greenhouse's potential is its unique combination of desalination and air conditioning. By tapping the power of the sun it can cool as efficiently as a 500-kilowatt air conditioner while using less than 3 kilowatts of electricity. In practice, it evaporates 3000 litres of seawater a day and turns it into about 800 litres of fresh water —just enough to irrigate the plants. The rest is lost as water vapour.

Critics point out that construction costs of £25 per square metre mean the water is twice as expensive as water from a conventional desalination plant. But the comparison is misleading, says Paton. The natural air conditioning in the greenhouse massively increases the value of that water. Because the plants need only an eighth of the water used by those grown conventionally, the effective cost is only a quarter that of water from a standard desalinator. And costs should plummet when mass production begins, he adds.

Best of all, the greenhouses should be environmentally friendly. "I suppose there might be aesthetic objections to large structures on coastal sites," says Harris, "but it is a clean technology and doesn't produce pollution or even large quantities of hot water."

Questions 27-31

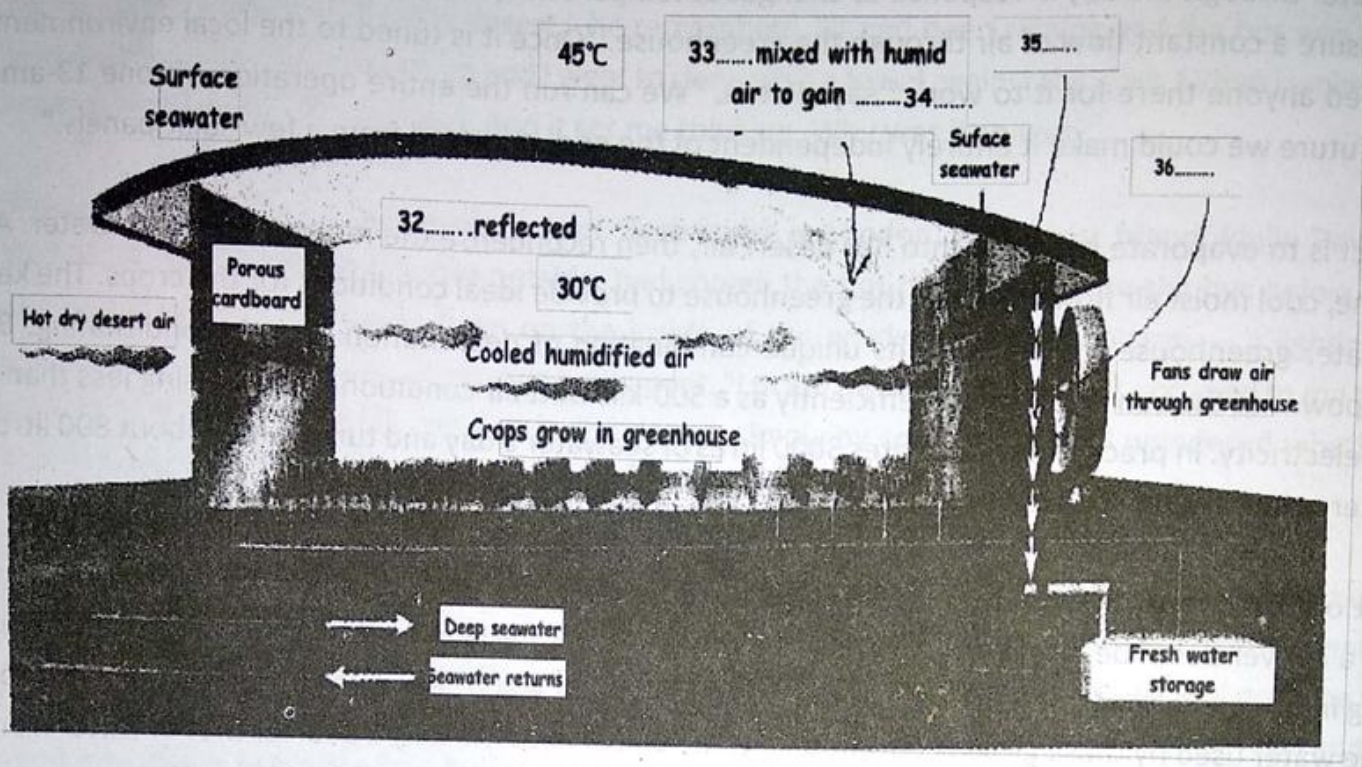
Do the following statements agree with the information given in Reading Passage 3?

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

27. Paton came up with the idea of making water in desert by pure accident.
28. The bus Paton rode in had poor ventilation because of broken fans.
29. Paton woke up from sleep to discover that his towel was wet.
30. Paton started his greenhouse project immediately after meeting up with his friend.
31. Paton later opened his own business in the Persian Gulf.

Questions 32-36

Complete the diagram below using NO MORE THAN TWO WORDS from the passage. Write your answers in boxes 32-36 on your answer sheet.



Questions 37-40

*Complete the summary below using **NO MORE THAN TWO WORDS** from the passage. Write your answers in boxes 37-40 on your answer sheet.*

The greenhouse Paton built is installed with 37.....to keep the air flowing if the wind stands still, and it is expected in the future to rely on electricity provided solely by 38..... Despite the high construction costs compared to desalination plant, the plants grown in Paton's greenhouse need much less water, and if produced in large quantities the 39.....could be reduced remarkably. In addition to all these advantages, it is also 40....., because it is clean and pollution free.

READING 6 ANSWERS

1. E
2. A
3. C
4. D
5. F
6. G
7. F
8. 17
9. BACKPACK
10. INTERACT
11. FACIAL EXPRESSION
12. COG
13. INTELLIGENCE
14. SPREAD
15. TIMES
16. RAINFALL
17. FIRE SEASONS
18. FUEL
19. TRUE
20. TRUE
21. NOT GIVEN
22. FALSE
23. FALSE
24. B
25. A
26. D
27. TRUE
28. NOT GIVEN
29. TRUE
30. FALSE
31. TRUE
32. INFRARED LIGHT
33. HOT DRY AIR
34. MOISTURE
35. CONDENSER
36. PURE DISTILLED WATER
37. FANS
38. SOLAR PANELS
39. COSTS
40. ENVIRONMENTALLY FRIENDLY

READING 7

PASSAGE 1

How Animals look after their Health

Many animals seem able to treat their illnesses themselves. Humans may have a thing or two to learn from them.

For the past decade Dr Engel, a lecturer in environmental sciences at Britain's Open University, has been collating examples of self-medicating behaviour in wild animals. She recently published a book on the subject. In a talk at the Edinburgh Science Festival earlier this month, she explained that the idea that animals can treat themselves has been regarded with some scepticism by her colleagues in the past. But a growing number of animal behaviourists now think that wild animals can and do deal with their own medical needs.

One example of self-medication was discovered in 1987. Michael Huffman and Mohamedi Seifu, working in the Mahale Mountains National Park in Tanzania, noticed that local chimpanzees suffering from intestinal worms would dose themselves with the pith of a plant called *Veronia.* This plant produces poisonous chemicals called terpenes. Its pith contains a strong enough concentration to kill gut parasites, but not so strong as to kill chimps (nor people, for that matter; locals use the pith for the same purpose). Given that the plant is known locally as "goat-killer", however, it seems that not all animals are as smart as chimps and humans. Some consume it indiscriminately, and succumb.

Since the Veronia-eating chimps were discovered, more evidence has emerged suggesting that animals often eat things for medical rather than nutritional reasons. Many species, for example, consume dirt—a behaviour known as geophagy. Historically, the preferred explanation was that soil supplies minerals such as salt. But geophagy occurs in areas where the earth is not a useful source of minerals, and also in places where minerals can be more easily obtained from certain plants that are known to be rich in them. Clearly, the animals must be getting something else out of eating earth.

The current belief is that soil—and particularly the clay in it—helps to detoxify the defensive poisons that some plants produce in an attempt to prevent themselves from being eaten. Evidence for the detoxifying nature of clay came in 1999, from an experiment carried out on macaws by James Gilardi and his colleagues at the University of California, Davis. Macaws eat seeds containing alkaloids, a group of chemicals that has some notoriously toxic members, such as strychnine. In the wild, the birds are frequently seen perched on eroding riverbanks eating clay. Dr Gilardi fed one group of macaws a mixture of harmless alkaloid and clay, and a second group just the alkaloid. Several hours later, the macaws that had eaten the clay had 60% less alkaloid in their bloodstreams than those that had not, suggesting that the hypothesis is correct.

Other observations also support the idea that clay is detoxifying. Towards the tropics the amount of toxic compounds in plants increases-and so does the amount of earth eaten by herbivores. Elephants lick clay from mud holes all year round, except in September when they are bingeing on fruit which, because it has evolved to be eaten, is not toxic. And the addition of clay to the diets of domestic cattle increases the amount of nutrients that they can absorb from their food by 10-20%.

A third instance of animal self-medication is the use of mechanical scours to get rid of gut parasites, in 1972 Richard Wrangham, a researcher at the Gombe Stream Reserve in Tanzania, noticed that chimpanzees were eating the leaves of a tree called Aspilia. The chimps chose the leaves carefully by testing them in their mouths. Having chosen a leaf, a chimp would fold it into a fan and swallow it. Some of the chimps were noticed wrinkling their noses as they swallowed these leaves, suggesting the experience was unpleasant. Later, undigested leaves were found on the forest floor.

Dr Wrangham rightly guessed that the leaves had a medicinal purpose—this was, indeed, one of the earliest interpretations of a behaviour pattern as self-medication. However, he guessed wrong about what the mechanism was. His (and everybody else's) assumption was that *Aspilia* contained a drug, and this sparked more than two decades of phytochemical research to try to find out what chemical the chimps were after. But by the 1990s, chimps across Africa had been seen swallowing the leaves of 19 different species that seemed to have few suitable chemicals in common. The drug hypothesis was looking more and more dubious.

It was Dr Huffman who got to the bottom of the problem. He did so by watching what came out of the chimps, rather than concentrating on what went in. He found that the egested leaves were full of intestinal worms. The factor common to all 19 species of leaves swallowed by the chimps was that they were covered with microscopic hooks. These caught the worms and dragged them from their lodgings.

Following that observation, Dr Engel is now particularly excited about how knowledge of the way that animals look after themselves could be used to improve the health of live-stock. People might also be able to learn a thing or two, and may, indeed, already have done so. Geophagy, for example, is a common behaviour in many parts of the world The medical stalls in African markets frequently sell tablets made of different sorts of clays, appropriate to different medical conditions.

Africans brought to the Americas as slaves continued this tradition, which gave their owners one more excuse to affect to despise them. Yet, as Dr Engel points out, Rwandan mountain gorillas eat a type of clay rather similar to kaolinite - the main ingredient of many patent medicines sold over the counter in the West for digestive complaints. Dirt can sometimes be good for you, and to be "as sick as a parrot" may, after all, be a state to be desired.

Questions 1-4

Do the following statements agree with the information given in Reading Passage 1? *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. Dr. Engel has been working on animal self-medication research for 10 years.
2. Animals often walk a considerable distance to find plants for medication.
3. Birds, like Macaw, often eat clay because it is part of their natural diet.
4. According to Dr. Engel, research into animal self-medication can help to invent new painkillers.

Questions 5-9

Complete the notes below using ***NO MORE THAN ONE WORD OR NUMBER*** *from the passage.*

Date	Name	Animal	Food	Mechanism
1987	Michael Huffman and Mohamedi Seifu	Chimpanzee	5..... of *Veronia*	Contained chemicals, 6..... that can kill parasites
1999	James Gilardi and his colleagues	Macaw	Seeds (contain 7.....) and clay	Clay can 8..... the poisonous contents in food
1972	Richard Wrangham	Chimpanzee	Leaves with tiny 9 ..... on surface	Such leaves can catch and expel worms from intestines

Questions 10-13

Complete the summary below using words from the box. Write your answers, A-H, in boxes 10-13 on your answer sheet.

Though often doubted, the self-medicating behavior of animals has been supported by an increasing amount of evidence. One piece of evidence particularly deals with 10....., a soil-consuming behavior commonly found across animals species, because earth, often clay, can neutralize the 11.....content of their diet. Such behavior can also be found among humans in Africa, where people purchase 12.....at market stalls as a kind of medication to their illnesses. Another example of this is found in chimps eating leaves of often 13.....taste but with no apparent medicinal value until its unique structure came into light.

A mineral **B plants** **C unpleasant** **D toxic**

E clay tablets **F nutritional** **G geophagy** **H harmless**

PASSAGE 2

The Eradication of Malaria in Italy, 1900-1962

Mal-aria. Bad air. Even the word is Italian, and this horrible disease marked the life of those in the peninsula for thousands of years. Yet by 1962, Italy was officially declared malaria-free, and it has remained so ever since. Frank Snowden's study of this success story takes us to areas historians have rarely visited before.

A. Everybody now knows that malaria is carried by mosquitoes. But in the 19th century, most experts believed that the disease was produced by "miasma" or "poisoning of the air". Others made a link between swamps, water and malaria, but did not make the further leap towards insects. The consequences of these theories were that little was done to combat the disease before the end of the century. Things became so bad that 11m Italians (from a total population of 25m) were "permanently at risk". In malarial zones the life expectancy of land workers was a terrifying 22.5 years. Those who escaped death were weakened or suffered from splenomegaly — a "painful enlargement of the spleen" and "a lifeless stare". The economic impact of the disease was

immense. Epidemics were blamed on southern Italians, given the widespread belief that malaria was hereditary. In the 1880s, such theories began to collapse as the dreaded mosquito was identified as the real culprit.

B. Italian scientists, drawing on the pioneering work of French doctor Alphonse Laveran, were able to predict the cycles of fever but it was in Rome that further key discoveries were made. Giovanni Battista Grassi, a naturalist, found that a particular type of mosquito was the carrier of malaria. By experimenting on healthy volunteers (mosquitoes were released into rooms where they drank the blood of the human guinea pigs), Grassi was able to make the direct link between the insects (all females of a certain kind) and the disease. Soon, doctors and scientists made another startling discovery: the mosquitoes themselves were also infected and not mere carriers. Every year, during the mosquito season, malarial blood was moved around the population by the insects. Definitive proof of these new theories was obtained after an extraordinary series of experiments in Italy, where healthy people were introduced into malarial zones but kept free of mosquito bites — and remained well. The new Italian state had the necessary information to tackle the disease.

C. A complicated approach was adopted, which made use of quinine - a drug obtained from tree bark which had long been used to combat fever, but was now seen as a crucial part of the war on malaria. Italy introduced a quinine law and a quinine tax in 1904, and the drug was administered to large numbers of rural workers. Despite its often terrible side-effects (the headaches produced were known as the "quinine-buzz") the drug was successful in limiting the spread of the disease, and in breaking cycles of infection. In addition, Italy set up rural health centres and invested heavily in education programmes. Malaria, as Snowden shows, was not just a medical problem but a social and regional issue, and could only be defeated through multi-layered strategies. Politics was itself transformed by the anti malarial campaigns. It was originally decided to give quinine to all those in certain regions – even healthy people; peasants were often suspicious of medicine being forced upon them. Doctors were sometimes met with hostility and refusal, and many were dubbed "poisoners".

D. Despite these problems, the strategy was hugely successful. Deaths from malaria fell by some 80% in the first decade of the 20th century and some areas escaped altogether from the scourge of the disease. War, from 1915-18, delayed the campaign. Funds were diverted to the battlefields and the fight against malaria became a military issue, laying the way for the fascist approach to the problem. Mussolini's policies in the 20s and 30s are subjected to a serious cross-examination by Snowden. He shows how much of the regime's claims to have "eradicated" malaria through massive land reclamation, forced population removals and authoritarian clean-ups were pure propaganda. Mass draining was instituted — often at a great cost as Mussolini waged war not on the disease itself, but on the mosquitoes that carried it. The cleansing of Italy was also ethnic, as "carefully selected" Italians were chosen to inhabit the gleaming new towns of the former marshlands around Rome. The "successes" under fascism were extremely vulnerable, based as they were on a top-down concept of eradication. As war swept through the drained lands in the 40s, the disease returned with a vengeance.

E. In the most shocking part of the book, Snowden describes — passionately, but with the skill of a great historian — how the retreating Nazi armies in Italy in 1943-44 deliberately caused a massive malaria epidemic in Lazio. It was "the only known example of biological warfare in 20th-century Europe". Shamefully, the Italian malaria expert Alberto Missiroli had a role to play in the disaster: he did not distribute quinine, despite being well aware of the epidemic to come. Snowden claims that Missiroli was already preparing a new strategy — with the support of the US Rockefeller Foundation — using a new pesticide, DDT Missiroli allowed the epidemic to spread, in order to create the ideal conditions for a massive, and lucrative, human experiment. Fifty-five thousand cases of malaria were recorded in the province of Littoria alone in 1944. It is estimated

that more than a third of those in the affected area contracted the disease. Thousands, nobody knows how many, died. With the war over, the US government and the Rockefeller Foundation were free to experiment. DDT was sprayed from the air and 3m Italians had their bodies covered with the chemical. The effects were dramatic, and nobody really cared about the toxic effects of the chemical.

F. By 1962, malaria was more or less gone from the whole peninsula. The last cases were noted in a poor region of Sicily. One of the final victims to die of the disease in Italy was the popular cyclist, Fausto Coppi. He had contracted malaria in Africa in 1960, and the failure of doctors in the north of Italy to spot the disease was a sign of the times. A few decades earlier they would have immediately noticed the tell-tale signs; it was later claimed that a small dose of quinine would have saved his life. As there are still more than 1m deaths every year from malaria worldwide, Snowden's book also has contemporary relevance. This is a disease that affects every level of the societies where it is rampant. It also provides us with "a message of hope for a world struggling with the great present-day medical emergency"

Questions 14-18

Complete the summary below using ***NO MORE THAN TWO WORDS*** *from the passage. Write your answers in boxes 14-18 on your answer sheet.*

Before the link between malaria and 14.....was established, there were many popular theories circulating among the public, one of which points to 15....., the unclean air. The lack of proper treatment affected the country so badly that rural people in malaria infested places had extremely short 16..... The disease spread so quickly, especially in the south of Italy, thus giving rise to the idea that the disease was 17.....People believed in these theories until mosquito was found to be the 18.....in the 1880s.

Questions 19-21

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

19 The volunteers of the Italian experiments that provided assuring evidence were from all over Italy.
20 It's possible to come out of malarial zones alive.
21 The government successfully managed to give all people quinine medication.

Questions 22-26

Reading Passage 2 has six paragraphs, A-F. Which paragraph contains the following information?

22 A breakthrough in the theory of the cause of malaria
23 A story for today's readers
24 A description of an expert who didn't do anything to restrict the spread of disease
25 A setback in the battle against malaria due to government policies
26 A description of how malaria affects the human body

PASSAGE 3

Is it a Bye-bye for the Oil Business?

The world is about to run out of oil. Or perhaps not. It depends whom you believe...

Members of Oil Depletion Analysis Centre (ODAC) recently met in London and presented technical data that support their grim forecast that the world is perilously dose to running out of oil. Leading lights of this movement, including Colin Campbell, rejected rival views presented by American Geological Survey and the International Energy Agency (IEA) that contradicted their views. Dr Campbell even decried the "amazing display of ignorance, deliberate ignorance, denial and obfuscation" by governments, industry and academics on this topic.

So is the oil really running out? The answer is easy: Yes. Nobody seriously disputes the notion that oil is, for all practical purposes, a non-renewable resource that will run out some day, be that years or decades away. The harder question is determining when precisely oil will begin to get scarce. And answering that question involves scaling Hubbert's peak.

M. King Hubbert, a Shell geologist of legendary status among depletion experts, forecast in 1956 that oil production in the United States would peak in the early 1970s and then slowly decline, in something resembling a bell-shaped curve. At the time, his forecast was controversial, and many rubbished it. After 1970, however, empirical evidence proved him correct: oil production in America did indeed peak and has been in decline ever since.

Dr Hubbert's analysis drew on the observation that oil production in a new area typically rises quickly at first, as the easiest and cheapest reserves are tapped. Over time, reservoirs age and go into decline, and so lifting oil becomes more expensive. Oil from that area then becomes less competitive in relation to other sources of fuel. As a result, production slows down and usually tapers off and declines. That, he argued, made for a bell-shaped curve.

His successful prediction has emboldened a new generation of geologists to apply his methodology on a global scale. Chief among them are the experts at ODAC, who worry that the global peak in production will come in the next decade. Dr Campbell used to argue that the peak should have come already; he now thinks it is just round the corner. A heavyweight has now joined this gloomy chorus. Kenneth Deffeyes of Princeton University argues in a lively new book that global oil production could peak within the next few years.

That sharply contradicts mainstream thinking. America's Geological Survey prepared an exhaustive study of oil depletion last year that put the peak of production some decades off. The IEA has just weighed in with its new "World Energy Outlook" which foresees enough oil to comfortably meet demand to 2020 from remaining reserves. Rene Dahan, one of ExxonMobil's top managers, goes further: with an assurance characteristic of the world's largest energy company, he insists: that the world will be awash in oil for another 70 years. Who is right? In making sense of these wildly opposing views, it is useful to look back at the pitiful history of oil forecasting. Doomsters have been predicting dry wells since the 1970s, but so far the oil is still gushing Nearly all the predictions for 2000 made after the 1970s oil shocks were far too pessimistic.

Michael Lynch of DRI-WEFA, an economic consultancy, is one of the few oil forecasters who has got things generally right. In a new paper, Dr Lynch analyses those historical forecasts. He finds evidence of both bias and recurring errors, which suggests that methodological mistakes (rather than just poor data) were the problem. In particular, he criticized forecasters who used Hubbert-style analysis for relying on fixed estimates of how much "ultimately recoverable" oil there really is below ground. That figure, he insists, is actually a dynamic one, as improvements in infrastructure, knowledge and technology raise the amount of oil which is recoverable.

That points to what will probably determine whether the pessimists or the optimists are right: technological innovation. The first camp tends to be dismissive of claims of forthcoming technological revolutions in such areas as deep-water drilling and enhanced recovery. Dr Deffeyes captures this end-of-technology mindset well. He argues that because the industry has already spent billions on technology development, it makes it difficult to ask today for new technology, as most of the wheels have already been invented.

Yet techno-optimists argue that the technological revolution in oil has only just begun. Average recovery rates (how much of the known oil in a reservoir can actually be brought to the surface) are still only around 30-35%. Industry optimists believe that new techniques on the drawing board today could lift that figure to 50-60% within a decade.

Given the industry's astonishing track record of innovation, it may be foolish to bet against it. That is the result of adversity: the oil crisis of the 1970s forced Big Oil to develop reserves in expensive, inaccessible places such as the North Sea and Alaska, undermining Dr Hubbert's assumption that cheap reserves are developed first. The resulting upstream investments have driven down the cost of finding and developing wells over the last two decades from over $20 a barrel to around $6 a barrel. The cost of producing oil has fallen by half, to under $4 a barrel.

Such miracles will not come cheap, however, since much of the world's oil is now produced in ageing fields that are rapidly declining. The IEA concludes that global oil production need not peak in the next two decades if the necessary investments are made. So how much is necessary? If oil companies are to replace the output lost at those ageing fields and meet the worlds ever-rising demand for oil, the agency reckons they must invest $1 trillion in l non-OPEC countries over the next decade alone. Ouch.

Questions 27-31

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

YES *if the statement agrees with the information*
NO *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

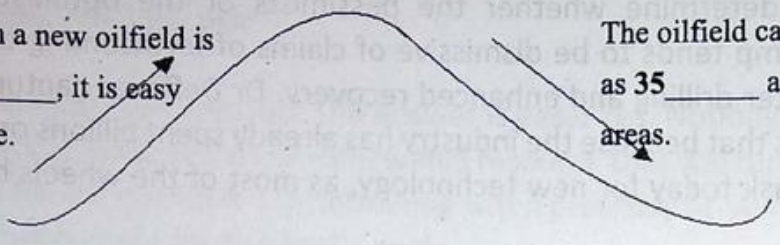
27. Hubbert has a high-profile reputation amongst ODAC members.
28. Oil is likely to last longer than some other energy sources.
29. The majority of geologists believe that oil will start to run out some time this decade.
30. Over 50 percent of the oil we know about is currently being recovered.
31. History has shown that some of Hubbert's principles were mistaken.

Questions 32-35

Complete the sentences below using NO MORE THAN ONE WORD OR NUMBER from the passage. Write your answers in boxes 32-35 on your answer sheet.

Many people believed Hubbert's theory was 32.....when it was originally presented.

The recovery of the oil gets more **34**_____ as the reservoir gets older.



Questions 36-40

Look at the following statements (Questions 36-40) and the list of people below. Match each statement with the correct person, A-E. Write the correct letter, A-E, in boxes 36-40 on your answer sheet.

36. has found fault in geological research procedure.
37. has provided the longest-range forecast regarding oil supply.
38. has convinced others that oil production will follow a particular model.
39. has accused fellow scientists of refusing to see the truth.
40. has expressed doubt over whether improved methods of extracting oil are possible.

A Colin Campbell
B M. King Hubbert
C Kenneth Deffeyes
D Rene Dahan
E Michael Lynch

READING 7 ANSWERS

1. TRUE
2. NOT GIVEN
3. FALSE
4. FALSE
5. PITH
6. TERPENES
7. ALKALOIDS
8. DETOXIFY
9. HOOKS
10. G
11. D
12. E
13. C
14. INSECTS/MSQUITOES
15. MIASMA
16. LIFE EXPECTANCY
17. HEREDITARY
18. (REAL) CULPRIT
19. NOT GIVEN
20. TRUE
21. FALSE
22. B
23. F
24. E
25. D
26. A
27. YES
28. NOT GIVEN
29. NO
30. NO
31. YES
32. CONTROVERSIAL
33. TAPPED
34. EXPENSIVE
35. COMPETITIVE
36. E
37. D
38. B
39. A
40. C

READING 8

Questions 1-7

Reading passage 1 has seven paragraphs A-G. Choose the correct heading for each paragraph from the list of headings below. Write the correct number i-x in boxes 1-7 on your answer sheet.

List of Headings

i. Early years of Gilbert
ii. What was new about his scientific research method
iii. The development of chemistry
iv. Questioning traditional astronomy
v. Pioneers of the early science
vi. Professional and social recognition
vii. Becoming the president of the Royal Science Society
viii. The great works of Gilbert
ix. His discovery about magnetism
x. His change of focus

1. Paragraph A
2. Paragraph B
3. Paragraph C
4. Paragraph D
5. Paragraph E
6. Paragraph F
7. Paragraph G

William Gilbert, the father of Magnetism

A. 16th and 17th centuries saw two great pioneers of modern science: Galileo and Gilbert. The impact of their findings is eminent. Gilbert was the first modern scientist, also the accredited father of the science of electricity and magnetism, an Englishman of learning and a physician at the court of Elizabeth. Prior to him, all that was known of electricity and magnetism was what the ancients knew, nothing more than that the lodestone possessed magnetic properties and that amber and jet, when rubbed, would attract bits of paper or other substances of small specific gravity. However, he is less well-known than he deserves.

B. Gilbert's birth predated Galileo. Born in an eminent local family in Colchester county in the UK, on May 24, 1544, he went to grammar school, and then studied medicine at St. John's College, Cambridge, graduating in 1573. Later he traveled in the continent and eventually settled down in London.

C. He was a very successful and eminent doctor. All this culminated in his election to the president of the Royal Science Society. He was also appointed the personal physician to the Queen (Elizabeth 1), and later knighted by the Queen. He faithfully served her until her death. However, he didn't outlive the Queen for long and died on December 10, 1603, only a few months after his appointment as personal physician to King James.

D. Gilbert was first interested in chemistry but later changed his focus due to the large portion of mysticism of alchemy involved (such as the transmutation of metal). He gradually developed his interest in physics after the great minds of the ancient, particularly about the knowledge the ancient Greeks had about lodestones, strange minerals with the power to attract iron. In the meantime, Britain became a major seafaring nation in 1588 when the Spanish Armada was defeated, opening the way to British settlement of America. British ships depended on the magnetic compass, yet no one understood why it worked. Did the pole star attract it, as Columbus once speculated; or was there a magnetic mountain at the pole, as

described in Odyssey, which ships would never approach, because the sailors thought its pull would yank out all their iron nails and fittings? For nearly 20 years William Gilbert conducted ingenious experiments to understand magnetism. His works include On the Magnet and Magnetic Bodies, Great Magnet of the Earth.

E. Gilbert's discovery was so important to modern physics. He investigated the nature of magnetism and electricity. He even coined the word "electric". Though the early beliefs of magnetism were also largely entangled with superstitions such as that rubbing garlic on lodestone can neutralize its magnetism, one example being that sailors even believed the smell of garlic would even interfere with the action of compass, which is why helmsmen were forbidden to eat it near a ship's compass. Gilbert also found that metals can be magnetized by rubbing materials such as fur, plastic or the like on them. He named the ends of a magnet "north pole" and "south pole". The magnetic poles can attract or repel, depending on polarity. In addition, however, ordinary iron is always attracted to a magnet. Though he started to study the relationship between magnetism and electricity, sadly he didn't complete it. His research of static electricity using amber and jet only demonstrated that objects with electrical charges can work like magnets attracting small pieces of paper and stuff. It is a French guy named du Fay that discovered that there are actually two electrical charges, positive and negative.

F. He also questioned the traditional astronomical beliefs. Though a Copernican, he didn't express in his quintessential beliefs whether the earth is at the center of the universe or in orbit around the sun. However he believed that stars are not equidistant from the earth, but have their own earth-like planets orbiting around them. The earth is itself like a giant magnet, which is also why compasses always point north. They spin on an axis that is aligned with the earth's polarity. He even likened the polarity of the magnet to the polarity of the earth and built an entire magnetic philosophy on this analogy. In his explanation, magnetism wasthe soul of the earth. Thus a perfectly spherical lodestone, when aligned with the earth's poles, would wobble all by itself in 24 hours. Further, he also believed that suns and other stars wobble just like the earth does around a crystal core, and speculated that the moon might also be a magnet caused to orbit by its magnetic attraction to the earth. This was perhaps the first proposal that a force might cause a heavenly orbit.

G. His research method was revolutionary in that he used experiments rather than pure logic and reasoning like the ancient Greek philosophers did. It was a new attitude toward scientific investigation. Until then, scientific experiments were not in fashion. It was because of this scientific attitude, together with his contribution to our knowledge of magnetism, that a unit of magneto motive force, also known as magnetic potential, was named Gilbert in his honor. His approach of careful observation and experimentation rather than the authoritative opinion or deductive philosophy of others had laid the very foundation for modern science.

Questions 8-10

Do the following statements agree with the information given in Reading Passage 1? In boxes 8-10 on your answer sheet write

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts the information
NOT GIVEN	if there is no information on this

8. He is less famous than he should be.
9. He was famous as a doctor before he was employed by the Queen.
10. He lost faith in the medical theories of his time.

Questions 11-13

Choose THREE letters A-F. Write your answers in boxes 11-13 on your answer sheet. Which THREE of the following are parts of Gilbert's discovery?

A. Metal can be transformed into another.
B. Garlic can remove magnetism.
C. Metals can be magnetized.
D. Stars are at different distances from the earth.
E. The earth wobbles on its axis.
F. There are two charges of electricity.

PASSAGE 2

THE EUROPEAN HEATWAVE - 2003

A. It was the summer, scientists now realise, when global warming at last made itself unmistakably felt. We knew that summer 2003 was remarkable: Britain experienced its record high temperature and continental Europe saw forest fires raging out of control, great rivers drying to a trickle and thousands of heat-related deaths. But just how remarkable is only now becoming clean.

B. The three months of June, July and August were the warmest ever recorded in western and central Europe, with record national highs in Portugal, Germany and Switzerland as well as Britain. And they were the warmest by a very long way. Over a great rectangular block of the earth stretching from west of Paris to northern Italy, taking in Switzerland and southern Germany, the average temperature for the summer months was 3.78°C above the long-term norm, said the Climatic Research Unit (CRU) of the University of East Anglia in Norwich, which is one of the world's lending institutions for the monitoring and analysis of temperature records.

C. That excess might not seem a lot until you are aware of the context – but then you realise it is enormous. There is nothing like this in previous data, anywhere. It is considered so exceptional that Professor Phil Jones, the CRU's director, is prepared to say openly – in a way few scientists have done before – that the 2003 extreme may be directly attributed, not to natural climate variability, but to global warming caused by human actions.

D. Meteorologists have hitherto contented themselves with the formula that recent high temperatures are consistent with predictions" of climate change. For the great block of the map — that stretching between 35-50N and 0-20E – the CRU has reliable temperature records dating back to 1781. Using as a baseline the average summer temperature recorded between 1961 and1990, departures from the temperature norm, or "anomalies': over the area as a whole can easily be plotted. As the graph shows, such is the variability of our climate that over the past 200 years, there have been at least half a dozen anomalies, in terms of excess temperature – the peaks on the graph denoting very hot years – approaching, or even exceeding, 20 °C. But there has been nothing remotely like 2003, when the anomaly is nearly four degrees.

E. "This is quite remarkable," Professor Jones told The Independent. "It's very unusual in a statistical sense. If this series had a normal statistical distribution, you wouldn't get this number. There return period "how often it could be expected to recur" would be something like one in a thousand years. If we look at an excess above the average of nearly four degrees, then perhaps nearly three degrees of that is natural variability, because we've seen that in past summers. But the final degree of it is likely to be due to global warming, caused by human actions.

F. The summer of 2003 has, in a sense, been one that climate scientists have long been expecting. Until now, the warming has been manifesting itself mainly in winters that have been less cold than in summers that have been much hotter. Last week, the United Nations predicted that winters were warming so quickly that winter sports would die out in Europe's lower-level ski resorts. But sooner or later the unprecedented hot summer was bound to come, and this year it did.

G. One of the most dramatic features of the summer was the hot nights, especially in the first half of August. In Paris, the temperature never dropped below 230°C (73.40°F) at all between 7 and 14 August, and the city recorded its warmest-ever night on 11-12 August, when the mercury did not drop below 25.50°C (77.90°F). Germany recorded its warmest-ever night at Weinbiet in the Rhine valley with a lowest figure of 27.60°C (80.60°F) on 13 August, and similar record-breaking night-time temperatures were recorded in Switzerland and Italy.

H. The 15,000 excess deaths in France during August, compared with previous years, have been related to the high night-time temperatures. The number gradually increased during the first 12days of the month, peaking at about 2,000 per day on the night of 12-13 August, then fell off dramatically after 14 August when the minimum temperatures fell by about 50C. The elderly were most affected, with a 70 per cent increase in mortality rate in those aged 75-94.

I. For Britain, the year as a whole is likely to be the warmest ever recorded, but despite the high temperature record on 10 August, the summer itself – defined as the June, July and August period – still comes behind 1976 and 1995, when there were longer periods of intense heat. At the moment, the year is on course to be the third-hottest ever in the global temperature record, which goes back to 1856, behind 1998 and 2002 but when all the records for October, November and December are collated, it might move into second place, Professor Jones said. The 10 hottest years in the record have all now occurred since 1990. Professor Jones is in no doubt about the astonishing nature of European summer of 2003."The temperatures recorded were out of all proportion to the previous record," he said. "It was the warmest summer in the past 500 years and probably way beyond that It was enormously exceptional."

J. His colleagues at the University of East Anglia's Tyndall Centre for Climate Change Research are now planning a special study of it. "It was a summer that has not: been experienced before, either in terms of the temperature extremes that were reached, or the range and diversity of the impacts of the extreme heat," said the centre's executive director, Professor Mike Hulme. "It will certainly have left its mark on a number of countries, as to how they think and plan for climate change in the future, much as the 2000 floods have revolutionised the way the Government is thinking about flooding in the UK. "The 2003 heat wave will have similar repercussions across Europe."

Questions 14-19

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

YES if the statement is true
NO if the statement is false
NOT GIVEN if the information is not given in the passage

14. The average summer temperature in 2003 was approximately four degrees higher than that of the past.
15. Global warming is caused by human activities.
16. Jones believes that the temperature variation is within the normal range.
17. In large city, people usually measure temperature twice a day.
18. There were milder winters than hotter summer before 2003.
19. Governments are building new high-altitude ski resorts.

Questions 20-21

Answer the questions below using NO MORE THAN THREE WORDS AND/OR NUMBERS from the passage for each answer. Write your answers in boxes 20-21 on your answer sheet

20. What are the other two hottest years in Britain besides 2003?
21. What will also affect UK government policies in the future like the hot summers in 2003.

Questions 22-25

Complete the summary below using NO MORE THAN TWO WORDS AND/OR NUMBERS from the passage. Write your answers in boxes 22-26 on your answer sheet

The other two hottest years around the globe were 22..... The ten hottest years on record all come after the year 23..... This temperature data has been gathered since 24..... Thousands of people died in the country of 25.....

Question 26

Choose the correct letter A, B, C or D Write your answer in box 27 on your answer sheet

26. Which one can be best served as the title of this passage in the following options?
    A. Global Warming.
    B. What caused Global Warming
    C. The Effects of Global Warming
    D. Hottest summer in Europe

PASSAGE 3

Amateur Phenologists

From the results of an annual Alaskan betting contest to sightings of migratory birds, ecologists are using a wealth of unusual data to predict the impact of climate change.

A. Tim Sparks slides a small leather-bound notebook out of an envelope. The book's yellowing pages contain bee-keeping notes made between 1941 and 1969 by the late Walter Coates of Kilworth, Leicestershire. He adds it to his growing pile of local journals, birdwatchers' lists and gardening diaries. "We're uncovering about one major new record each month," he says, "I still get surprised." Around two centuries before Coates, Robert Marsham, a landowner from Norfolk in the east of England, began recording the life cycles of plants and animals on his estate - when the first wood anemones flowered, the dates on which the oaks burst into leaf and the rooks began nesting. Successive Marshams continued compiling these notes for 211 years.

B. Today, such records are being put to uses that their authors could not possibly have expected. These data sets, and others like them, are proving invaluable to ecologists interested in the timing of biological events, or phenology. By combining the records with climate data, researchers can reveal how, for example, changes in temperature affect the arrival of spring, allowing ecologists to make improved predictions about the impact of climate change. A small band of researchers is combing through hundreds of years of records taken by thousands of amateur naturalists. And more systematic projects have also started up, producing an overwhelming response. "The amount of interest is almost frightening," says Sparks, a climate researcher at the Centre for Ecology and Hydrology in Monks Wood, Cambridgeshire.

C. Sparks first became aware of the army of "closet phenologists", as he describes them, when a retiring colleague gave him the Marsham records. He now spends much of his time following leads from one historical data set to another. As news of his quest spreads, people tip him off to other historical records, and more amateur phenologists come out of their closets. The British devotion to recording and collecting

makes his job easier - one man from Kent sent him 30 years' worth of kitchen calendars, on which he had noted the date that his neighbour's magnolia tree flowered.

D. Other researchers have unearthed data from equally odd sources. Rafe Sagarin, an ecologist at Stanford University in California, recently studied records of a betting contest in which participants attempt to guess the exact time at which a specially erected wooden tripod will fall through the surface of a thawing river. The competition has taken place annually on the Tanana River in Alaska since 1917, and analysis of the results showed that the thaw now arrives five days earlier than it did when the contest began.

E. Overall, such records have helped to show that, compared with 20 years ago, a raft of natural events now occur earlier across much of the northern hemisphere, from the opening of leaves to the return of birds from migration and the emergence of butterflies from hibernation. The data can also hint at how nature will change in the future. Together with models of climate change, amateurs' records could help guide conservation. Terry Root, an ecologist at the University of Michigan in Ann Arbor, has collected birdwatchers' counts of wildfowl taken between 1955 and 1996 on seasonal ponds in the American Midwest and combined them with climate data and models of future warming. Her analysis shows that the increased droughts that the models predict could halve the breeding populations at the ponds. "The number of waterfowl in North America will most probably drop significantly with global warming," she says.

F. But not all professionals are happy to use amateur data. "A lot of scientists won't touch them, they say they're too full of problems," says Root. Because different observers can have different ideas of what constitutes, for example, an open snowdrop. "The biggest concern with ad hoc observations is how carefully and systematically they were taken," says Mark Schwartz of the University of Wisconsin, Milwaukee, who studies the interactions between plants and climate. "We need to know pretty precisely what a person's been observing - if they just say 'I noted when the leaves came out', it might not be that useful." Measuring the onset of autumn can be particularly problematic because deciding when leaves change colour is a more subjective process than noting when they appear.

G. Overall, most phenologists are positive about the contribution that amateurs can make. "They get at the raw power of science: careful observation of the natural world," says Sagarin. But the professionals also acknowledge the need for careful quality control. Root, for example, tries to gauge the quality of an amateur archive by interviewing its collector. "You always have to worry - things as trivial as vacations can affect measurement. I disregard a lot of records because they're not rigorous enough," she says. Others suggest that the right statistics can iron out some of the problems with amateur data. Together with colleagues at Wageningen University in the Netherlands, environmental scientist Arnold van Vliet is developing statistical techniques to account for the uncertainty in amateur phenological data. With the enthusiasm of amateur phenologists evident from past records, professional researchers are now trying to create standardised recording schemes for future efforts. They hope that well-designed studies will generate a volume of observations large enough to drown out the idiosyncrasies of individual recorders. The data are cheap to collect, and can provide breadth in space, time and range of species. "It's very difficult to collect data on a large geographical scale without enlisting an army of observers," says Root.

H. Phenology also helps to drive home messages about climate change. "Because the public understands these records, they accept them," says Sparks. It can also illustrate potentially unpleasant consequences, he adds, such as the finding that more rat infestations are reported to local councils in warmer years. And getting people involved is great for public relations. "People are thrilled to think that the data they've been collecting as a hobby can be used for something scientific - it empowers them," says Root.

Questions 27-33

Reading Passage 3 has eight paragraphs A-H. Which paragraph contains the following information?

27. The definition of phenology
28. How Sparks first became aware of amateur records
29. How people reacted to their involvement in data collection
30. The necessity to encourage amateur data collection
31. A description of using amateur records to make predictions
32. Records of a competition providing clues to climate change
33. A description of a very old record compiled by generations of amateur naturalists

Questions 34-36

Complete the sentences below with NO MORE THAN TWO WORDS from the passage for each answer.

34. Walter Coates's records largely contain the information of .....
35. Robert Marsham is famous for recording the .....of animals and plants on his land.
36. According to some phenologists, global warming may cause the number of waterfowl in North America to drop significantly due to increased .....

Questions 37- 40

Choose the correct letter A, B, C or D. Write your answers in boxes 37- 40 on your answer sheet.

37. Why do a lot of scientists discredit the data collected by amateurs?
    A. Scientific methods were not used in data collection.
    B. Amateur observers are not careful in recording their data.
    C. Amateur data is not reliable.
    D. Amateur data is produced by wrong candidates.
38. Mark Schwartz used the example of leaves to illustrate that
    A. Amateur records can't be used.
    B. Amateur records are always unsystematic.
    C. The colour change of leaves is hard to observe.
    D. Valuable information is often precise.
39. How do the scientists suggest amateur data should be used?
    A. Using improved methods
    B. Being more careful in observation
    C. Using raw materials
    D. Applying statistical techniques in data collection
40. What's the implication of phenology for ordinary people?
    A It empowers the public.
    B It promotes public relations.
    C It warns people of animal infestation.
    D It raises awareness about climate change in the public.

READING 8 ANSWERS

1. V
2. I
3. VI
4. X
5. IX
6. IV
7. II
8. TRUE
9. TRUE
10. NOT GIVEN
11. C*
12. D*
13. E*
14. YES
15. YES
16. NO
17. NOT GIVEN
18. YES
19. NOT GIVEN
20. 1976, 1995
21. 2000 FLOODS / FLOODING
22. 1998 AND 2002
23. 1990
24. 1856
25. FRANCE
26. D
27. B
28. C
29. H
30. G
31. E
32. D
33. A
34. BEE-KEEPING
35. LIFE CYCLES
36. DROUGHTS
37. C
38. D
39. D
40. D

READING 9

PASSAGE 1

Spotting a Liar

However much we may abhor it, deception comes naturally to all living things. Birds do it by feigning injury to lead hungry predators away from nesting young. Spider crabs do it by disguise: adorning themselves with strips of kelp and other debris, they pretend to be something they are not – and so escape their enemies. Nature amply rewards successful deceivers by allowing them to survive long enough to mate and reproduce. So it may come as no surprise to learn that human beings- who, according to psychologist Gerald Johnson of the University of South California, or lied to about 200 times a day, roughly one untruth every 5 minutes- often deceive for exactly the same reasons: to save their own skins or to get something they can't get by other means.

But knowing how to catch deceit can be just as important a survival skill as knowing how to tell a lie and get away with it. A person able to spot falsehood quickly is unlikely to be swindled by an unscrupulous business associate or hoodwinked by a devious spouse. Luckily, nature provides more than enough clues to trap dissemblers in their own tangled webs- if you know where to look. By closely observing facial expressions, body language and tone of voice, practically anyone can recognise the tell-tale signs of lying. Researchers are even programming computers – like those used on Lie Detector -to get at the truth by analysing the same physical cues available to the naked eye and ear. "With the proper training, many people can learn to reliably detect lies," says Paul Ekman, professor of psychology at the University of California, San Francisco, who has spent the past 15 years studying the secret art of deception.

In order to know what kind of Lies work best, successful liars need to accurately assess other people's emotional states. Ackman's research shows that this same emotional intelligence is essential for good lie detectors, too. The emotional state to watch out for is stress, the conflict most liars feel between the truth and what they actually say and do.

Even high-tech lie detectors don't detect lies as such; they merely detect the physical cues of emotions, which may or may not correspond to what the person being tested is saying. Polygraphs, for instance, measure respiration, heart rate and skin conductivity, which tend to increase when people are nervous – as they usually are when lying. Nervous people typically perspire, and the salts contained in perspiration conduct electricity. That's why sudden leap in skin conductivity indicates nervousness -about getting caught, perhaps -which makes, in turn, suggest that someone is being economical with the truth. On the other hand, it might also mean that the lights in the television. Studio are too hot- which is one reason polygraph tests are inadmissible in court. "Good lie detectors don't rely on a single thing", says Ekman, but interpret clusters of verbal and non-verbal clues that suggest someone might be lying."

The clues are written all over the face. Because the musculature of the face is directly connected to the areas of the brain that processes emotion, the countenance can be a window to the soul. Neurological studies even suggest that genuine emotions travel different pathways through the brain than insincere ones. If a patient paralyzed by stroke on one side of the face, for example, is asked to smile deliberately, only the mobile side of the mouth is raised. But tell that same person a funny joke, and the patient breaks into a full and spontaneous smile. Very few people - most notably, actors and politicians- are able to consciously control all of their facial expressions. Lies can often be caught when the liars true feelings briefly leak through the mask of deception. We don't think before we feel, Ekman says. "Expressions tend to show up on the face before we're even conscious of experiencing an emotion."

One of the most difficult facial expressions to fake- or conceal, if it's genuinely felt - is sadness. When someone is truly sad, the forehead wrinkles with grief and the inner corners of the eyebrows are pulled up. Fewer than 15% of the people Ekman tested were able to produce this eyebrow movement voluntarily. By contrast, the lowering of the eyebrows associated with an angry scowl can be replicated at will but almost everybody. " If someone claims they are sad and the inner corners of their eyebrows don't go up, Ekman says, the sadness is probably false."

The smile, on the other hand, is one of the easiest facial expressions to counterfeit. It takes just two muscles - the zygomaticus major muscles that extend from the cheekbones to the corners of the lips- to produce a grin. But there's a catch. A genuine smile affects not only the corners of the lips but also the orbicularis oculi, the muscle around the eye that produces the distinctive "crow's feet" associated with people who laugh a lot. A counterfeit grin can be unmasked if the corners of the lips go up, the eyes crinkle, but the inner corners of the eyebrows are not lowered, a movement controlled by the orbicularis oculi that is difficult to fake. The absence of lowered eyebrows is one reason why the smile looks so strained and stiff.

Questions 1-5

YES - if the statement agrees with the information
NO - if the statement contradicts the information
NOT GIVEN - if there is no information on this

1. All living animals can lie.
2. Some people tell lies for self-preservation.
3. Scientists have used computers to analyze which part of the brain is responsible for telling lies.
4. Lying as a survival skill is more important than detecting a lie.
5. To be a good liar, one has to understand other people's emotions.

Questions 6-9

Choose the correct letter A, B, C or D. Write your answers in boxes 6-9.

6. How does the lie detector work?
   A. It detects whether one's emotional state is stable.
   B. It detects one's brain activity level.
   C. It detects body behavior during one's verbal response.
   D. It analyses one's verbal response word by word.
7. Lie detectors can't be used as evidence in a court of law because
   A. Lights often cause lie detectors to malfunction.
   B. They are based on too many verbal and non-verbal clues.
   C. Polygraph tests are often inaccurate.
   D. There may be many causes of certain body behavior.
8. Why does the author mention the paralyzed patients?
   A. To demonstrate how a paralyzed patient smiles
   B. To show the relation between true emotions and body behavior
   C. To examine how they were paralyzed
   D. To show the importance of happiness from recovery
9. The author uses politicians to exemplify that they can
   A. Have emotions.
   B. Imitate actors.
   C. Detect other people's lives.
   D. Mask their true feelings.

Questions 10-13

Classify the following facial traits as referring to

A. sadness
B. anger
C. happiness

Write the correct letter A, B or C in boxes 10-13.

10. Inner corners of eyebrows raised
11. The whole eyebrows lowered
12. Lines formed around
13. Lines form above eyebrows

PASSAGE 2

Left-handedness in a Right-handed World

The world is designed for right-handed people. Why does a tenth of the population prefer the left?

SECTION A

The probability that two right-handed people would have a left-handed child is only about 9.5 percent. The chance rises to 19.5 percent if one parent is a lefty and 26 percent if both parents are left-handed. The preference, however, could also stem from an infant's imitation of his parents. To test genetic influence, starting in the 1970s British biologist Marian Annett of the University of Leicester hypothesized that no single gene determines handedness. Rather, during fetal development, a certain molecular factor helps to strengthen the brain's left hemisphere, which increases the probability that the right hand will be dominant, because the left side of the brain controls the right side of the body, and vice versa . Among the minority of people who lack this factor, handedness develops entirely by chance.

Research conducted on twins complicates the theory, however. One in five sets of identical twins involves one right-handed and one left-handed person, despite the fact that their genetic material is the same. Genes, therefore, are not solely responsible for handedness.

SECTION B

Genetic theory is also undermined by results from Peter Hepper and his team at Queen's University in Belfast, Ireland. In 2004 the psychologists used ultrasound to show that by the 15th week of pregnancy, fetuses already have a preference as to which thumb they suck . In most cases, the preference continued after birth. At 15 weeks, though, the brain does not yet have control over the body's limbs. Hepper speculates that fetuses tend to prefer whichever side of the body is developing quicker and that their movements, in turn, influence the brain's development. Whether this early preference is temporary or holds up throughout development and infancy is unknown.

Genetic predetermination is also contradicted by the widespread observation that children do not settle on either their right or left hand until they are two or three years old.

SECTION C

But even if these correlations were true, they did not explain what actually causes left-handedness. Furthermore, specialization on either side of the body is common among animals . Cats will favor one paw over another when fishing toys out from under the couch. Horses stomp more frequently with one hoof than the other. Certain crabs motion predominantly with the left or right claw. In evolutionary terms, focusing power and dexterity in one limb is more efficient than having to train two, four or even eight limbs equally. Yet for most animals, the preference for one side or the other is seemingly random. The overwhelming

dominance of the right hand is associated only with humans. That fact directs attention toward the brain's two hemispheres and perhaps toward language.

SECTION D

Interest in hemispheres dates back to at least 1836. That year, at a medical conference, French physician Marc Dax reported on an unusual commonality among his patients. During his many years as a country doctor, Dax had encountered more than 40 men and women for whom speech was difficult, the result of some kind of brain damage. What was unique was that every individual suffered damage to the left side of the brain. At the conference, Dax elaborated on his theory, stating that each half of the brain was responsible for certain functions and that the left hemisphere controlled speech . Other experts showed little interest in the Frenchman's ideas.

Over time, however, scientists found more and more evidence of people experiencing speech difficulties following injury to the left brain. Patients with damage to the right hemisphere most often displayed disruptions in perception or concentration. Major advancements in understanding the brain's asymmetry were made in the 1960s as a result of so-called split-brain surgery, developed to help patients with epilepsy. During this operation, doctors severed the corpus callosum—the nerve bundle that connects the two hemispheres. The surgical cut also stopped almost all normal communication between the two hemispheres, which offered researchers the opportunity to investigate each side's activity.

SECTION E

In 1949 neurosurgeon Juhn Wada devised the first test to provide access to the brain's functional organization of language. By injecting an anesthetic into the right or left carotid artery, Wada temporarily paralyzed one side of a healthy brain, enabling him to more closely study the other side's capabilities. Based on this approach, Brenda Milner and the late Theodore Rasmussen of the Montreal Neurological Institute published a major study in 1975 that confirmed the theory that country doctor Dax had formulated nearly 140 years earlier: in 96 percent of right-handed people, language is processed much more intensely in the left hemisphere . The correlation is not as clear in lefties, however. For two thirds of them, the left hemisphere is still the most active language processor. But for the remaining third, either the right side is dominant or both sides work equally, controlling different language functions. That last statistic has slowed acceptance of the notion that the predominance of right-handedness is driven by left-hemisphere dominance in language processing. It is not at all clear why language control should somehow have dragged the control of body movement with it. Some experts think one reason the left hemisphere reigns over language is because the organs of speech processing—the larynx and tongue—are positioned on the body's symmetry axis. Because these structures were centered, it may have been unclear, in evolutionary terms, which side of the brain should control them, and it seems unlikely that shared operation would result in smooth motor activity.

Language and handedness could have developed preferentially for very different reasons as well. For example, some researchers, including evolutionary psychologist Michael C. Corballis of the University of Auckland in New Zealand, think that the origin of human speech lies in gestures. Gestures predated words and helped language emerge. If the left hemisphere began to dominate speech, it would have dominated gestures, too, and because the left brain controls the right side of the body, the right hand developed more strongly.

SECTION F

Perhaps we will know more soon. In the meantime, we can revel in what, if any, differences handedness brings to our human talents. Popular wisdom says right-handed, left-brained people excel at logical, analytical thinking. Left-handed, right-brained individuals are thought to possess more creative skills and may be better

at combining the functional features emergent in both sides of the brain. Yet some neuroscientists see such claims as pure speculation.

Fewer scientists are ready to claim that left-handedness means greater creative potential. Yet lefties are prevalent among artists, composers and the generally acknowledged great political thinkers. Possibly if these individuals are among the lefties whose language abilities are evenly distributed between hemispheres, the intense interplay required could lead to unusual mental capabilities.

SECTION G

Or perhaps some lefties become highly creative simply because they must be more clever to get by in our right-handed world. This battle, which begins during the very early stages of childhood, may lay the groundwork for exceptional achievements.

Questions 14-18

Reading Passage 2 has seven sections A-G. Which section contains the following information? Write the correct letter A-G in boxes 14-18 on your answer sheet.

14. Preference of using one side of the body in animal species.
15. How likely one-handedness is born.
16. The age when the preference of using one hand is settled.
17. Occupations usually found in left-handed population.
18. A reference to an early discovery of each hemisphere's function.

Questions 19-22

Look at the following researchers (Questions 19-22) and the list of findings below. Match each researcher with the correct finding. Write the correct letter A-G in boxes 19-22 on your answer sheet.

19. Marian Annett
20. Peter Hepper
21. Brenda Milner & Theodore Rasmussen
22. Michael Corballis

List of Findings

A. Early language evolution is correlated to body movement and thus affecting the preference of use of one hand.
B. No single biological component determines the handedness of a child.
C. Each hemisphere of the brain is in charge of different body functions.
D. Language process is mainly centered in the left-hemisphere of the brain.
E. Speech difficulties are often caused by brain damage.
F. The rate of development of one side of the body has influence on hemisphere preference in fetus.
G. Brain function already matures by the end of the fetal stage.

Questions 23-26

Do the following statements agree with the information given in Reading Passage 2? In boxes 23-26 on your answer sheet write

YES if the statement agrees with the information
NO if the statement contradicts the information
NOT GIVEN if there is no information on this

23. The study of twins shows that genetic determination is not the only factor for left-handedness.
24. Marc Dax's report was widely accepted in his time.
25. Juhn Wada based his findings on his research of people with language problems.
26. There tend to be more men with left-handedness than women.

PASSAGE 3

Questions 27-33

Reading Passage 3 has 8 paragraphs (A-H). Choose the most suitable heading for each paragraph from the List of headings below. Write the appropriate numbers (i-xiii) in Boxes 27-33 on your answer sheet. One of the headings 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. 165 million years
ii. The body plan of archosaurs
iii. Dinosaurs - terrible lizards
iv. Classification according to pelvic anatomy
v. The suborders of Saurischia
vi. Lizards and dinosaurs - two distinct superorders
vii. Unique body plan helps identify dinosaurs from other animals
viii. Herbivore dinosaurs
ix. Lepidosaurs
x. Frills and shelves
xi. The origins of dinosaurs and lizards
xii. Bird-hipped dinosaurs
xiii. Skull bones distinguish dinosaurs from other archosaurs

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

Example : Paragraph H **Answer: x**

Dinosaurs

A. Although the name dinosaur is derived from the Greek for "terrible lizard", dinosaurs were not, in fact, lizards at all. Like lizards, dinosaurs are included in the class Reptilia, or reptiles, one of the five main classes of Vertebrata, animals with backbones. However, at the next level of classification, within reptiles, significant differences in the skeletal anatomy of lizards and dinosaurs have led scientists to place these groups of animals into two different superorders : Lepidosauria or lepidosaurs, and Archosauria, or archosaurs.

B. Classified as lepidosaurs are lizards and snakes and their prehistoric ancestors. Included among the archosaurs, or "ruling reptiles", are prehistoric and modern crocodiles, and the now extinct thecodonts, pterosaurs and dinosaurs . Palaeontologists believe that both dinosaurs and crocodiles evolved, in the later years of the Triassic Period (c. 248-208 million years ago), from creatures called pseudosuchian thecodonts. Lizards, snakes and different types of thecodont are believed to have evolved earlier in the Triassic Periodfrom reptiles known as eosuchians .

C. The most important skeletal differences between dinosaurs and other archosaurs are in the bones of the skull, pelvis and limbs. Dinosaur skulls are found in a great range of shapes and sizes, reflecting the different eating habits and lifestyles of a large and varied group of animals that dominated life on Earth for an extraordinary 165 million years. However, unlike the skulls of any other known animals, the skulls of dinosaurs had two long bones known as vomers. These bones extended on either side of the head, from the front of the snout to the level of the holes on the skull known as the antorbital fenestra, situated in front of the dinosaur's orbits or eye sockets.

D. All dinosaurs, whether large or small, quadrupedal or bidepal, fleet-footed or slow-moving, shared a common body plan. Identification of this plan makes it possible to differentiate dinosaurs from any other types of animal, even other archosaurs. Most significantly, in dinosaurs, the pelvis and femur had evolved so that the hind limbs were held vertically beneath the body, rather than sprawling out to the sides like the limbs of a lizard. The femur of a dinosaur had a sharply in-turned neck and a ball-shaped head, which slotted into a fully open acetabulum or hip socket. A supra-acetabular crest helped prevent dislocation of the femur. The position of the knee joint, aligned below the acetabulum, made it possible for the whole hind limb to swing backwards and forwards. This unique combination of features gave dinosaurs what is known as a " fully improved gait". Evolution of this highly efficient method of walking also developed in mammals, but among reptiles it occurred only in dinosaurs.

E. For the purpose of further classification, dinosaurs are divided into two orders: Saurischia, or saurischian dinosaurs, and Ornithischia, or ornithischian dinosaurs. This division is made on the basis of their pelvic anatomy. All dinosaurs had a pelvic girdle with each side comprised of three bones: the pubis, ilium and ischium. However, the orientation of these bones follows one of two patterns. In saurischian dinosaurs, also known as lizard-hipped dinosaurs, the pubis points forwards, as is usual in most types of reptile. By contrast,in ornithischian, or bird-hipped, dinosaurs, the pubis points backwards towards the rear of the animal, which is also true of birds.

F. Of the two orders of dinosaurs, the Saurischia was the larger and the first to evolve . It is divided into two suborders: Therapoda, or therapods, and Sauropodomorpha, or sauropodomorphs. The therapods, or "beast feet", were bipedal, predatory carnivores. They ranged in size from the mighty Tyrannosaurus rex, 12m long, 5.6m tall and weighing an estimated 6.4 tonnes, to the smallest known dinosaur, Compsognathus, a mere 1.4m long and estimated 3kg in weight when fully grown. The sauropodomorphs, or "lizard feet forms", included both bipedal and quadrupedal dinosaurs. Some sauropodomorphs were carnivorous or omnivorous but later species were typically herbivorous. They

included some of the largest and best-known of all dinosaurs, such as Diplodocus, a huge quadruped with an elephant-like body, a long, thin tail and neck that gave it a total length of 27m, and a tiny head.

G. Ornithischian dinosaurs were bipedal or quadrupedal herbivores. They are now usually divided into three suborders: Ornithipoda, Thyreophora and Marginocephalia. The ornithopods, or "bird feet", both large and small, could walk or run on their long hind legs, balancing their body by holding their tails stiffly off the ground behind them. An example is Iguanodon, up to 9m long, 5m tall and weighing 4.5 tonnes. The thyreophorans, or "shield bearers", also known as armoured dinosaurs, were quadrupeds with rows of protective bony spikes, studs, or plates along their backs and tails. They included Stegosaurus, 9m long and weighing 2 tonnes.

H. The marginocephalians, or "margined heads", were bipedal or quadrupedal ornithschians with a deep bony frill or narrow shelf at the back of the skull. An example is Triceratops, a rhinoceros-like dinosaur, 9m long, weighing 5.4 tonnes and bearing a prominent neck frill and three large horns.

Questions 34-36

Complete then sentences below. Use NO MORE THAN THREE WORDS from the passage for each blank space. Write your answers in boxes 34-36 on your answer sheet.

34. Lizards and dinosaurs are classified into two different superorders because of the difference in their .....
35. In the Triassic Period, ... evolved into thecodonts, for example, lizards and snakes.
36. Dinosaur skulls differed from those of any other known animals because of the presence of vomers: .....

Questions 37-40

Choose one phrase (A-H) from the List of features to match with the Dinosaurs listed below. Write the appropriate letters (A-H) in boxes 37-40 on your answer sheet. NB. There are more phrases (A-H) than sentences, so you will not need to use them all. You may use each phrase once only.

Dinosaurs

37. Dinosaurs differed from lizards, because.....
38. Saurischian and ornithischian dinosaurs .....
39. Unlike therapods, sauropodomorphs .....
40. Some dinosaurs used their tails to balance, others ..... List of features

A. are both divided into two orders.
B. the former had a "fully improved gait".
C. were not usually very heavy.
D. could walk or run on their back legs.
E. their hind limbs sprawled out to the side.
F. walked or ran on four legs, rather than two.
G. both had a pelvic girdle comprising six bones.
H. did not always eat meat.

READING 9 ANSWERS

1. YES
2. YES
3. NOT GIVEN
4. NO
5. YES
6. C
7. D
8. B
9. D
10. A
11. B
12. C
13. A
14. C
15. A
16. B
17. F
18. D
19. B
20. F
21. D
22. A
23. YES
24. NO
25. NOT GIVEN
26. NOT GIVEN
27. VI
28. XI
29. XIII
30. VII
31. IV
32. V
33. VIII
34. SKELETAL ANATOMY
35. EOSUCHIANS
36. TWO LONG BONES
37. B
38. G
39. H
40. F

READING 10

PASSAGE 1

How Animals Learn

A. Learning Theory is rooted in the work of Ivan Pavlov, the famous scientist who discovered 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 conditioning. 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 to 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 behaviours.

B. Role models are a popular notion for guiding child development, but in recent years very interesting research has been done on learning by examples 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 (1996).

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 rattus), and the technique was to bite each cone scale off at its base, in sequence from base to top 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 experienced cone strippers. However, infants of urban mothers cross-fostered by 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 work out how to use once someone has shown you how to switch it on. In the 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 Behaviour by Bednekoff and Baida, provides a different view of the adaptiveness of social learning. It concerns the seed caching behaviour of Clark's Nutcracker (Nucifraga columbiana) and the Mexican Jay (Aphelocoma ultramarina). The former is a specialist, caching 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 the Nutcracker but also the less specialised 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.

Questions 1-4

Reading Passage 1 has seven paragraphs A-G. Which paragraph contains the following information? Write the correct letter A-G in boxes 1-4 on your answer sheet.

1. A comparison between rats' learning and human learning
2. A reference to the earliest study in animal learning
3. The discovery of who stripped the pine cone
4. A description of a cost-effectiveness experiment

Questions 5-8

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

5. The field trip to Israel was to investigate how black rats learn to strip pine cones.
6. The pine cones were stripped from bottom to top by black rats.
7. It can be learned from other relevant experiences to use a photocopier.
8. Stripping the pine cones is an instinct of the black rats.

Questions 9-13

Complete the summary below using words from the box. Write your answers in boxes 9-13 on your answer sheet.

While the Nutcracker is more able to cache seeds, the Jay relies 9 ..... on caching food and is thus less specialised in this ability, but more 10 ..... To study their behaviour 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 11..... As a result, the Nutcracker and the Mexican Jay showed different performance in the role of 12 ..... at finding the seeds - the observing 13 ..... didn't do as well as its counterpart.

less **social** **remembered** **Nutcracker** **more** **cacher** **watched** **solitary** **observer** **Jay**

PASSAGE 2

ARE WE HEADING TOWARDS A NEW ICE AGE

William Curry is a serious, sober climate scientist, not an art critic. But he has spent a lot of time perusing Emanuel Gottlieb Leutze's famous painting "George Washington Crossing the Delaware", which depicts a boatload of colonial American soldiers making their way to attack English and Hessian troops the day after Christmas in 1776. "Most people think these other guys in the boat are rowing, but they are actually pushing the ice away," says Curry, tapping his finger on a reproduction of the painting. Sure enough, the lead oarsman is bashing the frozen river with his boot. "I grew up in Philadelphia. The place in this painting is 30 minutes away by car. I can tell you, this kind of thing just doesn't happen anymore."

But it may again soon. And ice-choked scenes, similar to those immortalised by the 16th-century Flemish painter Pieter Brueghel the Elder, may also return to Europe. His works, including the 1565 masterpiece "Hunters in the Snow", make the now-temperate European landscapes look more like Lapland. Such frigid settings were commonplace during a period dating roughly from 1300 to 1850 because much of North America and Europe was in the throes of a little ice age. And now there is mounting evidence that the chill could return. A growing number of scientists believe conditions are ripe for another prolonged cooldown, or small ice age. While no one is predicting a brutal ice sheet like the one that covered the Northern Hemisphere with glaciers about 12,000 years ago, the next cooling trend could drop average temperatures 5 degrees Fahrenheit over much of the United States and 10 degrees in the Northeast, northern Europe, and northern Asia.

"It could happen in 10 years," says Terrence Joyce, who chairs the Woods Hole Physical Oceanography Department. "Once it does, it can take hundreds of years to reverse." And he is alarmed that Americans have yet to take the threat seriously.

A drop of 5 to 10 degrees entails much more than simply bumping up the thermostat and carrying on. Both economically and ecologically, such quick, persistent chilling could have devastating consequences. A 2002 report titled "Abrupt Climate Change: Inevitable Surprises", produced by the National Academy of Sciences, pegged the cost from agricultural losses alone at $100 billion to $250 billion while also predicting that damage to ecologies could be vast and incalculable. A grim sampler: disappearing forests, increased housing expenses, dwindling fresh water, lower crop yields, and accelerated species extinctions.

The reason for such huge effects is simple. A quick climate change wreaks far more disruption than a slow one. People, animals, plants, and the economies that depend on them are like rivers; says the report: "For example, high water in a river will pose few problems until the water runs over the bank, after which levees can be breached and massive flooding can occur. Many biological processes undergo shifts at particular thresholds of temperature and precipitation."

Political changes since the last ice age could make survival far more difficult for the world's poor. During previous cooling periods, whole tribes simply picked up and moved south, but that option doesn't work in the modern, tense world of closed borders. "To the extent that abrupt climate change may cause rapid and extensive changes of fortune for those who live off the land, the inability to migrate may remove one of the major safety nets for distressed people," says the report.

But first things first. Isn't the earth actually warming? Indeed it is, says Joyce. ' In his cluttered office, full of soft light from the foggy Cape Cod morning, he explains how such warming could actually be the surprising culprit of the next mini-ice age. The paradox is a result of the appearance over the past 30 years in the North Atlantic of huge rivers of fresh water - the equivalent of a 10-foot-thick layer - mixed into the salty sea. No one is certain where the fresh torrents are coming from, but a prime suspect is melting Arctic ice, caused by a build-up of carbon dioxide in the atmosphere that traps solar energy.

The freshwater trend is major news in ocean-science circles. Bob Dickson, a British oceanographer who sounded an alarm at a February conference in Honolulu, has termed the drop in salinity and temperature in the Labrador Sea - a body of water between northeastern Canada and Greenland that adjoins the Atlantic - "arguably the largest full-depth changes observed in the modern instrumental oceanographic record".

The trend could cause a little ice age by subverting the northern penetration of Gulf Stream waters. Normally, the Gulf Stream, laden with heat soaked up in the tropics, meanders up the east coasts of the United States and Canada. As it flows northward, the stream surrenders heat to the air. Because the prevailing North Atlantic winds blow eastward, a lot of the heat wafts to Europe. That's why many scientists believe winter temperatures on the Continent are as much as 36 degrees Fahrenheit warmer than those in North America at the same latitude. Frigid Boston, for example, lies at almost precisely the same latitude as balmy Rome. And some scientists say the heat also warms Americans and Canadians. "It's a real mistake to think of this solely as a European phenomenon," says Joyce.

Having given up its heat to the air, the now-cooler water becomes denser and sinks into the North Atlantic by a mile or more in a process oceanographers call thermohaline circulation. This massive column of cascading cold is the main engine powering a deep-water current called the Great Ocean Conveyor that snakes through all the world's oceans. But as the North Atlantic fills with fresh water, it grows less dense, making the waters carried northward by the Gulf Stream less able to sink. The new mass of relatively fresh water sits on top of the ocean like a big thermal blanket, threatening the thermohaline circulation. That in turn could make the Gulf Stream slow or veer southward. At some point, the whole system could simply shut down, and do so quickly. "There is increasing evidence that we are getting closer to a transition point, from which we can jump to a new state."

Questions 14 - 17

Choose the correct letter A, B, C or D. Write your answers in boxes 1-4 on your answer sheet.

14. The writer uses paintings in the first paragraph to illustrate
    A. possible future climate change.
    B. climate change of the last two centuries.
    C. the river doesn't freeze in winter anymore.
    D. how George Washington led his troops across the river.
15. Which of the following do scientists believe to be possible?
    A. The temperature may drop over much of the Northern Hemisphere.
    B. It will be colder than 12,000 years ago.
    C. The entire Northern Hemisphere will be covered in ice.
    D. Europe will look more like Lapland.
16. Why is it difficult for the poor to survive the next ice age?
    A. People don't live in tribes anymore.
    B. Politics are changing too fast today.
    C. Abrupt climate change causes people to live off their land.
    D. Migration has become impossible because of closed borders.
17. Why is continental Europe much warmer than North America in winter?
    A. Wind blows most of the heat of tropical currents to Europe.
    B. Europe and North America are at different latitudes.
    C. The Gulf Stream has stopped yielding heat to the air.
    D. The Gulf Stream moves north along the east coast of North America.

Questions 18 - 22

Look at the following statements (Questions 5-9) and the list of people in the box below. Match each statement with the correct person A-D. Write the appropriate letter A-D in boxes 18 - 22 on your answer sheet. NB You may use any letter more than once.

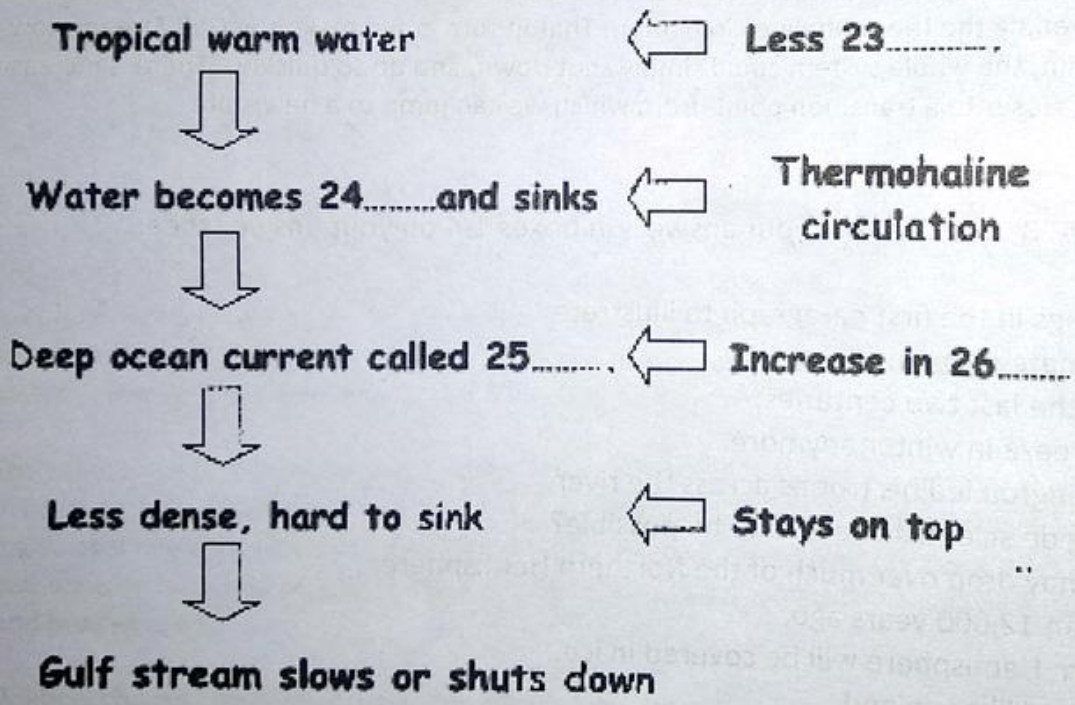
18. Most Americans are not prepared for the next ice age.
19. The result of abrupt climate change is catastrophic.
20. The world is not as cold as it used to be.
21. Global warming is closely connected to the ice age.
22. Alerted people to the change of ocean water in a conference

List of People

A. William Curry
B. Terrence Joyce
C. Bob Dickson
D. National Academy of Sciences

Questions 23-26

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



PASSAGE 3

Fruit trees and useful plants for Amazonians

It's not every scientist who writes books for people who can't read. And how many scientists want their books to look as dog-eared as possible? But Patricia Shanley, an ethnobotanist, wanted to give something back. After the poorest people of the Amazon allowed her to study their land and its ecology, she turned her research findings into a picture book that tells the local people how to get a good return on their trees without succumbing to the lure of a quick buck from a logging company. It has proved a big success.

A. The book is called Fruit Trees and Useful Plants in the Lives of Amazonians, but is better known simply as the "fruit book". The second edition was produced at the request of politicians in western Amazonia. Its blend of hard science and local knowledge on the use and trade of 35 native forest species has been so well received (and well used) that no less a dignitary than Brazil's environment minister, Marina Silva, has written the

foreword. "There is nothing else like the Shanley book," says Adalberto Verrisimo, director of the Institute of People and the Environment of the Amazon. "It gives science back to the poor, to the people who really need it."

B. Shanley's work on the book began a decade ago, with a plea for help from the Rural Workers' Union of Paragominas, a Brazilian town whose prosperity is based on exploitation of timber. The union realised that logging companies would soon be knocking on the doors of the caboclos, peasant farmers living on the Rio Capim, an Amazon tributary in the Brazilian state of Para. Isolated and illiterate, the caboclos would have little concept of the true value of their trees; communities downstream had already sold off large blocks of forest for a pittance. "What they wanted to know was how valuable the forests were," recalls Shanley, then a researcher in the area for the Massachusetts-based Woods Hole Research Centre.

C. The Rural Workers' Union wanted to know whether harvesting wild fruits would make economic sense in the Rio Capim. "There was a lot of interest in trading non-timber forest products (NTFPs)," Shanley says. At the time, environmental groups and green-minded businesses were promoting the idea. This was the view presented in a seminal paper, Valuation of an Amazonian Rainforest, published in Nature in 1989. The researchers had calculated that revenues from the sale of fruits could far exceed those from a one- off sale of trees to loggers. "The union was keen to discover whether it made more sense conserving the forest for subsistence use and the possible sale of fruit, game and medicinal plants, than selling trees for timber," says Shanley. Whether it would work for the caboclos was far from clear.

D. Although Shanley had been invited to work in the Rio Capim, some caboclos were suspicious. "When Patricia asked if she could study my forest," says Joao Fernando Moreira Brito, "my neighbours said she was a foreigner who'd come to rob me of my trees." In the end, Moreira Brito, or Mangueira as he is known, welcomed Shanley and worked on her study. His land, an hour's walk from the Rio Capim, is almost entirely covered with primary forest. A study of this and other tracts of forest selected by the communities enabled Shanley to identify three trees, found throughout the Amazon, whose fruit was much favoured by the caboclos: bacuri (Platonia insignis), uxi (Endop- leura uchi) and piquia (Cayocas villosum). The caboclos used their fruits, extracted oils, and knew what sort of wildlife they attracted. But, in the face of aggressive tactics from the logging companies, they had no measure of the trees' financial worth. The only way to find out, Shanley decided, was to start from scratch with a scientific study. "From a scientific point of view, hardly anything was known about these trees," she says. But six years of field research yielded a mass of data on their flowering and fruiting behaviour. During 1993 and 1994, 30 families weighed everything they used from the forest - game, fruit, fibre, medicinal plants - and documented its source.

E. After three logging sales and a major fire in 1997, the researchers were also able to study the ecosystem's reaction to logging and disturbance. They carried out a similar, though less exhaustive, study in 1999, this time with 15 families. The changes were striking. Average annual household consumption of forest fruit had fallen from 89 to 28 kilogrammes between 1993 and 1999. "What we found," says Shanley, "was that fruit collection could coexist with a certain amount of logging, but after the forest fire it dropped dramatically." Over the same period, fibre use also dropped from around 20 to 4 kilogrammes. The fire and logging also changed the nature of the caboclo diet. In 1993 most households ate game two or three times a month. By 1999 some were fortunate if they ate game more than two or three times a year.

F. The loss of certain species of tree was especially significant. Shanley's team persuaded local hunters to weigh their catch, noting the trees under which the animals were caught. Over the year, they trapped five species of game averaging 232 kilogrammes under piquia trees. Under copaiba, they caught just two species averaging 63 kilogrammes; and under uxi, four species weighing 38 kilogrammes. At last, the team was getting a handle on which trees were worth keeping, and which could reasonably be sold. "This showed that selling piquia trees

to loggers for a few dollars made little sense," explains Shanley. "Their local value lies in providing a prized fruit, as well as flowers which attract more game than any other species."

G. As a result of these studies, Shanley had to tell the Rural Workers' Union of Paragominas that the Nature thesis could not be applied wholesale to their community - harvesting NTFPs would not always yield more than timber sales. Fruiting patterns of trees such as uxi were unpredictable, for example. In 1994, one household collected 3,654 uxi fruits; the following year, none at all.

H. This is not to say that wild fruit trees were unimportant. On the contrary, argues Shanley, they are critical for subsistence, something that is often ignored in much of the current research on NTFPs, which tends to focus on their commercial potential. Geography was another factor preventing the Rio Capim caboclos from establishing a serious trade in wild fruit: villagers in remote areas could not compete with communities collecting NTFPs close to urban markets, although they could sell them to passing river boats.

I. But Shanley and her colleagues decided to do more than just report their results to the union. Together with two of her research colleagues, Shanley wrote the fruit book. This, the Bible and a publication on medicinal plants co-authored by Shanley and designed for people with minimal literacy skills are about the only books you will see along this stretch of the Rio Capim. The first print ran to only 3,000 copies, but the fruit book has been remarkably influential, and is used by colleges, peasant unions, industries and the caboclos themselves. Its success is largely due to the fact that people with poor literacy skills can understand much of the information it contains about the non-timber forest products, thanks to its illustrations, anecdotes, stories and songs. "The book doesn't tell people what to do," says Shanley, "but it does provide them with choices." The caboclos who have used the book now have a much better understanding of which trees to sell to the loggers, and which to protect.

Questions 27 - 32

Reading Passage has nine paragraphs A-I. Which paragraph contains the following information? Write the correct letter A-I in boxes 27 – 32 on your answer sheet.

27. A description of Shanley's initial data collection
28. Why a government official also contributes to the book
29. Reasons why the community asked Shanley to conduct the research
30. Reference to the starting point of her research
31. Two factors that alter food consumption patterns
32. Why the book is successful

Questions 33 - 40

Complete the summary below. Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 33 -40 on your answer sheet.

Forest fire has caused local villagers to consume less:

33.....

34.....

Game

There is the least amount of game hunted under 35....., and its fruit yield is also 36..... Thus, it is more reasonable to keep 37.....

All the trees can also be used for 38.....besides selling them to loggers. But this is often ignored, because most researches usually focus on the 39.....of the trees.

The purpose of the book:

To give information about 40.....

READING 10 ANSWERS

1. D
2. A
3. C
4. E
5. FALSE
6. TRUE
7. TRUE
8. FALSE
9. LESS
10. SOCIAL
11. WATCHED
12. OBSERVER
13. NUTCRACKER
14. B
15. A
16. D
17. A
18. B
19. D
20. A
21. B
22. C
23. HEAT
24. DENSER
25. GREAT OCEAN CONVEYOR
26. FRESH WATER
27. D
28. A
29. C
30. B
31. E
32. I
33. FRUIT/FOREST FRUIT
34. FIBRE
35. UXI
36. UNPREDICTABLE
37. PIQUIA (TREES)
38. SUBSISTENCE
39. COMMERCIAL POTENTIAL
40. NTFPS

Reading 11

PASSAGE 1

Music – The panacea

A

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

B

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

C

The same experiment was repeated on rats by Rauscher and Hong Hua Li from Stanford. Rats also demonstrated enhancement in their intelligence performance. These new studies indicate that rats that were exposed to Mozart's showed "increased gene expression of BDNF (a neural growth factor), CREB (a learning and memory compound), and Synapsin 1 (a synaptic growth protein) " in the brain's hippocampus, compared with rats in the control group, which heard only white noise (e.g. the whooshing sound of a V radio tuned between stations).

D

How exactly does the Mozart Effect work? Researchers are still trying to determine the actual mechanisms for the formation of these enhanced learning pathways. Neuroscientists suspect that music can actually help build and strengthen connections between neurons in the cerebral cortex in a process similar to what occurs in brain development despite its type.

When a baby is born, certain connections have already been made - like connections for heartbeat and breathing. As new information is learned and motor skills develop, new neural connections are formed. Neurons that are not used will eventually die while those used repeatedly will form strong

connections. Although a large number of these neural connections require experience, they must also occur within a certain time frame. For example, a child born with cataracts cannot develop connections within the visual cortex. If the cataracts are removed by surgery right away, the child's vision develops normally. However, after the age of 2, if the cataracts are removed, the child will remain blind because those pathways cannot establish themselves.

E

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

F

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

G

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

H

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

Questions 1-5

Reading Passage has eight paragraphs A-H. Which paragraph contains the following information?

1. A description of how music affects the brain development of infants.
2. Public's first reaction to the discovery of the Mozart Effect
3. The description of Rauscher's original experiment
4. The description of using music for healing in other countries
5. Other qualities needed in all learning

Questions 6-8

Complete the summary below. Choose NO MORE THAN ONE WORD from the passage for each answer. Write your answers in boxes 6-8 on your answer sheet.

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

Questions 9-13

Do the following statements agree with the information given in Reading Passage? In boxes 9-13 on your answer sheet, write

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts the information
NOT GIVEN	if there is no information on this

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

PASSAGE 2

Ant Farming

In 1476, the farmers of Berne in Switzerland decided there was only one way to rid their fields of the cutworms attacking their crops. They took the pests to court. The worms were tried, found guilty and excommunicated by the archbishop. In China, farmers had a more practical approach to pest control. Rather than relying on divine intervention, they put their faith in frogs, ducks and ants. Frogs and ducks were encouraged to snap up the pests in the paddies and the occasional plague of locusts. But the notion of biological control began with an ant. More specifically, it started with the predatory yellow citrus ant Oeco-phylla smaragdina, which has been polishing off pests in the orange groves of southern China for at least 1,700 years. The yellow citrus ant is a type of weaver ant, which binds leaves and twigs with silk to form a neat, tent-like nest. In the beginning, farmers made do with the odd ants' nests here and there. But it wasn't long before growing demand led to the development of a thriving trade in nests and a new type of agriculture - ant farming.

For an insect that bites, the yellow citrus ant is remarkably popular. Even by ant standards, Oecophylla smaragdina is a fearsome predator. It's big, runs fast and has a powerful nip - painful to humans but lethal to many of the insects that plague the orange groves of Guangdong and Guangxi in southern

China. And for at least 17 centuries, Chinese orange growers have harnessed these six-legged killing machines to keep their fruit groves healthy and productive.

Citrus fruits evolved in the Far East and the Chinese discovered the delights of their flesh early on. As the ancestral home of oranges, lemons and pomelos, China also has the greatest diversity of citrus pests. And the trees that produce the sweetest fruits, the mandarins - or kan - attract a host of plant-eating insects, from black ants and sap-sucking mealy bugs to leaf-devouring caterpillars. With so many enemies, fruit growers clearly had to have some way of protecting their orchards.

The West did not discover the Chinese orange growers' secret weapon until the early 20th century. At the time, Florida was suffering an epidemic of citrus canker and in 1915 Walter Swingle, a plant physiologist working for the US Department of Agriculture, was sent to China in search of varieties of orange that were resistant to the disease . Swingle spent some time studying the citrus orchards around Guangzhou, and there he came across the story of the cultivated ant. These ants, he was told, were "grown" by the people of a small village nearby who sold them to the orange growers by the nestful.

The earliest report of citrus ants at work among the orange trees appeared in a book on tropical and subtropical botany written by Hsi Han in AD 304 . "The people of Chiao-Chih sell in their markets ants in bags of rush matting. The nests are like silk. The bags are all attached to twigs and leaves which, with the ants inside the nests, are for sale. The ants are reddish-yellow in colour, bigger than ordinary ants. In the south, if the kan trees do not have this kind of ant, the fruits will all be damaged by many harmful insects, and not a single fruit will be perfect."

Initially, farmers relied on nests which they collected from the wild or bought in the market where trade in nests was brisk. "It is said that in the south orange trees which are free of ants will have wormy fruits. Therefore, people race to buy nests for their orange trees," wrote Liu Hsun in Strange Things Noted in the South in about 890.

The business guickly became more sophisticated. From the 10th century, country people began to trap ants in artificial nests baited with fat. "Fruit-growing families buy these ants from vendors who make a business of collecting and selling such creatures," wrote Chuang Chi-Yu in 1130. "They trap them by filling hogs' or sheep's bladders with fat and placing them with the cavities open next to the ants' nests. They wait until the ants have migrated into the bladders and take them away. This is known as 'rearing orange ants'." Farmers attached the bladders to their trees, and in time the ants spread to other trees and built new nests.

By the 17th century, growers were building bamboo walkways between their trees to speed the colonisation of their orchards. The ants ran along these narrow bridges from one tree to another and established nests "by the hundreds of thousands".

Did it work? The orange growers clearly thought so. One authority, Chhii Ta-Chun, writing in 1700, stressed how important it was to keep the fruit trees free of insect pests, especially caterpillars. "It is essential to eliminate them so that the trees are not injured. But hand labour is not nearly as efficient as ant power..."

Swingle was just as impressed. Yet despite his reports, many Western biologists were sceptical . In the West, the idea of using one insect to destroy another was new and highly controversial. The first breakthrough had come in 1888 , when the infant orange industry in California had been saved from extinction by the Australian vedalia beetle. This beetle was the only thing that had made any inroads into the explosion of cottony cushion scale that was threatening to destroy the state's citrus

crops. But, as Swingle now knew, California's "first" was nothing of the sort. The Chinese had been expert in biocontrol for many centuries.

The long tradition of ants in the Chinese orchards only began to waver in the 1950s and 1960s with the introduction of powerful organic insecticides. Although most fruit growers switched to chemicals, a few hung onto their ants. Those who abandoned ants in favour of chemicals quickly became disillusioned. As costs soared and pests began to develop resistance to the chemicals, growers began to revive the old ant patrols in the late 1960s . They had good reason to have faith in their insect workforce.

Research in the early 1960s showed that as long as there were enough ants in the trees, they did an excellent job of dispatching some pests - mainly the larger insects - and had modest success against others. Trees with yellow ants produced almost 20 per cent more healthy leaves than those without . More recent trials have shown that these trees yield just as big a crop as those protected by expensive chemical sprays.

One apparent drawback of using ants - and one of the main reasons for the early scepticism by Western scientists - was that citrus ants do nothing to control mealy bugs, waxy-coated scale insects which can do considerable damage to fruit trees. In fact, the ants protect mealy bugs in exchange for the sweet honey-dew they secrete. The orange growers always denied this was a problem but Western scientists thought they knew better.

Research in the 1980s suggests that the growers were right all along. Where X mealy bugs proliferate under the ants' protection, they are usually heavily parasitized and this limits the harm they can do.

Orange growers who rely on carnivorous ants rather than poisonous chemicals maintain a better balance of species in their orchards. While the ants deal with the bigger insect pests, other predatory species keep down the numbers of smaller pests such as scale insects and aphids. In the long run, ants do a lot less damage than chemicals - and they're certainly more effective than excommunication .

Questions 14-18

Look at the following events (Questions 14-18) and the list of dates below. Match each event with the correct time A-G.

14. The first description of citrus ants is traded in the marketplace.
15. Swingle came to Asia for research.
16. The first record of one insect is used to tackle other insects in the western world.
17. Chinese fruit growers started to use pesticides in place of citrus ants.
18. Some Chinese farmers returned to the traditional bio-method

List of Dates

A. 1888
B. AD 890
C. AD 304
D. 1950s
E. 1960s
F. 1915
G. 1130

Questions 19-26

In boxes 19-26 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

19. China has more citrus pests than any other country in the world.
20. Swingle came to China to search for an insect to bring back to the US.
21. Many people were very impressed by Swingle's discovery.
22. Chinese farmers found that pesticides became increasingly expensive.
23. Some Chinese farmers abandoned the use of pesticide.
24. Trees with ants had more leaves fall than those without.
25. Fields using ants yield as large a crop as fields using chemical pesticides.
26. Citrus ants often cause considerable damage to the bio-environment of the orchards.

PASSAGE 3

Reading Passage 3 has five sections A-E. Choose the correct heading for each section from the list of headings below.

27. Section A
28. Section B
29. Section C
30. Section D
31. Section E

List of Headings

i. Communication in music with animals
ii. New discoveries on animal music
iii. Music and language contrasted
iv. Current research on music
v. Music is beneficial for infants.
vi. Music transcends cultures.
vii. Look back at some of the historical theories
viii. Are we genetically designed for music?

Music: A language spoken by all

Section A - Music is one of the human species' relatively few universal abilities. Without formal training, any individual, from Stone Age tribesman to suburban teenager, has the ability to recognise music and, in some fashion, to make it. Why this should be so is a mystery. After all, music isn't necessary for getting through the day, and if it aids in reproduction, it does so only in highly indirect ways. Language, by contrast, is also everywhere - but for reasons that are more obvious. With language, you and the members of your tribe can organise a migration across Africa, build reed boats and cross the seas, and communicate at night even when you can't see each other. Modern culture, in all its technological extravagance, springs directly from the human talent for manipulating symbols and syntax.

Scientists have always been intrigued by the connection between music and language. Yet over the years, words and melody have acquired a vastly different status in the lab and the seminar room. While language has long been considered essential to unlocking the mechanisms of human intelligence, music is generally treated as an evolutionary frippery - mere "auditory cheesecake", as the Harvard cognitive scientist Steven Pinker puts it.

Section B - But thanks to a decade-long wave of neuroscience research, that tune is changing. A flurry of recent publications suggests that language and music may equally be able to tell us who we are and where we're from - not just emotionally, but biologically. In July, the journal Nature Neuroscience devoted a special issue to the topic. And in an article in the 6 August issue of the Journal of Neuroscience, David Schwartz, Catherine Howe, and Dale Purves of Duke University argued that the sounds of music and the sounds of language are intricately connected .

To grasp the originality of this idea, it's necessary to realise two things about how music has traditionally been understood. First, musicologists have long emphasised that while each culture stamps a special identity onto its music, music itself has some universal qualities . For example, in virtually all cultures, sound is divided into some or all of the 12 intervals that make up the chromatic scale -that is, the scale represented by the keys on a piano. For centuries, observers have attributed this preference for certain combinations of tones to the mathematical properties of sound itself.

Some 2,500 years ago, Pythagoras was the first to note a direct relationship between the harmoniousness of a tone combination and the physical dimensions of the object that produced it . For example, a plucked string will always play an octave lower than a similar string half its size, and a fifth lower than a similar string two thirds its length. This link between simple ratios and harmony has influenced music theory ever since.

Section C - This music-is-math idea is often accompanied by the notion that music, formally speaking at least, exists apart from the world in which it was created. Writing recently in The New York Review of Books, pianist and critic Charles Rosen discussed the long-standing notion that while painting and sculpture reproduce at least some aspects of the natural world, and writing describes thoughts and feelings we are all familiar with, music is entirely abstracted from the world in which we live . Neither idea is right, according to David Schwartz and his colleagues. Human musical preferences are fundamentally shaped not by elegant algorithms or ratios but by the messy sounds of real life, and of speech in particular – which in turn is shaped by our evolutionary heritage. "The explanation of music, like the explanation of any product of the mind, must be rooted in biology, not in numbers per se," says Schwartz.

Schwartz, Howe, and Purves analysed a vast selection of speech sounds from a variety of languages to reveal the underlying patterns common to all utterances. In order to focus only on the raw sounds, they discarded all theories about speech and meaning, and sliced sentences into random bites. Using a database of over 100,000 brief segments of speech, they noted which frequency had the greatest emphasis in each sound. The resulting set of frequencies, they discovered, corresponded closely to the chromatic scale. In short, the building blocks of music are to be found in speech.

Far from being abstract, music presents a strange analogue to the patterns created by the sounds of speech. "Music, like visual arts, is rooted in our experience of the natural world," says Schwartz. "It emulates our sound environment in the way that visual arts emulate the visual environment." In music we hear the echo of our basic sound-making instrument - the vocal tract. The explanation for human music is simpler still than Pythagoras's mathematical equations: We like the sounds that are familiar to us - specifically, we like the sounds that remind us of us.

This brings up some chicken-or-egg evolutionary questions. It may be that music imitates speech directly, the researchers say, in which case it would seem that language evolved first. It's also

conceivable that music came first and language is in effect an imitation of song - that in everyday speech we hit the musical notes we especially like. Alternately, it may be that music imitates the general products of the human sound-making system, which just happens to be mostly speech. "We can't know this," says Schwartz. "What we do know is that they both come from the same system, and it is this that shapes our preferences."

Section D - Schwartz's study also casts light on the long-running question of whether animals understand or appreciate music. Despite the apparent abundance of "music" in the natural world - birdsong, whalesong, wolf howls, synchronised chimpanzee hooting - previous studies have found that many laboratory animals don't show a great affinity for the human variety of music making .

Marc Hauser and Josh McDermott of Harvard argued in the July issue of Nature Neuroscience that animals don't create or perceive music the way we do. The fact that laboratory monkeys can show recognition of human tunes is evidence , they say, of shared general features of the auditory system, not any specific chimpanzee musical ability. As for birds, those most musical beasts, they generally recognise their own tunes - a narrow repertoire - but don't generate novel melodies like we do . There are no avian Mozarts.

But what's been played to animals, Schwartz notes, is human music. If animals evolve preferences for sound as we do - based upon the soundscape in which they live - then their "music" would be fundamentally different from ours. In the same way our scales derive from human utterances, a cat's idea of a good tune would derive from yowls and meows. To demonstrate that animals don't appreciate sound the way we do, we'd need evidence that they don't respond to "music" constructed from their own sound environment.

Section E - No matter how the connection between language and music is parsed, what is apparent is that our sense of music, even our love for it, is as deeply rooted in our biology and in our brains as language is. This is most obvious with babies, says Sandra Trehub at the University of Toronto, who also published a paper in the Nature Neuroscience special issue.

For babies, music and speech are on a continuum. Mothers use musical speech to "regulate infants' emotional states", Trehub says. Regardless of what language they speak, the voice all mothers use with babies is the same: "something between speech and song". This kind of communication "puts the baby in a trancelike state, which may proceed to sleep or extended periods of rapture". So if the babies of the world could understand the latest research on language and music, they probably wouldn't be very surprised. The upshot, says , is that music may be even more of a necessity than we realise .

Questions 32-38

Look at the following people (Questions 32-38) and the list of statements below. Match each person with the correct statement. Write the correct letter A-G in boxes 32-38 on your answer sheet.

32. Steven Pinker
33. Musicologists
34. Greek philosopher Pythagoras
35. Schwartz, Howe, and Purves
36. Marc Hauser and Josh McDermott
37. Charles Rosen
38. Sandra Trehub

List of Statements

A. Music exists outside of the world it is created in.
B. Music has a universal character despite cultural influences on it.
C. Music is a necessity for humans.
D. Music preference is related to the surrounding influences.
E. He discovered the mathematical basis of music.
F. Music doesn't enjoy the same status of research interest as language.
G. Humans and monkeys have similar traits in perceiving sound.

Questions 39-40

Choose the correct letter A, B, C or D.
Write your answers in boxes 39-40 on your answer sheet.

39. Why was the study of animal music inconclusive?
A. Animals don't have the same auditory system as humans.
B. Tests on animal music are limited.
C. Animals can't make up new tunes.
D. There aren't enough tests on a wide range of animals.

40. What is the main theme of this passage?
A. Language and learning
B. The evolution of music
C. The role of music in human society
D. Music for animals

READING 11 ANSWERS

1. D
2. G
3. B
4. A
5. F
6. SHORT
7. COMPLEX
8. RATS
9. TRUE
10. FALSE
11. FALSE
12. NOT GIVEN
13. TRUE
14. C
15. F
16. A
17. D
18. E
19. TRUE
20. FALSE
21. FALSE
22. TRUE
23. TRUE
24. FALSE
25. TRUE
26. FALSE
27. III
28. VII
29. IV
30. I
31. VIII
32. F
33. B
34. E
35. D
36. G
37. A
38. C
39. C
40. C

READING 12

The Potato - its history and impact

Jeff Chapman relates the story of history's most important vegetable

The potato was first cultivated in South America between three and seven thousand years ago, though scientists believe they may have grown wild in the region as long as 13,000 years ago. The genetic patterns of potato distribution indicate that the potato probably originated in the mountainous west-central region of the continent.

Early Spanish chroniclers who misused the Indian word batata (sweet potato) as the name for the potato noted the importance of the tuber to the Incan Empire. The Incans had learned to preserve the potato for storage by dehydrating and mashing potatoes into a substance called Chuño. Chuño could be stored in a room for upto 10 years, providing excellent insurance against crop failures. As well as using the food as a staple crop, the Incas thought potatoes made childbirth easier and used it to treat injuries.

The Spanish conquistadors first encountered the potato when they arrived in Peru in 1532 in search of gold, and noted Inca miners eating Chuño. At the time the Spaniards failed to realize that the potato represented a far more important treasure than either silver or gold, but they did gradually begin to use potatoes as basic rations aboard their ships. After the arrival of the potato in Spain in 1570, a few Spanish farmers began to cultivate them on a small scale, mostly as food for livestock.

Throughout Europe, potatoes were regarded with suspicion, distaste and fear. Generally considered to be unfit for human consumption, they were used only as animal fodder and sustenance for the starving. In northern Europe, potatoes were primarily grown in botanical gardens as an exotic novelty. Even peasants refused to eat from a plan that produced ugly, misshapen tubers and that had come from a heathen civilization. Some felt that the potato plant's resemblance to plants in the nightshade family hinted that it was the creation of witches or devils.

In meat-loving England, farmers and urban workers regarded potatoes with extreme distaste. In 1662, the Royal Society recommended the civilization of the tuber to the English government and the nation, but this recommendation had little impact. Potatoes did not become a staple until, during the food shortages associated with the Revolutionary Wars, the English government began to officially encourage potato cultivation. In 1795, the Board of Agriculture issued a pamphlet entitled "Hints Respecting the Culture and Use of Potatoes"; this was followed shortly by pro-potato recipes in *The Times*. Gradually, the lower classes began to follow the lead of the upper classes.

A similar pattern emerged across the English Channel in the Netherlands, Belgium, and France. While the potato slowly gained ground in eastern France (where it was often the only crop remaining after marauding soldiers plundered wheat fields and vineyards), it did not achieve widespread acceptance until the late 1700s. The peasants remained suspicious, in spite of a 1771 paper from the Faculte' de Paris testifying that the potato was not harmful but beneficial. The people began to overcome their distaste when the plant received the royal seal of approval: Louis XVI began to sport a potato flower in his buttonhole, and Marie-Antoinette wore the purple potato blossom in her hair.

Frederick the Great of Prussia saw the potato's potential to help feed his nation and lower the price of bread but faced the challenge of overcoming the people's prejudice against the plant. When he issued a 1774 order for his subjects to grow potatoes as protection again famine, the town of Kolberg replied: "The things have neither smell nor taste, not even the dogs will eat them, so what use are they to us?" Trying a less direct approach to encourage his subjects to begin planting potatoes, Frederick used a bit

of reverse psychology: he planted a royal field of potato plants and stationed a heavy guard to protect this field from thieves. Nearby peasants naturally assumed that anything worth guarding was worth stealing, and so snuck into the field and snatched the plants for their home gardens. Of course, this was entirely in line with Frederick's wishes.

Historians debate whether the potato was primarily a cause or an effect of the huge population boom in industrial-era England and Wales. Prior to 1800, the English diet had consisted primarily of meat, supplemented by bread, butter and cheese. Few vegetables were consumed, most vegetables being regarded as nutritionally worthless and potentially harmful. This view began to change gradually in the late 1700s. The Industrial revolution was drawing an ever-increasing percentage of the populace into crowded cities, where only the richest could afford homes with ovens or coal storage rooms, and people were working 12-16 hour days which left them with little time or energy to prepare food. High yielding, easily prepared potato crops were the obvious solution to England's food problems.

Whereas most of their neighbors regarded the potato with suspicion and had to be persuaded to use it by the upper classes, the Irish peasantry embraced the tuber more passionately than anyone since the Incas. The potato was well suited to the Irish soil and climate, and its high yield suited the most important concern of most Irish farmers: to feed their families.

The most dramatic example of the potato's potential to alter the population patterns occurred in Ireland, where the potato had become a staple by 1800. The Irish population doubled to eight million between 1780 and 1841, this without any significant expansion of industry or reform of agricultural techniques beyond the widespread cultivation of the potato. Though Irish land-holding practices were primitive in comparison with those of England, the potato's high yields allowed even the poorest farmers to produce more healthy food than they needed with scarcely any investment or hard labour. Even children could easily plant, harvest and cook potatoes, which of course required no threshing, curing or grinding. The abundance provided by potatoes greatly decreased infant mortality and encouraged early marriage.

Questions 1-5

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

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

1. The early Spanish called potato as the Incan name 'Chuño'.
2. The purpose of Spanish coming to Peru was to find potatoes.
3. The Spanish believed that the potato has the same nutrients as other vegetables.
4. Peasants at that time did not like to eat potatoes because they were ugly.
5. The popularity of potatoes in the UK was due to food shortages during war.

Questions 6 – 13

Complete the sentences below. Choose **ONE WORD ONLY** from the passage for each answer. Write your answers in boxes 6 – 13 on your answer sheet.

6. In France, people started to overcome their disgust about potatoes because the King put a potato _____ in his buttonhole.
7. Frederick realized the potential of potato but he had to handle the _____ against potatoes from ordinary people.
8. The King of Prussia adopted some _____ psychology to make people accept potatoes.
9. Before 1800, the English people preferred eating _____ with bread, butter and cheese.
10. The obvious way to deal with England food problems was to grow high yielding potato _____.
11. The Irish _____ and climate suited potatoes well.
12. Between 1780 and 1842, based on the _____ of the potatoes, the Irish population doubled to eight million.
13. The potato's high yields helped the poorest farmers to produce more healthy food almost without _____ or hard physical work.

PASSAGE 2

Literature Aimed at Children

Stories and poems aimed at children have an exceedingly long history: lullabies, for example, were sung in Roman times, and a few nursery games and rhymes are almost as ancient. Yet so far as written-down literature is concerned, while there were stories in print before 1700 that children often seized on when they had the chance, such as translations of Aesop's fables, fairy-stories and popular ballads and romances, these were not aimed at young people in particular. Since the only genuinely child-oriented literature at this time would have been a few instructional works to help with reading and general knowledge, plus the odd Puritanical tract as an aid to morality, the only course for keen child readers was to read adult literature. This still occurs today, especially with adult thrillers or romances that include more exciting, graphic detail than is normally found in the literature for younger readers.

By the middle of the 18th century there were enough eager child readers, and enough parents glad to cater to this interest, for publishers to specialize in children's books whose first aim was pleasure rather than education or morality. In Britain, a London merchant named Thomas Boreham produced Cajanus, The Swedish Giant in 1742, while the more famous John Newbery published A Little Pretty Pocket Book in 1744. Its contents - rhymes, stories, children's games plus a free gift ('A ball and a pincushion') in many ways anticipated the similar lucky-dip contents of children's annuals this century. It is a tribute to Newbery's flair that he hit upon a winning formula quite so quickly, to be pirated almost immediately in America.

Such pleasing levity was not to last. Influenced by Rousseau, whose Emile(1762) decreed that all books for children save Robinson Crusoe were a dangerous diversion, contemporary critics saw to it that children's literature should be instructive and uplifting. Prominent among such voices was Mrs. Sarah Trimmer, whose magazine The Guardian of Education (1802) carried the first regular reviews of children's books. It was she who condemned fairy-tales for their violence and general absurdity; her own stories, Fabulous Histories (1786) described talking animals who were always models of sense and decorum.

So the moral story for children was always threatened from within, given the way children have of drawing out entertainment from the sternest moralist. But the greatest blow to the improving children's book was to come from an unlikely source indeed: early 19th century interest in folklore. Both nursery rhymes, selected by James Orchard Halliwell for a folklore society in 1842, and collection

of fairy-stories by the scholarly Grimm brothers, swiftly translated into English in 1823,soon rocket to popularity with the young, quickly leading to new editions, each one more child-centered than the last. From now on younger children could expect stories written for their particular interest and with the needs of their own limited experience of life kept well to the fore.

What eventually determined the reading of older children was often not the availability of special children's literature as such but access to books that contained characters, such as young people or animals, with whom they could more easily empathize, or action, such as exploring or fighting, that made few demands on adult maturity or understanding.

The final apotheosis of literary childhood as something to be protected from unpleasant reality came with the arrival in the late 1930s of child-centered best-sellers intend on entertainment at its most escapist. In Britain novelist such as Enid Blyton and Richmal Crompton described children who were always free to have the most unlikely adventures, secure in the knowledge that nothing bad could ever happen to them in the end. The fact that war broke out again during her books' greatest popularity fails to register at all in the self-enclosed world inhabited by Enid Blyton's young characters. Reaction against such dream-worlds was inevitable after World War II, coinciding with the growth of paperback sales, children's libraries and a new spirit of moral and social concern. Urged on by committed publishers and progressive librarians, writers slowly began to explore new areas of interest while also shifting the settings of their plots from the middle-class world to which their chiefly adult patrons had always previously belonged.

Critical emphasis, during this development, has been divided. For some the most important task was to rid children's books of the social prejudice and exclusiveness no longer found acceptable. Others concentrated more on the positive achievements of contemporary children's literature. That writers of these works are now often recommended to the attentions of adult as well as child readers echoes the 19th-century belief that children's literature can be shared by the generations, rather than being a defensive barrier between childhood and the necessary growth towards adult understanding.

Questions 14-18

Complete the table below. Choose NO MORE THAN TWO WORDS from Reading Passage for each answer. Write your answers in boxes 1-5 on your answer sheet.

DATE	FEATURES	AIM	EXAMPLE
Before 1700	Not aimed at young children	Education and morality	Puritanical tract
By the middle of 18th century	Collection of 14..... and games	Read for pleasure	A Little Pretty Pocket Book (exported to 15.....)
Early 19thcentury	Growing interest in 16.....	To be more children-centered	Nursery rhymes and 17.....
Late 1930s	Stories of harm-free 18.....	Entertainment	Enid Blyton and Richarnal Crompton's novels

Questions 19-21

Look at the following people and the list of statements below. Match each person with the correct statement.

List of statements

A. Wrote criticisms of children's literature
B. Used animals to demonstrate the absurdity of fairy tales
C. Was not a writer originally
D. Translated a book into English
E. Didn't write in the English language

19. Thomas Boreham
20. Mrs. Sarah trimmer
21. Grimm Brothers
22.

Questions 22 -26s

Do the following statements agree with the information given in Reading Passage? In boxes 9-13 on your answer sheet write

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts the information
NOT GIVEN	if there is no information on this

22. Children didn't start to read books until 1700.
23. Sarah Trimmer believed that children's books should set good examples.
24. Parents were concerned about the violence in children's books.
25. An interest in the folklore changed the direction of the development of children's books.
26. Today children's book writers believe their works should appeal to both children and adults.

PASSAGE 3

Talc Powder and its various uses

Peter Brigg discovers how talc from Luzenac's Trimouns in France find its way into food and agricultural products—from chewing gum to olive oil.

High in the French Pyrenees, some 1,700m above see level, lies Trimouns, a huge deposit of hydrated magnesium silicate - talc to you and me. Talc from Trimouns, and from ten other Luzenac mines across the globe, is used in the manufacture of a vast array of everyday products extending from paper, paint and plaster to cosmetics, plastics and car tyres. And of course there is always talc's best known end use: talcum powder for babies' bottoms. But the true versatility of this remarkable mineral is nowhere better displayed than in its sometimes surprising use in certain niche markets in the food and agriculture industries.

Take, for example, the chewing gum business. Every year, Talc de Luzenac France - which owns and operates the Trimouns mine and is a member of the international Luzenac Group (art of Rio Tinto minerals)—supplies about 6,000 tones of talc to chewing gum manufacturers in Europe. "We've been selling to this sector of the market since the 1960s,"says Laurent Fournier, sales manager in Luzenac's Specialties business unit in Toulouse. "Admittedly, in terms of our total annual sales of talc, the amount we supply to chewing gum manufacturers is relatively small, but we see it as a valuable niche market: one where customers place a premium on securing supplies from a reliable, high quality source. Because of this, long term allegiance to a proven suppler is very much a feature of this sector of the talc market. "Switching sources—in the way that you might choose to buy, say, paperclips from Supplier A rather than from Supplier B—is not a easy option for chewing gum manufacturers," Fournier says. "The cost of reformulating is high, so when customers are using a talc grade that works, even if it's expensive, they are understandably reluctant to switch."

But how is talc actually used in the manufacture of chewing gum? Patrick Delord, an engineer with a degree in agronomics, who has been with Luzenac for 22 years and is now senior market development manager, Agriculture and Food, in Europe, explains that chewing gums has four main components. "The most important of them is the gum base," he says. "It's the gum base that puts the chew into chewing gum. It binds all the ingredients together, creating a soft, smooth texture. To this the manufacturer then adds sweeteners, softeners and flavourings. Our talc is used as a filler in the gum base . The amount varies between, say, ten and 35 per cent, depending on the type of gum. Fruit flavoured chewing gum, for example, is slightly acidic and would react with the calcium carbonate that the manufacturer might otherwise use as a filler. Talc, on the other hand, makes an ideal filler because it's non-reactive chemically. In the factory, talc is also used to dust the gum base pellets and to stop the chewing gum sticking during the lamination and packing process,"Delord adds.

The chewing gum business is, however, just one example of talc's use in the food sector. For the past 20 years or so, olive oil processors in Spain have been taking advantage of talc's unique characteristics to help them boost the amount of oil they extract from crushed olives. According to Patrick Delord, talc is especially useful for treating what he calls "difficult" olives. After the olives are harvested-preferably early in the morning because their taste is better if they are gathered in the cool of the day - they are taken to the processing plant. There they are crushed and then stirred for 30-45 minutes. In the old days, the resulting paste was passed through an olive press but nowadays it's more common to add water and centrifuge the mixture to separate the water and oil from the solid matter. The oil and water are then allowed to settle so that the olive oil layer can be decanted oft and bottled. "Difficult" olives are those that are more reluctant than the norm to yield up their full oil content. This may be attributable to the particular species of olive, or to its water content and the time of year the olives are collected—at the beginning and the end of the season their water

content is often either too high or too low. These olives are easy to recognize because they produce a lot of extra foam during the stirring process, a consequence of an excess of a fine solid that acts as anatural emulsifier. The oil in this emulsion is lost when the water is disposed of. Not only that, if the waste water is disposed of directly into local fields—often the case in many smaller processing operations—the emulsified oil may take some time to biodegrade and so be harmful to the environment.

"If you add between a half and two percent of talc by weight during the stirring process, it absorbs the natural emulsifier in the olives and so boosts the amount of oil you can extract," says Delord. "In addition, talc's flat, 'platy' structure helps increase the size of the oil droplets liberated during stirring, which again improves the yield. However, because talc is chemically inert, it doesn't affect the colour, taste, appearance or composition of the resulting olive oil."

If the use of talc in olive oil processing and in chewing gum is long established, new applications in the food and agriculture industries are also constantly being sought by Luzenac. One such promising new market is fruit crop protection, being pioneered in the US. Just like people, fruit can get sunburned. In fact, in very sunny regions up to 45 percent of atypical crop can be affected by heat stress and sunburn. However, in the case of fruit, it's not so much the ultra violet rays, which harm the crop as the high surface temperature that the sun's rays create.

To combat this, farmers normally use either chemicals or spray a continuous fine canopy of mist above the fruit trees or bushes. The trouble is, this uses a lot of water—normally a precious commodity in hot, sunny areas—and it is therefore expensive. What's more, the ground can quickly become waterlogged." So our idea was to coat the fruit with talc to protect it from the sun," says Greg Hunter, a marketing specialist who has been with Luzenac for ten years. "But to do this, several technical challenges had first to be overcome. Talc is very hydrophobic: it doesn't like water. So in order to have a viable product we needed a wettable powder—something that would go readily into suspension so that it could be sprayed onto the fruit. It also had to break the surface tension of the cutin (the natural waxy, waterproof layer on the fruit) and of course it had to wash off easily when the fruit was harvested. No-one's going to want an apple that's covered in talc."

Initial trials in the state of Washington in 2003 showed that when the product was sprayed onto Granny Smith apples, it reduced their surface temperature and lowered the incidence of sunburn by up to 60 per cent. Today the new product, known as Invelop Maximum SPF, is in its second commercial year on the US market. Apple growers are the primary target although Hunter believes grape growers represent another sector with long term potential. He is also hopeful of extending sales to overseas markets such as Australia, South America and southern Europe.

Questions 27-32

Use the information in the passage to match each use of talc power with correct application from A, B or C. Write the appropriate letters A-C in boxes 27-32 on your answer sheet. NB you may use any letter more than once

A. Chewing gum manufacture
B. Olive oil extraction
C. Fruit crop protection

27. Talc is used to prevent foaming.
28. Talc is used to prevent stickiness.
29. Talc is used to boost production.
30. Talc is used as a filler to provide a base.
31. Talc is used to prevent sunburn.
32. Talc is used to help increase the size of the product.

Questions 33-38

Complete the following summary below using NO MORE THAN TWO WORDS from the Reading Passage for each answer. Write your answers in boxes 33-38 on your answer sheet.

The use of talc powder in the olive oil industry in Spain has been around for 33..... years. It is extremely useful in dealing with "difficult" olives which often produce a lot of 34..... due to the high content of solid matter.

The traditional method of oil extraction used in some smaller plants often produces 35....., which contains emulsified oil, and if it is directly disposed of, it may be 36..... to the environment, because it cannot 37..... But adding talc powder can absorb the emulsifier and increase the production, because the size of oil 38..... grows.

Questions 39-40

Answer the questions below using NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 39-40 on your answer sheet.

39. What are the last two stages of chewing gum manufacturing process?
40. Which group of farmers does Invelop intend to target next?

READING 12 Answers

1. FALSE
2. FALSE
3. NOT GIVEN
4. TRUE
5. TRUE
6. FLOWER
7. PREJUDICE
8. REVERSE
9. MEAT
10. CROPS
11. SOIL
12. CULTIVATION
13. INVESTMENT
14. STORIES
15. AMERICA
16. FOLKLORE
17. FAIRY TALES / FAIRY STORIES
18. ADVENTURES
19. C
20. A
21. E
22. FALSE
23. TRUE
24. NOT GIVEN
25. TRUE
26. TRUE
27. B
28. A
29. B
30. A
31. C
32. B
33. 20
34. FOAM
35. WASTE WATER
36. HARMFUL
37. BIODEGRADE
38. DROPLETS
39. LAMINATION, PACKING
40. GRAPE GROWERS

READING 13

Passage 1

The Formula of Success

Many innovations end up as lemons – OzKleen turned lemons into a winning formula

A. Innovation and entrepreneurship, in the right mix, can bring spectacular results and propel a business ahead of the pack. Across a diverse range of commercial successes, from the Hills Hoist clothes line to the Cochlear ear implant, it is hard to generalize beyond saying the creators tapped into something consumers could not wait to get their hands on. However, most ideas never make it to the market. Some ideas that innovators are spruiking to potential investors include new water-saving shower heads, a keyless locking system, ping-pong balls that keep pollution out of rainwater tanks, making teeth grow from stemcells inserted in the gum, and technology to stop LPG tanks from exploding . Grant Kearney , chief executive of the Innovation Xchange, which connects businesses to innovation networks, says he hears of great business ideas that he knows will never get on the market. "Ideas by themselves are absolutely useless," he says. " An idea only becomes innovation when it is connected to the right resources and capabilities ".

B. One of Australia's latest innovation successes stems from a lemon-scented bath-room cleaner called Shower Power, the formula for which was concocted in a factory in Yatala, Queensland. In 1995, Tom Quinn and John Heron bought a struggling cleaning products business, OzKleen , for 250,000. It was selling 100 different kinds of cleaning products, mainly in bulk. The business was in bad shape, the cleaning formulas were ineffective and environmentally harsh, and there were few regular clients. Now Shower Power is claimed to be the top-selling bathroom cleaning product in the country. In the past 12 months ,almost four million bottles of OzKleen's Power products have been sold and the company forecasts 2004 sales of 10 million bottles. The company's, sales in2003 reached $11 million, with 700k of business being exports. In particular, Shower Power is making big inroads on the British market.

C. OzKleen's turnaround began when Quinn and Heron hired an industrial chemist to revitalize the product line. Market research showed that people were looking for a better cleaner for the bathroom, universally regarded as the hardest room in the home to clean. The company also wanted to make the product formulas more environmentally friendly One of Tom Quinn's sons, Peter, aged 24 at the time, began working with the chemist on the formulas, looking at the potential for citrus-based cleaning products. He detested all the chlorine-based cleaning products that dominated the market. "We didn't want to use chlorine, simple as that," he says. "It offers bad working conditions and there's no money in it. "Peter looked at citrus ingredients, such as orange peel, to replace the petroleum by-products in cleaners. He is credited with finding the Shower Power formula . "The head," he says. The company is the recipe is in a vault somewhere and in my sole owner of the intellectual property.

D. To begin with, Shower Power was sold only in commercial quantities but Tom Quinn decided to sell it in 750ml bottles after the constant "raves" from customers at their retail store at , near Brisbane. Customers were travelling long distances to buy supplies. Others began writing to OzKleen to say how good Shower Power was . "We did a dummy label and went to see Woolworths," Tom Quinn says. The Woolworths buyer took a bottle home and was able to remove a stain from her basin that had been impossible to shift. From that point on, she championed the product and OzKleen had its first super- market order, for a palette of Shower Power worth $3000. "We were over the moon," says OzKleen's financial controller, Belinda McDonnell.

E. Shower Power was released in Australian supermarkets in 1997 and became the top-selling product in its category within six months. It was all hands on deck cat the factory, labeling and bottling Shower Power to keep up with demand . OzKleen ditched all other products and rebuilt the business around Shower Power. This stage, recalls McDonnell , was very tough. "It was hand-to-mouth, cashflow was very difficult," she says. OzKleen had to pay new-line fees to supermarket chains, which also squeezed margins.

F. OzKleen's next big break came when the daughter of a Coles Myer executive 1 used the product while on holidays in Queensland and convinced her father that Shower Power should be in supermarkets. Despite the product success, Peter Quinn says the company was wary of how long the sales would last and hesitated to spend money on upgrading the manufacturing process . As a result, he remembers long periods of working round the clock to keep up with orders. Small tanks were still being used, so batches were small and bottles were labelled and filled manually. The privately owned OzKleen relied on cash flow to expand. "The equipment could not keep up with demand," Peter Quinn says. Eventually a new bottling machine was

bought for $50,000 in the hope of streamlining production, but he says: "We got ripped off." Since then, he has been developing a new automated bottling machine that can control the amount of foam produced in the liquid, so that bottles can be filled more effectively - "I love coming up with new ideas." The machine is being patented.

G. Peter Quinn says OzKleen's approach to research and development is open slather. "If I need it, I get it. It is about doing something simple that no one else is doing. Most of these things are just sitting in front of people ... it's just seeing the opportunities." With a tried and tested product, OzKleen is expanding overseas and developing more Power-brand household products . Tom Quinn, who previously ran a real estate agency, says: "We are competing with the same market all over the world, the cleaning products are sold everywhere ." Shower Power, known as Bath Power in Britain, was launched four years ago with the help of an export development grant from the Federal Government. "We wanted to do it straight away because we realised we had the same opportunities worldwide." OzKleen is already number three in the British market, and the next stop is France. The Power range includes cleaning products for carpets, kitchens and pre-wash stain removal. The Quinn and Heron families are still involved. OzKleen has been approached with offers to buy the company, but Tom Quinn says he is happy with things as they are . "We're having too much fun."

Questions 1-7

Reading Passage 1 has six paragraphs, A-G. Which paragraph contains the following information? Write the correct letter A-G, in boxes 1-7 on your answer sheet. NB You may use any letter more than once.

1. Description of one family member persuading another of selling cleaning products
2. An account of the cooperation of all factory staff to cope with sales increase
3. An account of the creation of the formula of Shower Power
4. An account of buying the original OzKleen company
5. Description of Shower Power's international expansion
6. The reason of changing the packaging size of Shower Power
7. An example of some innovative ideas

Questions 8-11

Look at the following people and list of statements below. Match each person with the correct statement. Write the correct letter A-E in boxes 8-11 on your answer sheet.

List of Statements

A. Described his story of selling his product to a chain store
B. Explained there was a shortage of money when sales suddenly increased
C. Believe innovations need support to succeed
D. Believes new products like Shower Power may incur risks
E. Says business won't succeed with innovations

8. Grant Kearney
9. Tom Quinn
10. Peter Quinn
11. Belinda McDonnell

Questions 12-13
Choose the correct letter A, B, C or D. Write your answers in boxes 12-13 on your answer sheet.

12. Tom Quinn changed the bottle size to 750ml to make Shower Power
    A. Easier to package.
    B. Appealing to individual customers.
    C. Popular in foreign markets.
    D. Attractive to supermarkets.

13. Why did Tom Quinn decide not to sell OzKleen?
    A. No one wanted to buy OzKleen.
    B. New products were being developed in OzKleen.
    C. He couldn't make an agreement on the price with the buyer.
    D. He wanted to keep things unchanged.

PASSAGE 2

The Carbolic Smoke Ball and how it brought name to Louissa Carlill

On 14 January 1892, Queen Victoria's grandson Prince Albert Victor, second in line to the British throne, died from flu. He had succumbed to the third and most lethal wave of the Russian flu pandemic sweeping the world. The nation was shocked. The people mourned. Albert was relegated to a footnote in history.

Three days later, London housewife Louisa Carlill went down with flu. She was shocked. For two months, she had inhaled thrice daily from a carbolic smoke ball, a preventive measure guaranteed to fend off flu - if you believed the advert. Which she did. And why shouldn't she when the Carbolic Smoke Ball Company had promised to cough up £100 for any customer who fell ill? Unlike Albert, Louisa recovered, claimed her £100 and set in train events that would win her lasting fame.

It started in the spring of 1889. The first reports of a flu epidemic came from Russia. By the end of the year, the world was in the grip of the first truly global flu pandemic. The disease came in waves, once a year for the next four years, and each worse than the last.

Whole cities came to a standstill. London was especially hard-hit. As the flu reached each annual peak, normal life stopped. The postal service ground to a halt, trains stopped running, banks closed. Even courts stopped sitting for lack of judges. At the height of the third wave in 1892, 200 people were buried every day at just one London cemetery. This flu was far more lethal than previous epidemics, and those who recovered were left weak, depressed, and often unfit for work. It was a picture repeated across the continent.

Accurate figures for the number of the sick and dead were few and far between but Paris, Berlin and Vienna all reported a huge upsurge in deaths. The newspapers took an intense interest in the disease, not just because of the scale of it but because of who it attacked. Most epidemics carried off the poor and weak, the old and frail. This flu was cutting as great a swathe through the upper classes, dealing death to the rich and famous, and the young and fit.

The newspaper-reading public was fed a daily diet of celebrity victims. The flu had worked its way through the Russian imperial family and invaded the royal palaces of Europe. It carried off the Dowager Empress of Germany and the second son of the king of Italy, as well as England's future king. Aristocrats and politicians, poets and opera singers, bishops and cardinals - none escaped the attentions of the Russian flu.

The public grew increasingly fearful. The press might have been overdoing the doom and gloom, but their hysterical coverage had exposed one terrible fact.
The medical profession had no answer to the disease. This flu, which might ft not even have begun in Russia, was a mystery. What caused it and how did it spread? No one could agree on anything.

By now, the theory that micro-organisms caused disease was gaining ground, but no one had identified an organism responsible for flu (and wouldn't until 1933). In the absence of a germ, many clung to the old idea of bad airs, or miasmas, possibly stirred by some great physical force - earthquakes, perhaps, or electrical phenomena in the upper atmosphere, even a passing comet.

Doctors advised people to eat well avoiding "unnecessary assemblies", and if they were really worried, to stuff cotton wool up their nostrils. If they fell ill, they should rest, keep warm and eat a nourishing diet of "milk, eggs and farinaceous puddings". Alcohol figured prominently among the prescriptions: one eminent English doctor suggested champagne, although he conceded "brandy M in considerable quantities has sometimes been given with manifest advantages". French doctors prescribed warm alcoholic drinks, arguing that they never saw an alcoholic with flu. Their prescription had immediate results: over a three-day period, 1,200 of the 1,500 drunks picked up on the streets of Paris claimed they were following doctor's orders.

Some doctors gave drugs to ease symptoms - quinine for fever, salicin for headache, heroin for an "incessant cough". But nothing in the pharmacy remotely resembled a cure. Not surprisingly, people looked elsewhere for help. Hoping to cash in while the pandemic lasted, purveyors of patent medicines competed for the public's custom with ever more outrageous advertisements. One of the most successful was the Carbolic Smoke Ball Company.

The carbolic smoke ball was a hollow rubber ball , 5 centimetres across, with a nozzle covered by gauze . Inside was a powder treated with carbolic acid, or phenol. The idea was to clutch it close to the nose and squeeze gently, inhaling deeply from the emerging cloud of pungent powder. This, the company claimed, would disinfect the mucous membranes, curing any condition related to "taking cold". In the summer of 1890, sales were steady at 300 smoke balls a month. In January 1891, the figure skyrocketed to 1,500.

Eager to exploit the public's mounting panic, the Carbolic Smoke Ball Company made increasingly extravagant claims. Oh 13 November 1892, its latest advert in the Pall Mall Gazette caught the eye of south London housewife Louisa Carlill. "Carbolic Smoke Ball," it declared, "will positively cure colds, coughs, asthma, bronchitis, hoarseness, influenza, croup, whooping cough ...". And the list went on. But it was the next part Mrs. Carlill found compelling. "A £100 reward will be paid by the Carbolic Smoke Ball Company to any person who contracts the increasing epidemic influenza, colds or any disease caused by taking cold, after having used the carbolic smoke ball according to the printed directions supplied with each ball. £1,000 is deposited with the Alliance bank, Regent Street, showing our sincerity in the matter."

Mrs. Carlill hurried off to buy a smoke ball, price 10 shillings. After carefully reading the instructions, she diligently dosed herself thrice daily until 17 January - when she fell ill.

On 20 January, Louisa's husband wrote to the Carbolic Smoke Ball Company . Unfortunately for them, Mr. Carlill happened to be a solicitor. His wife, he wrote, had seen their advert and bought a smoke ball on the strength of it. She had followed the instructions to the letter, and yet now - as their doctor could confirm - she had flu.

There was no reply . But £100 was not a sum to be sneezed at. Mr. Carlill persisted. The company resisted. Louisa recovered and sued . In June, Mr. Justice Hawkins found in Mrs. Carlill's favour. The company's main defence was that adverts were mere "puffery" and only an idiot would believe such extravagant claims. Judge Hawkins pointed out that adverts were not aimed at the wise and thoughtful, but at the credulous and weak . A vendor who made a promise "must not be surprised if occasionally he is held to his promise".

Carbolic appealed. In December, three lord justices considered the case. Carbolic's lawyers tried several lines of defence. But in the end, the case came down to a single matter: not whether the remedy was useless, or whether Carbolic had committed fraud, but whether its advert constituted a contract - which the company had broken. A contract required agreement between two parties, argued Carbolic's lawyers. What agreement had Mrs. Carlill made with them?

There were times, the judges decided, when a contract could be one-sided. The advert had made a very specific offer to purchasers: protection from flu or £100. By using the smoke ball as instructed, Mrs. Carlill had accepted that offer. The company might just have wriggled out of if if it hadn't added the bit about the £1,000 deposit. That, said the judges, gave buyers reason to believe Carbolic meant what it said. " It seems to me that if a person chooses to make extravagant promises of this kind, he probably does so because it pays him to make them , and, if he has made them, the extravagance of the promises is no reason in law why he should not be bound by them," pronounced Lord Justice Bowen .

Louisa got her £100. The case established the principle of the unilateral and is frequently cited today .

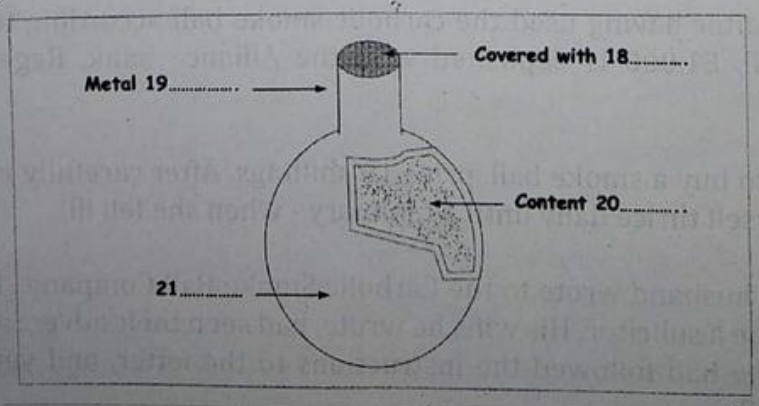
Questions 14-17

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

14. Cities rather than rural areas were badly affected by the pandemic flu.
15. At the time of the flu pandemic, people didn't know the link between micro-organisms and illnesses.
16. People used to believe flu was caused by miasmas.
17. Flu prescriptions often contained harmful ingredients.

Questions 18-21

Complete the diagram below. Choose NO MORE THAN TWO WORDS from the passage for each answer. Write your answers in boxes 18-21 on your answer sheet.



Questions 22-25

Look at the following people (Questions 22-25) and the list of statements. Match each person with the correct statement. Write the correct letter A-F in boxes 22-25 on your answer sheet.

List of Statements

A. Filed a complaint which was never responded to
B. Broke the contract made with Carbolic Smoke Ball Company
C. Initiated a legal case
D. Described the audience of advertisement
E. Claimed that most advertisements are fraudulent
F. Treated advertisement as a type of contract

22. Mrs. Carlill
23. Mrs. Carlill's husband
24. Judge Hawkins
25. Lord Justice Bowen

Question 26

Choose the correct letter, A, B, C or D. Write your answers in boxes 26 on your answer sheet. 26. Why is Mrs. Carlill's case often cited in present-day court trials?

A. It proved the untrustworthiness of advertisements.
B. It established the validity of one-sided contract.
C. It explained the nature of contract.
D. It defended the rights of consumers.
E.

PASSAGE 3

Questions 27-34

Reading Passage 3 has eight sections A-H. Choose the correct heading for each section from the list of headings below. Write the correct number i-x in boxes 27-34 on your answer sheet.

List of Headings

i. Summarising personality types
ii. Combined styles for workplace
iii. Physical explanation
iv. A lively person who encourages
v. Demanding and unsympathetic personality
vi. Lazy and careless personality
vii. The benefits of understanding communication styles
viii. Cautious and caring
ix. Factual and analytical personality
x. Self-assessment determines one's temperament

27. Section A
28. Section B
29. Section C
30. Section D
31. Section E
32. Section F
33. Section G
34. Section H

Conflicts resolution by Communicating Styles

Knowing your communication style and having a mix of styles on your team can provide a positive force for resolving conflict.

Section A

As far back as Hippocrates' time (460-370B.C.), people have tried to understand other people by characterizing them according to personality type or temperament . Hippocrates believed there were four different body fluids that influenced four basic types of temperament . His work was further developed 500 years later by Galen. These days there are any number of self-assessment tools that relate to the basic descriptions developed by Galen, although we no longer believe the source to be the types of body fluid that dominate our systems.

Section B

The values in self-assessments that help determine personality style . Learning styles, communication styles, conflict-handling styles, or other aspects of individuals is that they help depersonalize conflict in interpersonal relationships. The depersonalization occurs when you realize that others aren't trying to be difficult, but they need different or more information than you do. They're not intending to be rude: they are so focused on the task they forget about greeting people. They would like to work faster but not at the risk of damaging the relationships needed to get the job done. They understand there is a job to do. But it can only be done right with the appropriate information, which takes time to collect. When used appropriately, understanding communication styles can help resolve conflict on teams. Very rarely are conflicts true personality issues. Usually they are issues of style, information needs, or focus.

Section C

Hippocrates and later Galen determined there were four basic temperaments: sanguine, phlegmatic, melancholic and choleric . These descriptions were developed centuries ago and are still somewhat apt, although you could update the wording. In today's world, they translate into the four fairly common communication styles described below:

Section D

The sanguine person would be the expressive or spirited style of communication. These people speak in pictures. They invest a lot of emotion and energy in their communication and often speak quickly. Putting their whole body into it. They are easily sidetracked onto a story that may or may not illustrate the point they are trying to make. Because of their enthusiasm, they are great team motivators . They are concerned about people and relationships. Their high levels of energy can come on strong at times and their focus is usually on the bigger picture, which means they sometimes miss the details or the proper order of things. These people find conflict or differences of opinion invigorating and love to engage in a spirited discussion. They love change and are constantly looking for new and exciting adventures .

Section E

Tile phlegmatic person - cool and persevering - translates into the technical or systematic communication style . This style of communication is focused on facts and technical details. Phlegmatic people have an orderly methodical way of approaching tasks, and their focus is very much on the task, not on the people, emotions, or concerns that the task may evoke. The focus is also more on the details necessary to accomplish a task. Sometimes the details overwhelm the big picture and focus needs to be brought back to the context of the task. People with this style think the facts should speak for themselves, and they are not as comfortable with conflict. They need time to adapt to change and need to understand both the logic of it and the steps involved.

Section F

Tile melancholic person who is soft hearted and oriented toward doing things for others translates into the considerate or sympathetic communication style . A person with this communication style is focused on people and relationships. They are good listeners and do things for other people-sometimes to the detriment of getting things done for themselves. They want to solicit everyone's opinion and make sure everyone is comfortable with whatever is required to get the job done. At times this focus on others can distract from the task at hand. Because they are so concerned with the needs of others and smoothing over issues, they do not like conflict. They believe that change threatens the status quo and tends to make people

feel uneasy, so people with this communication style, like phlegmatic people need time to consider the changes in order to adapt to them.

Section G

The choleric temperament translates into the bold or direct style of communication. People with this style are brief in their communication - the fewer words the better. They are big picture thinkers and love to be involved in many things at once. They are focused on tasks and outcomes and often forget that the people involved in carrying out the tasks have needs . They don't do detail work easily and as a result can often underestimate how much time it takes to achieve the task. Because they are so direct, they often seem forceful and can be very intimidating to others. They usually would welcome someone challenging them. But most other styles are afraid to do so. They also thrive on change, the more the better.

Section H

A well-functioning team should have all of these communication styles for true effectiveness . All teams need to focus on the task, and they need to take care of relationships in order to achieve those tasks. They need the big picture perspective or the context of their work, and they need the details to be identified and taken care of for success. We all have aspects of each style within us. Some of us can easily move from one style to another and adapt our style to the needs of the situation at hand-whether the focus is on tasks or relationships. For others, a dominant style is very evident, and it is more challenging to see the situation from the perspective of another style. The work environment can influence communication styles either by the type of work that is required or by the predominance of one style reflected in that environment . Some people use one style at work and another at home.

The good news about communication styles is that we have the ability to develop flexibility in our styles. The greater the flexibility we have, the more skilled we usually are at handling possible and actual conflicts. Usually it has to be relevant to us to do so, either because we think it is important or because there are incentives in our environment to encourage it. The key is that we have to want to become flexible with our communication style. As Henry Ford said, "Whether you think you can or you can't, you're right!"

Questions 35-39

Do the following statements agree with the information given in Reading Passage 3? In boxes 35-39 on your answer sheet, write

TRUE if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this

35. It is believed that sanguine people dislike variety.
36. Melancholic and phlegmatic people have similar characteristics.
37. Managers often select their best employees according to personality types.
38. It is possible to change one's personality type.
39. Workplace environment can affect which communication style is most effective.

Question 40

Choose the correct letter A, B, C or D. Write your answers in box 40 on your answer sheet.

40. The writer believes using self-assessment tools can

A. help to develop one's personality.
B. help to understand colleagues' behaviour.
C. improve one's relationship with the employer.
D. directly resolve conflicts.

Reading 13 Answers

1. F
2. E
3. C
4. B
5. G
6. D
7. A
8. C
9. A
10. D
11. B
12. B
13. D
14. NOT GIVEN
15. FALSE
16. TRUE
17. NOT GIVEN
18. GAUGE
19. NOZZLE
20. POWDER
21. RUBBER BALL
22. C
23. A
24. D
25. F
26. B
27. III
28. VII
29. I
30. IV
31. IX
32. VIII
33. V
34. II
35. FALSE
36. TRUE
37. NOT GIVEN
38. TRUE
39. TRUE
40. B

READING 14

PASSAGE 1

Questions 1-6

Reading Passage 1 has six sections A-F. Choose the correct heading for each section from the list of headings below. Write the correct number i-x in boxes 1-6 on your answer sheet.

List of Headings

i. Locations and features of different seaweeds
ii. Various products of seaweeds
iii. Use of seaweeds in Japan
iv. Seaweed species around the globe
v. Nutritious value of seaweeds
vi. Why it doesn't dry or sink
vii. Where to find red seaweeds
viii. Underuse of native species
ix. Mystery solved
x. How seaweeds reproduce and grow

1. Section A
2. Section B
3. Section C
4. Section D
5. Section E
6. Section F

The Seaweeds, or should they be called flowers of the sea

Section A

Seaweed is a particularly nutritious food, which absorbs and concentrates traces of a wide variety of minerals necessary to the body's health. Many elements may occur in seaweed - aluminium, barium, calcium, chlorine, copper, iodine and iron, to name but a few - traces normally produced by erosion and carried to the seaweed beds by river and sea currents. Seaweeds are also rich in vitamins: indeed, Eskimos obtain a high proportion of their bodily requirements of vitamin C from the seaweeds they eat.

The nutritive value of seaweed has long been recognised. For instance, there is a remarkably low incidence of goitre amongst the Japanese, and for that matter, amongst our own Maori people, who have always eaten seaweeds, and this may well be attributed to the high iodine content of this food. Research into old Maori eating customs shows that jellies were made using seaweeds, fresh fruit and nuts, fuchsia and tutu berries, cape gooseberries, and many other fruits which either grew here naturally or were sown from seeds brought by settlers and explorers.

Section B

New Zealand lays claim to approximately 700 species of seaweed, some of which have no representation outside this country. Of several species grown worldwide, New Zealand also has a particularly large share. For example, it is estimated that New Zealand has some 30 species of Gigartina, a close relative of carrageen or Irish moss. These are often referred to as the New Zealand carrageens. The gel-forming substance called agar which can be extracted from this species gives them great commercial application in seameal, from which sea meal custard is made, and in cough mixture, confectionery, cosmetics, the canning, paint and leather industries, the manufacture of duplicating pads, and in toothpaste. In fact, during World War II, New Zealand Gigartina were sent to Australia to be used in toothpaste.

Section C

Yet although New Zealand has so much of the commercially profitable red seaweeds, several of which are a source of agar (Pterocladia, Gelidium, Chondrus, Gigartina), before 1940 relatively little use was made of them. New Zealand used to import the Northern Hemisphere Irish moss (Chondrus crispus) from England and ready-made agar from Japan. Although distribution of the Gigartina is confined to certain areas according to species, it is only on the east coast of the North Island that its occurrence is rare. And even then, the east coast, and the area around Hokiangna, have a considerable supply of the two species of Pterocladia from which agar is also available. Happily, New Zealand-made agar is now obtainable in health food shops.

Section D

Seaweeds are divided into three classes determined by colour - red, brown and green - and each tends to live in a specific location. However, except for the unmistakable sea lettuce (Ulva), few are totally one colour; and especially when dry, some species can change colour quite significantly - a brown one may turn quite black, or a red one appear black, brown, pink or purple.

Identification is nevertheless facilitated by the fact that the factors which determine where a seaweed will grow are quite precise, and they therefore tend to occur in very well-defined zones. Although there are exceptions, the green seaweeds are mainly shallow-water algae; the browns belong to medium depths, and the reds are plants of the deeper water. Flat rock surfaces near mid-level tides are the most usual habitat of sea bombs, Venus' necklace and most brown seaweeds. This is also the location of the purple laver or Maori karengo, which looks rather like a reddish-purple lettuce. Deep-water rocks on open coasts, exposed only at very low tide, are usually the site of bull kelp, strap weeds and similar tough specimens. Those species able to resist long periods of exposure to the sun and air are usually found on the upper shore, while those less able to stand such exposure occur nearer to or below the low-water mark. Radiation from the sun, the temperature level, and the length of time immersed all play a part in the zoning of seaweeds.

Section E

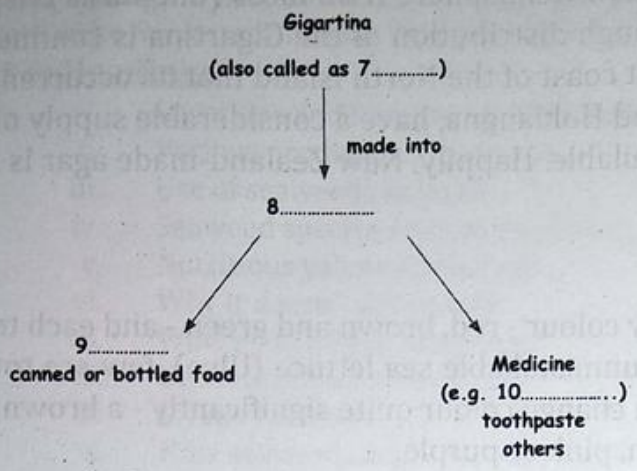
Propagation of seaweeds occurs by spores, or by fertilisation of egg cells. None have roots in the usual sense; few have leaves, and none have flowers, fruits or seeds. The plants absorb their nourishment through their fronds when they are surrounded by water: the base or "holdfast" of seaweeds is purely an attaching organ, not an absorbing one.

Section F

Some of the large seaweeds maintain buoyancy with air-filled floats; others, such as bull kelp, have large cells filled with air. Some, which spend a good part of their time exposed to the air, often reduce dehydration either by having swollen stems that contain water, or they may (like Venus' necklace) have swollen nodules, or they may have distinctive shape like a sea bomb. Others, like the sea cactus, are filled with slimy fluid or have coating of mucilage on % the surface. In some of the larger kelps, this coating is not only to keep the plant moist but also to protect it from the violent action of waves.

Questions 7-10

Complete the flow chart below. Choose NO MORE THAN THREE WORDS from the passage for each answer. Write your answers in boxes 7-10 on your answer sheet.



Questions 11-13

Classify the following description as relating to

A. Green seaweeds
B. Brown seaweeds
C. Red seaweeds

Write the correct letter A, B, or C in boxes 11-13 on your answer sheet

11. Can resist exposure to sunlight at high-water mark
12. Grow in far open sea water
13. Share their habitat with karengo

PASSAGE 2

Optimism and Health

Mindset is all. How you start the year will set the template for the rest, and two scientifically backed character traits hold the key: optimism and resilience (if the prospect leaves you feeling pessimistically spineless, the good news is that you can significantly boost both of these qualities).

Faced with 12 months of plummeting economics and rising human distress, staunchly maintaining a rosy view might seem deludedly Pollyannaish. But here we encounter the optimism paradox. As Brice Pitt, an emeritus professor of the psychiatry of old age at Imperial College, London, told me: "Optimists are unrealistic. Depressive people see things as they really are, but that is a disadvantage from an evolutionary point of view. Optimism is a piece of equipment that carried us through millennia of setbacks."

Optimists have plenty to be happy about. In other words, if you can convince yourself that things will get better, the odds of it happening will improve - because you keep on playing the game. In this light, optimism"is a habitual way of explaining your setbacks to yourself", reports Martin Seligman, the psychology professor and author of Learned Optimism. The research shows that when times get tough, optimists do better than pessimists - they succeed better at work, respond better to stress, suffer fewer depressive episodes, and achieve more personal goals.

Studies also show that belief can help with the financial pinch. Chad Wallens, a social forecaster at the Henley Centre who surveyed middle-class Britons' beliefs about income, has found that " the people who feel wealthiest, and those who feel poorest, actually have almost the same amount of money at their disposal . Their attitudes and behaviour patterns, however, are different from one another."

Optimists have something else to be cheerful about - in general, they are more robust. For example, a study of 660 volunteers by the Yale University psychologist Dr. Becca Levy found that thinking positively adds an average of seven years to your life. Other American research claims to have identified a physical mechanism behind this. A Harvard Medical School study of 670 men found that the optimists have significantly better lung function. The lead author, Dr. Rosalind Wright, believes that attitude somehow strengthens the immune system . "Preliminary studies on heart patients suggest that, by changing a person's outlook, you can improve their mortality risk," she says.

Few studies have tried to ascertain the proportion of optimists in the world. But a 1995 nationwide survey conducted by the American magazine Adweek found that about half the population counted themselves as optimists, with women slightly more apt than men (53 per cent versus 48 per cent) to see the sunny side.

Of course, there is no guarantee that optimism will insulate you from the crunch's worst effects, but the best strategy is still to keep smiling and thank your lucky stars. Because (as every good sports coach knows) adversity is character-forming - so long as you practise the skills of resilience. Research among tycoons and business leaders shows that the path to success is often littered with failure: a record of sackings, bankruptcies and blistering castigation. But instead of curling into a foetal ball beneath the coffee table, they resiliently pick themselves up, learn from their pratfalls and march boldly towards the next opportunity.

The American Psychological Association defines resilience as the ability to adapt in the face of adversity, trauma or tragedy. A resilient person may go through difficulty and uncertainty, but he or she will doggedly bounce back.

Optimism is one of the central traits required in building resilience, say Yale University investigators in the. Annual Review of Clinical Psychology. They add that resilient people learn to hold on to their sense of humour and this can help them to keep a flexible attitude when big changes of plan are warranted . The ability to accept your lot with equanimity also plays an important role, the study adds.

One of the best ways to acquire resilience is through experiencing a difficult childhood , the sociologist Steven Stack reports in the Journal of Social Psychology. For example, short men are less likely to commit suicide than tall guys, he says, because shorties develop psychological defence skills to handle the bullies and mickey-taking that their lack of stature attracts. By contrast, those who enjoyed adversity-free youths can get derailed by setbacks later on because they've never been inoculated against aggro.

If you are handicapped by having had a happy childhood, then practising proactive optimism can help you to become more resilient. Studies of resilient people show that they take more risks; 'they court failure and learn not to fear it.

And despite being thick-skinned, resilient types are also more open than average to other people. Bouncing through knock-backs is all part of the process. It's about optimistic risk-taking - being confident that people will like you. Simply smiling and being warm to people can help. It's an altruistic path to self-interest - and if it achieves nothing else, it will reinforce an age-old adage: hard times can bring out the best in you.

C. As might be expected, the Europeans who settled on the east coast of the United States cultivated crops like wheat and apples, which they had brought with them. European weeds, which the colonists did not cultivate, and, in fact, preferred to uproot, also fared well in the New World. John Josselyn, an Englishman and amateur naturalist who visited New England twice in the seventeenth century, left us a list, "Of Such Plants as Have Sprung Up since the English Planted and Kept Cattle in New England," which included couch grass, dandelion, shepherd's purse, groundsel, sow thistle, and chickweed.

One of these, a plantain (Plantago major), was named "Englishman's Foot" by the Amerindians of New England and Virginia who believed that it would grow only where the English "have trodden, and was never known before the English came into this country". Thus, as they intentionally sowed Old World crop seeds, the European settlers were unintentionally contaminating American fields with weed seeds. More importantly, they were stripping and burning forests, exposing the native minor flora to direct sunlight, and the hooves and teeth of Old World livestock. The native flora could not tolerate the stress. The imported weeds could, because they had lived with large numbers of grazing animals for thousands of years.

D. Cattle and horses were brought ashore in the early 1600s and found hospitable climate and terrain in North America . Horses arrived in Virginia as early as 1620 and in Massachusetts in 1629. Many wandered free with little more evidence of their connection to humanity than collars with a hook at the bottom to catch on fences as they tried to leap over them to get at crops. Fences were not for keeping livestock in, but for keeping livestock out.

E. Native American resistance to the Europeans was ineffective. Indigenous peoples suffered from white brutality, alcoholism, the killing and driving off of game , and the expropriation of farmland, but all these together are insufficient to explain the degree of their defeat. The crucial factor was not people, plants, or animals, but germs. Smallpox was the worst and the most spectacular of the infectious diseases mowing down the Native Americans . The first recorded pandemic of that disease in British North America detonated among the Algonquin of Massachusetts in the early 1630s. William Bradford of Plymouth Plantation wrote that the victims "fell down so generally of this disease as they were in the end not able to help one another, no, not to make a fire nor fetch a little water to drink, nor any to bury the dead". Themissionaries and the traders who ventured into the American interior told the same appalling story about smallpox and the indigenes. In 1738 alone, the epidemic destroyed half the Cherokee; in 1759 nearly half the Catawbas; in the first years of the next century, two thirds of the Omahas and perhaps half the entire population between the Missouri River and New Mexico; in 1837-38 nearly every last one of the Mandans and perhaps half the people of the high plains.

F. The export of America's native animals has not revolutionised Old World agriculture or ecosystems as the introduction of European animals to the New World did . America's grey squirrels and muskrats and a few others have established themselves east of the Atlantic and west of the Pacific, but that has not made much of a difference. Some of America's domesticated animals are raised in the Old World, but turkeys have not displaced chickens and geese , and guinea pigs have proved useful in laboratories, but have not usurped rabbits in the butcher shops.

G. The New World's great contribution to the Old is in crop plants. Maize, white potatoes, sweet potatoes, various squashes, chiles, and manioc have become essentials in the diets of hundreds of millions of Europeans, Africans, and Asians. Their influence on Old World peoples, like that of wheat and rice on New World peoples, goes far to explain the global population explosion of the past three centuries . The Columbian Exchange has been an indispensable factor in that demographic explosion.

H. All this had nothing to do with superiority or inferiority of bio-systems in any absolute sense. It has to do with environmental contrasts. Amerindians were accustomed to living in one particular kind of environment, Europeans and Africans in another. When the Old World peoples came to America, they brought with them all their plants, animals, and germs, creating a kind of environment to

which they were already adapted, and so they increased in number. Amerindians had not adapted to European germs, and so initially their numbers plunged. That decline has reversed in our time as Amerindian populations have adapted to the Old World's environmental influence, but the demographic triumph of the invaders, which was the most spectacular feature of the Old World's invasion of the New, still stands.

Questions 27-34

Reading Passage 3 has eight paragraphs A-H. Which paragraph contains the following information? Write the correct letter A-H in boxes 27-34 on your answer sheet.

27. A description of an imported species that is named after the English colonists
28. The reason why both the New World and Old World experienced population growth.
29. The formation of new continents explained
30. The reason why the indigenous population declined
31. An overall description of the species lacked in the Old World and New World
32. A description of some animal species being ineffective in affecting the Old World
33. An overall explanation of the success of the Old World species invasion
34. An account of European animals taking roots in the New World

Questions 35-38

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

TRUE if the statement agrees with the information
FALSE if the statement contradicts the information
NOT GIVEN if there is no information on this

35. European settlers built fences to keep their cattle and horses inside.
36. The indigenous people had been brutally killed by the European colonists.
37. America's domesticated animals, such as turkey, became popular in the Old World.
38. Crop exchange between the two worlds played a major role in world population

Questions 39-40

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

39. Who reported the same story of European diseases among the indigenes from the American interior?
40. What is the still existing feature of the Old World's invasion of the New?

READING 14 ANSWERS

1. V
2. II
3. VIII
4. I
5. X
6. VI
7. NEW ZEALAND CARRAGEEN
8. AGAR
9. SEAMEAL
10. COUGH MIXTURE
11. A
12. C
13. B
14. 7/SEVEN
15. LUNG FUNCTION
16. IMMUNE SYSTEM
17. HEART PATIENTS
18. C
19. A
20. E
21. G
22. D
23. NOT GIVEN
24. NOT GIVEN
25. NO
26. YES
27. C
28. G
29. A
30. E
31. B
32. F
33. H
34. D
35. FALSE
36. TRUE
37. FALSE
38. TRUE
39. MISSIONARIES AND TRADERS
40. DEMOGRAPHIC TRIUMPH

READING 15

PASSAGE 1

Roles and Responsibilities in management positions

When students graduate and first enter the workforce, the most common choice is to find an entry-level position. This can be a job such as an unpaid internship, an assistant, a secretary, *or* a junior partner position. Traditionally, we start with simpler jobs and work our way up. Young professionals start out with a plan to become senior partners, associates or even managers of a workplace. However, these promotions can be few and far between, leaving many young professionals unfamiliar with management experience. An important step is understanding the role and responsibilities of a person in a managing position. Managers are organizational members who are responsible for the work performance of other organisational members Managers have formal authority to use organisational resources and to make decisions. Managers at different levels of the organisation engage in different amounts of time of the four managerial functions of planning, organising, leading, and controlling.

However, as many professionals Already *know,* managing styles can be very different depending on where you work. Some managing styles are strictly hierarchical. Other managing styles can be more casual and relaxed, where the manager may act more like a team member rather than a strict boss. Many researchers have created a more scientific approach in studying these different approaches to managing. In the 1960s, researcher Henry Mintzberg created a seminal organisational model using three categories. These categories represent three major functional approaches, which are designated as interpersonal, informational and decisional.

Introduced Category I: INTERPERSONAL ROLES. Interpersonal roles require managers to direct and supervise employees and the organisation. The figurehead is typically a top of middle manager. This manager may communicate future organisational goals or ethical guidelines to employees at company meetings. They also attend ribbon-cutting ceremonies, host receptions, presentations and other activities associated with the figurehead rule. A leader acts as an example for other employees to follow, gives commands and directions to subordinates, makes decisions, and mobilise employee support. They are also responsible for the selection and training of employees. Managers must be leaders at all levels of the organisation, often lower-level managers look to lop management for this leadership example. In the rule of liaison, a manager must coordinate the work of others in different work units, establish alliances between others, and work to share resources. This role is particularly critical for middle managers, who must often compete with other managers for important resources, yet must maintain successful working relationships with them for long time periods.

Introduced Category 2: INFORMATIONAL ROLES Informational roles are those in which managers obtain and transmit information. These roles have changed dramatically as technology has improved. The monitor evaluates the performance of others and takes corrective action to improve that performance. Monitors also watch for changes in the environment and within the company that may affect individual and organisational performance. Monitoring occurs at all levels of management. The role of disseminator requires that managers inform employees of changes that affect them and the organisation. They also communicate the company's vision and purpose.

Introduced Category 3: DECISIONAL ROLES. Decisional roles require managers to plan strategy and utilise resources. There are four specific roles that are decisional. The entrepreneur role requires the manager to assign resources to develop innovative goods and services, or to expand a business. The disturbance handler corrects unanticipated problems facing the organisation from the internal or external environment. The third decisional role, that of resource allocator, involves determining which work units will get which resources. Top managers are likely to make large, overall budget decisions,

while middle managers may make more specific allocations. Finally, the negotiator works with others, such as suppliers, distributors, or labor unions, to reach agreements regarding products and services.

Although Mintzberg's initial research in 1960s helped categorise manager approaches, Mintzberg was still concerned about research involving other roles in the workplace. Mintzberg considered expanding his research to other roles, such as the role of disseminator, figurehead, liaison and spokesperson. Each role would have different special characteristics, and a new categorisation system would have to be made for each role to understand it properly.

While Mintzberg's initial research was helpful in starting the conversation, there has since been criticism of his methods from other researchers. Some criticisms of the work were that even though there were multiple categories, the role of manager is still more complex. There are still many manager roles that are not as traditional and are not captured in Mintzberg's original three categories. In addition, sometimes. Mintzberg's research was not always effective. The research, when applied to real-life situations, did not always improve the management process in real-life practice.

These two criticisms against Mintzberg's research method raised some questions about whether or not the research was useful to how we understand "managers" in today's world. However, even if the criticisms against Mintzberg's work are true, it does not mean that the original research from the 1960s is completely useless. Those researchers did not say Mintzberg's research is invalid. His research has two positive functions to the further research.

The first positive function is Mintzberg provided a useful functional approach to analyse management. And he used this approach to provide a clear concept of the role of manager to the researcher. When researching human behavior, it is important to he concise about the subject of the research. Mintzberg's research has helped other researchers clearly define what a "manager" is, because in real-life situations, the "manager" is not always the same position title. Mintzberg's definitions added clarity and precision to future research on the topic.

The second positive function is Mintzberg's research could be regarded as a good beginning to give a new insight to further research on this field in the future. Scientific research is always a gradual process. Just because Mintzberg's initial research had certain flaws, does not mean it is useless to other researchers. Researchers who are interested in studying the workplace in a systematic way have older research to look back on. A researcher doesn't have to start from the very beginning - older research like Mintzberg's have shown what methods work well and what methods are not as appropriate for workplace dynamics. As more young professionals enter the job market, this research will continue to study and change the way we think about the modern workplace.

Questions 1-6

Look at the following descriptions or deeds (Questions 1-6) and the list of categories below. Match each description or deed with the correct category, A, B or C. Write the correct letter. A, B. or C, in boxes 1-6 on your answer sheet.

NB You may use any letter more than once.

List of Categories

A. INTERPERSONAL ROLES
B. INFORMATIONAL ROLES
C. DECISIONAL ROLES

1. the development of business scheme
2. presiding at formal events
3. using employees and funds
4. getting and passing message on to related persons
5. relating the information to employees and organisation
6. recruiting the staff

Questions 7 and 8

Choose TWO letters, A-E. Write the correct letters in boxes 7 and 8 on your answer sheet.

Which TWO positive functions about Mintzberg's research are mentioned in the last two paragraphs?

A. offers waterproof categories of managers
B. provides a clear concept to define the role of a manager
C. helps new graduates to design their career
D. suggests ways for managers to do their job better
E. makes a fresh way for further research

Questions 9-13

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

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts with the information*
NOT GIVEN *if there is no information on this*

9. Young professionals can easily know management experience in the workplace.
10. Mintzberg's theory broke well-established notions about managing styles.
11. Mintzberg got a large amount of research funds for his contribution.
12. All managers do the same work.
13. Mintzberg's theory is invalid in the future studies.

PASSAGE 2

Multitasking and Concentration

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

B. The world has been changed by computers and its spin-offs like smart-phones or cell-phones. Now that most individuals have a personal device, like a smart-phone or a laptop, they are frequently reading, watching or listening to virtual information. This raises the occurrence of multitasking in our day to day life. Now when you work, you work with your typewriter, your cellphone, and some

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

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

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

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

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

Questions 14-18

Reading Passage 2 has six paragraphs, A-F. Which paragraph contains the following information?

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

Questions 19-23

Look at the following statements (Questions 19-23) and the list of scientists below. Match each statement with the correct scientist, A-E. NB You may use any letter more than once.

List of Scientists

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

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

Questions 24-26

Complete the sentences below. Choose NO MORE THAN TWO WORDS from the passage for each answer. Write your answers in boxes 24-26 on your answer sheet

24. A term used to refer to a situation when you are reading a text and cannot focus on your surroundings is .....
25. The.....part of the brain controls multitasking.
26. The practical solution of multitask in work is not to allow use of cellphone in.....

PASSAGE 3

The Roie of Pharmaceutical Industry in patient safety

Packaging

One of the most prominent design issues in pharmacy is that of drug packaging and patient information leaflets (PILs). Many letters have appeared in *The Journal's* letters pages over the years from pharmacists dismayed at the designs of packaging that are "accidents waiting to happen".

Packaging design in the pharmaceutical industry is handled by either in-house teams or design agencies. Designs for over-the-counter medicines, where characteristics such as attractiveness and distinguishability arc regarded as significant, are usually commissioned from design agencies. A marketing team will prepare a brief and the designer will come up with perhaps six or seven designs. These are whittled down to two or three that might be tested on a consumer group. In contrast, most designs for prescription-only products are created m-house. In some cases, this may simply involve applying a company's house design (ie. logo, colour, font, etc). The chosen design is then handed over to design engineers who work out how the packaging will be produced.

Design considerations

The author of the recently published "Information design for patient safety," Thea Swayne, tracked the journey of a medicine from manufacturing plant, through distribution warehouses, pharmacies and hospital wards, to patients' homes Her book highlights a multitude of design problems with current packaging, such as look-alikes and sound-alikes, small type sizes and glare on blister foils. Situations in which medicines are used include a parent giving a cough medicine to a child in the middle of the night and a busy pharmacist selecting one box from hundreds. It is argued that packaging should be designed for moments such as these. "Manufacturers are not aware of the complex situations into which products go. As designers, we are interested in not what is supposed to happen in (hospital] wards, but what happens in the real world," Ms. Swayne said.

Incidents where vein has been injected intrathecally instead of spine are a classic example of how poor design can contribute to harm. Investigations following these tragedies have attributed some blame to poor typescript

Safety and compliance

Child protection is another area that gives designers opportunities to improve safety. According to the Child Accident Prevention Trust, seven out of 10 children admitted to hospital with suspected poisoning have swallowed medicines. Although child-resistant closures have reduced the number of incidents, they are not fully child-proof. The definition of such a closure is one that not more than 15 percent of children aged between 42 and 51 months can open within five minutes. There is scope for improving what is currently available, according to Richard Mawle, a freelance product designer. "Many child-resistant packs are based on strength. They do not necessarily prevent a child from access, but max prevent people with a disability," he told *The Journal.* "The legal requirements are there for a good reason, but they are not good enough in terms of the users." he said. "Older people, especially those with arthritis, may have the same level of strength as a child," he explained and suggested that better designs could rely on cognitive skills (eg, making the opening of a container a three-step process) or be based on the physical size of hands.

Mr. Mawle worked with GlaxoSmithKline on a project to improve compliance through design, which involved applying his skills to packaging and PILs. Commenting on the information presented, he said: "There can be an awful lot of junk at the beginning of PILs, For example, why are company details listed towards the beginning of a leaflet when what might be more important for the patient is that the medicine should not be taken with alcohol?"

Design principles and guidelines

Look-alike boxes present a potential for picking errors and an obvious solution would be to use colours to highlight different strengths. However, according to Ms. Swayne, colour differentiation needs to be approached with care. Not only should strong colour contrasts be used, but designating a colour to a particular strength (colour coding) is not recommended because this could lead to the user not reading the text on a box.

Design features can provide the basis for lengthy debates. For example, one argument is that if all packaging is white with black lettering, people would have no choice but to read every box carefully, The problem is that trials of drug packaging design are few—common studies of legibility and comprehensibility concern road traffic signs and visual display units. Although some designers take results from such studies into account, proving that a particular feature is beneficial can be difficult. For example, EU legislation requires that packaging must now include the name of the medicine in Braille but, according to Karel van der Waarde, a design consultant to the pharmaceutical industry. It is not known how much visually impaired patients will benefit nor how much the reading of visually able patients will be impaired".

More evidence might, however, soon be available. EU legislation requires PILs to reflect consultations with target patient groups to ensure they are legible* clear and easy to use. This implies that industry will have to start conducting tests- Dr. van der Waarde has performed readability studies on boxes and PILs for industry. A typical study involves showing a leaflet or package to a small group and asking them questions to test understanding. Results and comments are used to modify the material, which is then tested on a larger group- A third group is used to show that any further changes made are an improvement. Dr. van der Waarde is, however, sceptical about the legal requirements and says that many regulatory authorities do not have the resources to handle packaging information properly. "They do not look at the use of packaging in a practical context—they only see one box at a time and not several together as pharmacists would do," he said.

Innovations

The RCA innovation exhibition this year revealed designs for a number of innovative objects. "The popper", by Hugo Glover, aims to help arthritis sufferers remove tablets from blister packs, and "pluspoint", by James Cobb, is an adrenaline auto-injector that aims to overcome the fact that many patients do not carry their auto-injectors due to their prohibitive size. The aim of good design, according Roger Coleman, professor of inclusive design at the RCA, is to try to make things more user-friendly as well as safer. Surely, in a patient-centered health system, that can only be a good thing. Information design for patient safety" *is* not intended to be mandatory. Rather, its purpose is to create a basic design standard and to stimulate innovation. The challenge for the pharmaceutical industry, as a whole, is to adopt such a standard.

Questions 27-32

Look at the following statements (Questions 27-32) and the list of people or organisation below. Match each statement with the correct person or organisation, A-D. NB You may use any letter more than once.

A. Thea Swayne
B. Children Accident Prevention Trust
C. Richard Mawle
D. Karel van der Waarde

27. Elderly people may have the same problem with children if the lids of containers require too much strength to open.
28. Adapting packaging for the blind may disadvantage the sighted people.
29. Specially designed lids cannot eliminate the possibility of children swallowing pills accidentally.
30. Container design should consider situations, such as drug used at home.
31. Governing bodies should investigate many different container cases rather than individual ones.
32. Information on the list of a leaflet hasn't been in the right order

Questions 33-37

Complete the notes using the list of words, A-G, below. Write the correct letter, A-G, in boxes 33-37 on your answer sheet.

Packaging in pharmaceutical industry

Designs for over-the-counter medicines

First, 33.....make the proposal, then pass them to the 34.....

Finally, these designs will be tested by 35 .....

Prescription-only

First, the design is made by 36.....and then subjected to 37.....

A. consumers
B. marketing teams
C. pharmaceutical industry
D. external designers
E. in-house designers
F. design engineers
G. pharmacist

Questions 38-40

Choose the correct letter, A. B, C or D. Write the correct letter in boxes 38-40 on your answer sheet.

38. What may cause the accident in "design container"?

A. a print error
B. style of print
C. wrong label
D. the shape of the bottle

39. What do people think about the black and white only print?

A. Consumers dislike these products.
B. People have to pay more attention to the information.
C. That makes all products looks alike.
D. Sighted people may feel it more helpful.

40 Why does the writer mention "popper" and "pluspoint"?

A. to show that container design has made some progress
B. to illustrate an example of inappropriate design which can lead to accidents
C. to show that the industry still needs more to improve
D. to point out that consumers should be more informed about the information

READING 15 ANSWERS

1. C
2. A
3. C
4. B
5. B
6. A
7. B*
8. E*
9. FALSE
10. TRUE
11. NOT GIVEN
12. FALSE
13. FALSE
14. B
15. E
16. F
17. C
18. D
19. B
20. D
21. A
22. E
23. E
24. EMAIL VOICE
25. PREFRONTAL CORTEX
26. GROUP MEETINGS
27. C
28. D
29. B
30. A
31. D
32. C
33. B
34. D
35. A
36. E
37. F
38. B
39. B
40. A

READING 16

PASSAGE 1

The Amazing Watkin Tench

At the end of 18th century, life for the average British citizen was changing. The population grew as health and industrialisation took hold of the country. However, land and resources were limited. Families could not guarantee jobs for all of their children. People who were poor or destitute had little option. To make things worse, the rate of people who turned to crime to make a living increased. In Britain, the prisons were no longer large enough to hold the convicted people of this growing criminal class. Many towns and governments were at a loss as to what to do. However, another phenomenon that was happening in the 18th century was exploration of other continents. There were many ships looking for crew members, who would risk a month-long voyage across a vast ocean. This job was risky and dangerous, so few would willingly choose it. However, with so many citizens without jobs or with criminal convictions, they had little choice. One such member of this new lower class of British citizens was named Watkin Tench. Between 1788 and 1868, approximately 161,700 convicts were transported to the Australian colonies of New South Wales, Van Diemen's land and Western Australia. Tench was one of these unlucky convicts to sign onto a dangerous journey. When his ship set out in 1788, he signed a three years' service to the First Fleet.

Apart from his years in Australia, people knew little about his life back in Britain. It was said he was born on 6 October 1758 at Chester in the county of Cheshire in England. He came from a decent background. Tench was a son of Fisher Tench, a dancing master who ran a boarding school in the town and Margaritta Tarleton of the Liverpool Tarletons. He grew up around a finer class of British citizens, and his family helped instruct the children of the wealthy in formal dance lessons. Though we don't know for sure how Tench was educated in this small British town, we do know that he is well educated. His diaries from his travels to Australia are written in excellent English, a skill that not everyone was lucky to possess in the 18th century. Aside from this, we know little of Tench's beginnings. We don't know how he ended up convicted of a crime. But after he started his voyage, his life changed dramatically.

During the voyage, which was harsh and took many months, Tench described landscape of different places. While sailing to Australia, Tench saw landscapes that were unfamiliar and new to him. Arriving in Australia, the entire crew was uncertain of what was to come in their new life. When they arrived in Australia, they established a British colony. Governor Philip was vested with complete authority over the inhabitants of the colony. Though still a young man, Philip was enlightened for his age. From stories of other British colonies, Philip learnt that conflict with the original peoples of the land was often a source of strife and difficulties. To avoid this, Philip's personal intent was to establish harmonious relations with local Aboriginal people. But Philip's job was even more difficult considering his crew. Other colonies were established with middle-class merchants and craftsmen. His crew were convicts, who had few other skills outside of their criminal histories. Along with making peace with the Aboriginal people, Philip also had to try to reform as well as discipline the convicts of the colony.

From the beginning Tench stood out as different from the other convicts. During his initial time in Australia, he quickly rose in his rank, and was given extra power and responsibility over the convicted crew members. However, he was also still very different from the upper class rulers who came to rule over the crew. He showed humanity towards the convicted workers. He didn't want to treat them as common criminals, but as trained military men. Under Tench's authority, he released the convicts' chains, which were used to control them during the voyage. Tench also showed mercy towards the Aboriginal people. Governor Philip often pursued violent solutions to conflicts with the Aboriginal

peoples. Tench disagreed strongly with this method. At one point, he was unable to follow the order given by the Governor Philip to punish the ten Aboriginals.

When they first arrived, Tench was fearful and contemptuous towards the Aboriginals, because the two cultures did not understand each other. However, gradually he got to know them individually and became close friends with them. Tench knew that the Aboriginal people would not cause them conflict if they looked for a peaceful solution. Though there continued to be conflict and violence, Tench's efforts helped establish a more peaceful negotiation between the two groups when they settled territory and land-use issues.

Meanwhile, many changes were made to the new colony. The Hawkesbury River was named by Governor Philip in June 1789. Many native bird species to the river were hunted by travelling colonists. The colonists were having a great impact on the land and natural resources. Though the colonists had made a lot of progress in the untamed lands of Australia, there were still limits. The convicts were notoriously ill-informed about Australian geography, as was evident in the attempt by twenty absconders to walk from Sydney to China in 1791, believing: "China might be easily reached, being not more than a hundred miles distant, and separated only by a river". In reality, miles of ocean separated the two.

Much of Australia was unexplored by the convicts. Even Tench had little understanding of what existed beyond the established lines of their colony. Slowly, but surely, the colonists expanded into the surrounding area. A few days after arrival at Botany Bay, their original location, the fleet moved to the more suitable Port Jackson where a settlement was established at Sydney Cove on 26 January 1788, This second location was strange and unfamiliar, and the fleet was on alert for any kind of suspicious behaviors. Though Tench had made friends in Botany Bay with Aboriginal peoples, he could not be sure this new land would be uninhabited. He recalled the first time he stepped into this unfamiliar ground with a boy who helped Tench navigate. In these new lands, he met an old Aboriginal.

Questions 1-6

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

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts with the information
NOT GIVEN	if there is no information on this

1. There was a great deal of information available about the life of Tench before he arrived in Australia.
2. Tench drew pictures to illustrate different places during the voyage.
3. Military personnel in New South Wales treated convicts kindly.
4. Tench's view towards the Aboriginals remained unchanged during his time in Australia.
5. An Aboriginal gave him gifts of food at the first time they met.
6. The convicts had a good knowledge of Australian geography.

Questions 7-13

Answer the questions below. Choose NO MORE THAN TWO WORDS AND/OR A NUMBER from the passage for each answer. Write your answers in boxes 7-13 on your answer sheet.

7. What could be a concrete proof of Tench's good education?
8. How many years did Tench sign the contract to the First Fleet?
9. What was used to control convicts during the voyage?
10. Who gave the order to punish the Aboriginals?
11. When did the name of Hawkesbury River come into being?
12. Where did the escaped convicts plan to go?
13. Where did Tench first meet an old Aboriginal?

PASSAGE 2

Questions 14-19

Reading Passage 2 has six paragraphs, A-F. *Choose the correct heading for each paragraph from the list of headings below. Write the correct number, i-viii. in boxes 14-19 on your answer sheet.*

List of Headings

I. Unsuccessful deceit
II. Biological basis between liars and artists
III. How to lie in an artistic way
IV. Confabulations and the exemplifies
V. The distinction between artists and common liars
VI. The fine line between liars and artists
VII. The definition of confabulation
VIII. Creativity when people lie

14 Paragraph A
15 Paragraph B
16 Paragraph C
17 Paragraph D
18 Paragraph E
19 Paragraph F

Is Lying an Art?

A. Shortly before his death, Marlon Brando was working on a series of instructional videos about acting, to be called "Lying for a Living"'. On the surviving footage, Brando can be seen dispensing gnomic advice on his craft to a group of enthusiastic, if somewhat bemused, Hollywood stars, including Leonardo Di Caprio and Sean Penn. Brando also recruited random people from the Los Angeles street and persuaded them to improvise (the footage is said to include a memorable scene featuring two dwarves and a giant Samoan). "If you can lie you can act," Brando told Jod Kaftan, a writer for Rolling Stone and one of the few people to have viewed the footage. "Are you good at lying?" asked Kaftan. "Jesus." said Brando, I'm fabulous at it."

B. Brando was not the first person to note that the line between an artist and a liar is a fine one. If art is a kind of lying, then lying is a form of art, albeit of a lower order—as Oscar Wilde and Mark Twain have observed. Indeed, lying and artistic storytelling spring from a common neurological root—one that is exposed in the cases of psychiatric patients who suffer from a particular kind of impairment. Both liars and artists refuse to accept the tyranny of reality. Both carefully craft stories that are worthy of belief—a skill requiring intellectual sophistication, emotional sensitivity and

physical self-control (liars are writers and performers of their own work). Such parallels are hardly coincidental, as I discovered while researching my book on lying.

C. A case study published in 1985 by Antonio Damasio, a neurologist, tells the story of a middle-aged woman with brain damage caused by a series of strokes. She retained cognitive abilities, including coherent speech, but what she actually said was rather unpredictable. Checking her knowledge of contemporary events, Damasio asked her about the Falklands War. In the language of psychiatry, this woman was "confabulating". Chronic confabulation is a rare type of memory problem that affects a small proportion of brain-damaged people. In the literature it is defined the production of fabricated, distorted or misinterpreted memories about oneself or the world, without the conscious intention to deceive". Whereas amnesiacs make errors of omission — there are gaps in their recollections they find impossible to fill—confabulators make errors of commission: they make things up. Rather than forgetting, they are inventing. Confabulating patients are nearly always oblivious to their own condition, and will earnestly give absurdly implausible explanations of why they're in hospital, or talking to a doctor. One patient, asked about his surgical scar, explained that during the Second World War he surprised a teenage girl who shot him three times in the head, killing him, only for surgery to bring him back to life. The same patient, when asked about his family, described how at various times they had died in his arms, or had been killed before his eyes. Others tell yet more fantastical tales, about trips to the moon, fighting alongside Alexander in India or seeing Jesus on the Cross. Confabulators aren't out to deceive. They engage in what Morris Moscovitch, a neuropsychologist, calls "honest lying". Uncertain, and obscurely distressed by their uncertainty, they are seized by a "compulsion to narrate" a deep-seated need to shape, order and explain what they do not understand. Chronic confabulators are often highly inventive at the verbal level, jamming together words in nonsensical but suggestive ways: one patient, when asked what happened to Queen Marie Antoinette of France, answered that she had been "suicided" by her family. In a sense, these patients are like novelists, as described by Henry James: people on whom "nothing is wasted". Unlike writers, however, they have little or no control over their own material.

D. The wider significance of this condition is what it tells us about ourselves. Evidently there is a gushing river of verbal creativity in the normal human mind, from which both artistic invention and lying are drawn. We are born storytellers, spinning narrative out of our experience and imagination, straining against the leash that keeps us tethered to reality. This is a wonderful thing; it is what gives us our ability to conceive of alternative futures and different worlds. And it helps us to understand our own lives through the entertaining stories of others. But it can lead us into trouble, particularly when we try to persuade others that our inventions are real. Most of the time, as our stories bubble up to consciousness, we exercise our cerebral censors, controlling which stories we tell and to whom. Yet people lie for all sorts of reasons, including the fact that confabulating can be dangerously fun.

E. During a now famous libel case in 1996, Jonathan Aitken, a former cabinet minister, recounted a tale to illustrate the horrors he endured after a national newspaper tainted his name. The case, which stretched on for more than two years, involved a series of claims made by the Guardian about Aitken's relationships with Saudi arms dealers, including meetings he allegedly held with them on a trip to Paris while he was a government minister. What amazed many in hindsight was the sheer superfluity of the lies Aitken told during his testimony. Aitken's case collapsed in June 1997, when the defense finally found indisputable evidence about his Paris trip. Until then, Aitken's charm,

fluency and flair for theatrical displays of sincerity looked as if they might bring him victory. They revealed that not only was Aitken's daughter not with him that day (when he was indeed doorstepped), but also that the minister had simply got into his car and drove off, with no vehicle in pursuit.

F. Of course, unlike Aitken, actors, playwrights and novelists are not literally attempting to deceive us, because the rules are laid out in advance: come to the theatre, or open this book, and we'll lie to you. Perhaps this is why we felt it necessary to invent art in the first place; as a safe space into which our lies can be corralled, and channeled into something socially useful. Given the universal compulsion to tell stories, art is the best way to refine and enjoy the particularly outlandish or insightful ones. But that is not the whole story. The key way in which artistic "lies" differ from normal lies, and from the "honest lying" of chronic confabulators, is that they have a meaning and resonance beyond their creator. The liar lies on behalf of himself: the artist tell lies on behalf of everyone. If writers have a compulsion to narrate, they compel themselves to find insights about the human condition. Mario Vargas Llosa has written that novels "express a curious truth that can only be expressed in a furtive and veiled fashion, masquerading as what it is not. " Art is a lie whose secret ingredient is truth.

Questions 20 and 21

Choose TWO letters, A-E. Write the correct letters in boxes 20 and 21 on your answer sheet. Which TWO of the following statements about people suffering from confabulation are true?

A. They have lost cognitive abilities,
B. They do not deliberately tell a lie.
C. They are normally aware of their condition.
D. They do not have the impetus to explain what they do not understand.
E. They try to make up stories.

Questions 22 and 23

Choose TWO letters. A-E. Write the correct letters in boxes 22 and 23 on your answer sheet. Which TWO of the following statements about playwrights and novelists are true?

A. They give more meaning to the stories.
B. They tell lies for the benefit of themselves.
C. They have nothing to do with the truth out there.
D. We can be misled by them if not careful.
E. We know there are lies in the content.

Questions 24-26

Complete the summary below. Choose NO MORE THAN TWO WORDS from the passage for each answer. Write your answers in boxes 24-26 on your answer sheet.

A 24 ..... accused Jonathan Aitken, a former cabinet minister, who was selling and buying with 25 ..... Aitken's case collapsed in June 1997, when the defense finally found indisputable evidence about his Paris trip. He was deemed to have his 26 ..... They revealed that not only was Aitken's daughter not with him that day, but also that the minister had simply got into his car and drove off, with no vehicle in pursuit.

PASSAGE 3

Is Academic Research Useful?
—What is the point of research carried out by biz schools?

Students go to universities and other academic institutions to prepare for their future. We pay tuition and struggle through classes in the hopes that we can find a fulfilling and exciting career. But the choice of your university has a large influence on your future. How can you know which university will prepare you the best for your future? Like other academic institutions, business schools are judged by the quality of the research carried out by their faculties. Professors must both teach students and also produce original research in their own field. The quality of this research is assessed by academic publications. At the same time, universities have another responsibility to equip their students for the real world, however that is defined. Most students learning from professors will not go into academics themselves—so how do academics best prepare them for their future careers, whatever that may be? Whether academic research actually produces anything that is useful to the practice of business, or even whether it is its job to do so, are questions that can provoke vigorous arguments on campus.

The debate, which first flared during the 1950s, was reignited in August, when AACSB International, the most widely recognised global accrediting agency for business schools, announced it would consider changing the way it evaluates research. The news followed rather damning criticism in 2002 from Jeffrey Pfeffer, a Stanford professor, and Christina Fong of Washington University, which questioned whether business education in its current guise was sustainable. The study found that traditional modes of academia were not adequately preparing students for the kind of careers they faced in current times. The most controversial recommendation in AACSB's draft report (which was sent round to administrators for their comment) is that the schools should be required to demonstrate the value of their faculties' research not simply by listing its citations in journals, but by demonstrating the impact it has in the professional world. New qualifiers, such as average incomes, student placement in top firms and business collaborations would now be considered just as important as academic publications.

AACSB justifies its stance by saying that it wants schools and faculty to play to their strengths, whether they be in pedagogy, in the research of practical applications, or in scholarly endeavor. Traditionally, universities operate in a pyramid structure. Everyone enters and stays in an attempt to be successful in their academic field. A psychology professor must publish competitive research in the top neuroscience journals. A Cultural Studies professor must send graduate students on new field research expeditions to be taken seriously. This research is the core of a university's output. And research of any kind is expensive—AACSB points out that business schools in America alone spend more than $320m a year on it. So it seems legitimate to ask for what purpose it is undertaken.

If a school chose to specialise in professional outputs rather than academic outputs, it could use such a large sum of money and redirect it into more fruitful programs. For example, if a business school wanted a larger presence of employees at top financial firms, this money may be better spent on a career center which focuses on building the skills of students, rather than paying for more high-level research to be done through the effort of faculty. A change in evaluation could also open the door to inviting more professionals from different fields to teach as adjuncts. Students could take accredited courses from people who are currently working in their dream field. The AACSB insists that universities answer the question as to why research is the most critical component of traditional education.

On one level, the question is simple to answer Research in business schools, as anywhere else, is about expanding the boundaries of knowledge; it thrives on answering unasked questions. Surely this pursuit of knowledge is still important to the university system. Our society progresses because we learn how to do things in new ways, a process, which depends heavily on research and academics. But one cannot ignore the other obvious practical uses of research publications. Research is also about cementing schools'—and professors'—reputations. Schools gain kudos from their faculties' record of publication: which journals publish them, and how often. In sonic cases, such as with government-funded schools in Britain, it can affect how much money they receive. For professors, the mantra is often "publish or perish". Their careers depend on being seen in the right journals.

But at a certain point, one has to wonder whether this research is being done for the benefit of the university or for the students the university aims to teach. Greater publications will attract greater funding, which will in turn be spent on better publications. Students seeking to enter professions out of academia find this cycle frustrating, and often see their professors as being part of the "Ivory Tower" of academia, operating in a self-contained community that has little influence on the outside world.

The research is almost universally unread by real-world managers. Part of the trouble is that the journals labour under a similar ethos. They publish more than 20,000 articles each year. Most of the research is highly quantitative, hypothesis-driven and esoteric. As a result, it is almost universally unread by real-world managers. Much of the research criticises other published research. A paper in a 2006 issue of *Strategy & Leadership* commented that "research is not designed with managers' needs in mind, nor is it communicated in the journals they read. For the most part it has become a self-referential closed system (irrelevant to] corporate performance." The AACSB demands that this segregation must change for the future of higher education. If students must invest thousands of dollars for an education as part of their career path, the academics, which serve the students should be more fully incorporated into the professional world. This means that universities must focus on other strengths outside of research, such as professional networks, technology skills, and connections with top business firms around the world. Though many universities resisted the report, today's world continues to change. The universities which prepare students for our changing future have little choice but to change with new trends and new standards.

Questions 27-29

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

27. In the second paragraph, the recommendation given by AACSB is
    A. to focus on listing research paper's citation only.
    B. to consider the quantity of academic publications
    C. to evaluate how the paper influences the field.
    D. to maintain the traditional modes of academia.
28. Why does AACSB put forward the recommendation?
    A. to give fall play to the faculties' advantage.
    B. to reinforce the pyramid structure of universities,
    C. to push professors to publish competitive papers.
    D. to reduce costs of research in universities.
29. Why does the author mention the Journal *Strategy & Leadership!*
    A. to characterize research as irrelevant to company performance.
    B. to suggest that managers don't read research papers.
    C. to describe students' expectation for universities.
    D. to exemplify high-quality research papers.

Questions 30 and 31

Choose TWO letters, A-E. Write the correct letters in boxes 30 and 31 on your answer sheet. Which TWO choices are in line with Jeffrey Pfeffer and Christina Fong's idea?

A. Students should pay less to attend universities*
B. Business education is not doing their job well.
C. Professors should not focus on writing papers.
D. Students are ill-prepared for their career from universities.
E. Recognized accrediting agency can evaluate research well.

Questions 32-36

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

TRUE	If the statement agrees with the information
FALSE	if the statement contradicts with the information
NOT GIVEN	if there is no information on this

32. The debate about the usefulness of academic research for business practices is a recent one.
33. ACSB's draft report was not reviewed externally.
34. Business schools in the US spend more than 320 million dollars yearly on research.
35. Many universities pursue professional outputs.
36. Greater publications benefit professors and students as well.

Questions 37 - 40

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

37 Most professors support academic research because
38 Schools support academic research because
39 Our society needs academic research because
40 Universities resisting the AACSB should change because

A. it progresses as we learn innovative ways of doing things.
B. the trends and standards are changing.
C. their jobs depend on it.
D. they care about their school rankings and government funds.
E. it helps students to go into top business firms.

Reading 16 Answers

1. FALSE
2. NOT GIVEN
3. TRUE
4. FALSE
5. NOT GIVEN
6. FALSE
7. HIS DIARIES
8. 3/THREE YEARS
9. CHAINS
10. GOVERNOR PHILIP
11. JUNE 1789
12. CHINA
13. BOTANY BAY
14. VI
15. II
16. IV
17. VIII
18. I
19. V
20. B*
21. E*
22. A**
23. E**
24. NATIONAL NEWSPAPERS
25. ARMS DEALERS
26. VICTORY
27. C
28. A
29. A
30. B*
31. D*
32. FALSE
33. FALSE
34. TRUE
35. NOT GIVEN
36. FALSE
37. C
38. D
39. A
40. B

READING 17

PASSAGE 1

Radiocarbon Dating – Studying the age of inanimate objects - The profile of Nancy Athfield

Have you ever picked up a small stone off the ground and wondered how old it was? Chances are, that stone has been around many more years than your own lifetime. Many scientists share this curiosity about the age of inanimate objects like rocks, fossils and precious stones. Knowing how old an object is can provide valuable information about our prehistoric past. In most societies, human beings have kept track of history through writing. However, scientists arc still curious about the world before writing, or even the world before humans. Studying the age of objects is our best way to piece together histories of our pre-historic past. One such method of finding the age of an object is called radiocarbon dating. This method can find the age of any object based on the kind of particles and atoms that are found inside of the object. Depending on what elements the object is composed of, radiocarbon can be a reliable way to find an object's age. One famous specialist in this method is the researcher Nancy Athfield. Athfield studied the ancient remains found in the country of Cambodia. Many prehistoric remains were discovered by the local people of Cambodia. These objects were thought to belong to some of the original groups of humans that first came to the country of Cambodia. The remains had never been scientifically studied, so Nancy was greatly intrigued by the opportunity to use modern methods to discover the true age of these ancient objects.

Athfield had this unique opportunity because her team, comprised of scientists and filmmakers, were in Cambodia working on a documentary. The team was trying to discover evidence to prove a controversial claim in history: that Cambodia was the resting place for the famous royal family of Angkor. At that time, written records and historic accounts conflicted on the true resting place Many people across the world disagreed over where the final resting place was. For the first time, Athfield and her team had a chance to use radiocarbon dating to find new evidence. They had a chance to solve the historic mystery that many had been arguing over for years.

Athfield and her team conducted radiocarbon dating of many of the ancient objects found in the historic site of Angkor Wat. Nancy found the history of Angkor went back to as early as 1620. According to historic records, the remains of the Angkor royal family were much younger than that, so this evidence cast a lot of doubt as to the status of the ancient remains. The research ultimately raised more questions. If the remains were not of the royal family, then whose remains were being kept in the ancient site? Athfield's team left Cambodia with more questions unanswered. Since Athfield's team studied the remains, new remains have been unearthed at the ancient site of Angkor Wat, so it is possible that these new remains could be the true remains of the royal family. Nancy wished to come back to continue her research one day.

In her early years, the career of Athfleld was very unconventional. She didn't start her career as a scientist. At the beginning, she would take any kind of job to pay her bills. Most of them were low-paying jobs or brief community service opportunities. She worked often but didn't know what path she would ultimately take. But eventually, her friend suggested that Athfield invest in getting a degree. The friend recommended that Athfield attend a nearby university. Though doubtful of her own

qualifications, she applied and was eventually accepted by the school. It was there that she met Willard Libby, the inventor of radiocarbon dating. She took his class and soon had the opportunity to complete hands-on research. She soon realised that science was her passion. After graduation, she quickly found a job in a research institution.

After college, Athfield's career in science blossomed. She eventually married, and her husband landed a job at the prestigious organisation GNN. Athfield joined her husband in the same organisation, and she became a lab manager in the institution. She earned her PhD in scientific research, and completed her studies on a kind of rat in New Zealand. There, she created original research and found many flaws in the methods being used in New Zealand laboratories. Her research showed that the subject's diet led to the fault in the earlier research. She was seen as an expert by her peers in New Zealand, and her opinion and expertise were widely respected. She had come a long way from her old days of working odd jobs. It seemed that Athfield's career was finally taking off.

But Athfield's interest in scientific laboratories wasn't her only interest. She didn't settle down in New Zealand. Instead, she expanded her areas of expertise. Athfield eventually joined the field of Anthropology, the study of human societies, and become a well-qualified archaeologist, It was during her blossoming career as an archaeologist that Athfield became involved with the famous Cambodia project. Even as the filmmakers ran out of funding and left Cambodia, Athfield continued to stay and continued her research,

In 2003, the film was finished in uncertain conclusions, but Nancy continued her research on the ancient ruins of Angkor Wat This research was not always easy Her research was often delayed by lack of funding, and government paperwork. Despite her struggles, she committed to finishing her research. Finally, she made a breakthrough. Using radiocarbon dating, Athfield completed a database for the materials found in Cambodia. As a newcomer to Cambodia, she lacked a complete knowledge of Cambodian geology, which made this feat even more difficult. Through steady determination and ingenuity, Athfield finally completed the database. Though many did not believe she could finish, her research now remains an influential and tremendous contribution to geological sciences in Cambodia In the future, radiocarbon dating continues to he a valuable research skill. Athfield will be remembered as one of the first to bring this scientific method to the study of the ancient ruins of Angkor Wat.

Questions 1-7

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

TRUE if the statement agrees with the information
FALSE if the statement contradicts with the information
NOT GIVEN if there is no information on this

1. Nancy Athfield first discovered the ancient remains in Cambodia.
2. The remains found in the Cambodia were in good condition.
3. Nancy took some time off from her regular work to do research in Cambodia.
4. The Cambodia government asked Nancy to radiocarbon the remains.
5. The filmmakers aimed to find out how the Angkor was rebuilt.
6. Nancy initially doubted whether the royal family was hidden in Cambodia.
7. Nancy disproved the possibility that the remains belonged to the Angkor royal family.

Questions 8-13

Complete the flow-chart below. Choose ONE WORD ONLY from the passage for each answer. Write your answers in boxes 8-13 on your answer sheet.

The Career of Nancy Athfield

During her mid-teens, Nancy wasn't expected to attend 8.....

⬇

Willard Billy later helped Nancy to find that she was interested in science.

⬇

Her PhD degree was researching when a kind of 9 .....first went into New Zealand.

⬇

Her research showed that the subject's 10..... accounted for the fault in the earlier research.

⬇

She was a professional 11.....before she went back to Cambodia in 2003.

⬇

When she returned Cambodia, the lack of 12..... was a barrier for her research.

⬇

Then she compiled the 13 ..... of the Cambodia radiocarbon dating of the ancients.

⬇

After that, the lack of a detailed map of the geology of Cambodia became a hindrance of her research.

PASSAGE 2

Stress of workplace

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

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

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

D. Identify the causes: Jan Elsner, Melbourne psychologist who specialises in executive coaching, says thriving on a demanding workload is typical of senior executives and other high-potential business people. She says there is no one-size-fits-all approach to stress: some people work best with high-adrenalin periods followed by quieter patches, while others thrive under sustained pressure. "We could take urine and blood hormonal measures and pass a judgment of whether someone's physiologically stressed or not," she says. "But that's not going to give us an indicator of what their experience of stress is, and what the emotional and cognitive impacts of stress are going to be."

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

F. Recent research, such as last year's study of public servants by the British epidemiologist Sir Michael Marmot, shows the most important predictor of stress is the level of job control a person has. This debunks the theory that stress is the prerogative of high-achieving executives with type-A personalities and crazy working hours. Instead. Marmot's and other research reveals they have the best kind of job: one that combines high demands (challenging work) with high control (autonomy). "The worst jobs are those that combine high demands and low control. People with demanding jobs but little autonomy have up to four times the probability of depression and more

than double the risk of heart disease," LaMontagne says. Those two alone count for an enormous part of chronic diseases, and they represent a potentially preventable pan." Overseas, particularly in Europe, such research is leading companies to redesign organisational practices to increase employees* autonomy, cutting absenteeism and lifting productivity.

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

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

Question 14-18

Use the information in the passage to match the people (listed A-D) with opinions or deeds below. Write the appropriate letters A-D in boxes 14-18 on your answer sheet. NB You may use any letter more than once.

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

14. Work stress usually happens in the high level of a business.
15. More people involved would be beneficial for stress relief.
16. Temporary holiday sometimes doesn't mean less work.
17. Stress leads to a wrong direction when trying to satisfy customers.
18. It is commonly accepted that stress at present is more severe than what it would be in future.

Question 19-21

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

19. Which of the following workplace stress is NOT mentioned according to Plumridge in the following options
    - A Not enough time spend on family
    - B Unable to concentrate on work
    - C Inadequate time of sleep
    - D Alteration of appointment
20. Which of the following solution is NOT mentioned in helping reduce the work pressure according to Plumridge
    - A Allocate more personnel
    - B Increase more time
    - C Lower expectation
    - D Do sports and massage
21. What is point of view of Jan Elsnera towards work stress
    - A Medical test can only reveal part of the data needed to cope with stress
    - B Index somebody samples will be abnormal in a stressful experience
    - C Emotional and cognitive affection is superior to physical one
    - D One well designed solution can release all stress

Question 22 – 26

Complete the following summary of the paragraphs of Reading Passage, using NO MORE THAN TWO WORDS from the Reading Passage for each answer. Write your answers in boxes 22-26 on your answer sheet.

Statistics from National worker's compensation indicate stress plays the most important role in 22..... Staffs take about 23..... for absence from work caused by stress. Not just time is our main concern but great expenses generated consequently. An official insurer wrote sometime that about 24..... of all claims were mental issues, which made up nearly 27% costs of all claims. Sports Such as 25..... as well as 26..... could be a treatment to release stress. However, specialists recommended another practical way out, which was to analyse workloads once again.

PASSAGE 3

R.L. Stevenson's Literary Works

A Scottish novelist, poet, essayist, and travel writer. Robert Louis Stevenson was born at 8 Howard Place, Edinburgh, Scotland, on 13 November 1850. It has been more than 100 years since his death. Stevenson was a writer who caused conflicting opinions about his works. On one hand, he was often highly praised for his expert prose and style by many English-language critics. On the other hand, others criticised the religious themes in his works, often misunderstanding Stevenson's own religious beliefs. Since his death a century before, critics and biographers have disagreed on the legacy of Stevenson's writing. Two biographers. KF and CP, wrote a biography about Stevenson with a clear focus. They chose not to criticise aspects of Stevenson's personal life. Instead, they focused on his writing, and gave high praise to his writing style and skill.

The literary pendulum has swung these days. Different critics have different opinions towards Robert Louis Stevenson's works. Though today, Stevenson is one of the most translated authors in the world,

his works have sustained a wide variety of negative criticism throughout his life. It was like a complete reversal of polarity—from highly positive to slightly less positive to clearly negative; after being highly praised as a great writer, he became an example of an author with corrupt ethics and lack of moral. Many literary critics passed his works off as children's stories or horror stories, and thought to have little social value in an educational setting. Stevenson's works were often excluded from literature curriculum because of its controversial nature. These debate? remain, and many critics still assert that despite his skill, his literary works still lack moral value.

One of the main reasons why Stevenson's literary works attracted so much criticism was due to the genre of his writing. Stevenson mainly wrote adventure stories, which was part of a popular and entertaining writing fad at the time. Many of us believe adventure stories are exciting, offers engaging characters, action, and mystery but ultimately can't teach moral principles. The plot points are one-dimensional and rarely offer a deeper moral meaning, instead focusing on exciting and shocking plot twists and thrilling events. His works were even criticised by fellow authors. Though Stevenson's works have deeply influenced Oscar Wilde, Wilde often joked that Stevenson would have written better works if he wasn't born in Scotland. Other authors came to Stevenson's defense, including Galsworthy who claimed that Stevenson is a greater writer than Thomas Hardy.

Despite Wilde's criticism, Stevenson's Scottish identity was an integral part of his written works. Although Stevenson's works were not popular in Scotland when he was alive, many modern Scottish literary critics claim that Sir Walter Scott and Robert Louis Stevenson are the most influential writers in the history of Scotland. While many critics exalt Sir Walter Scott as a literary genius because of his technical ability, others argue that Stevenson deserves the same recognition for his natural ability to capture stories and characters in words. Many of Scott's works were taken more seriously as literature for their depth due to their tragic themes, but fans of Stevenson praise his unique style of story-telling and capture of human nature. Stevenson's works, unlike other British authors, captured the unique day to day life of average Scottish people. Many literary critics point to this as a flaw of his works. According to the critics, truly important literature should transcend local culture and stories. However, many critics praise the local taste of his literature. To this day, Steven- son's works provide valuable insight to life in Scotland during the 19th century.

Despite much debate of Stevenson's writing topics, his writing was not the only source of attention tor critics. Stevenson's personal life often attracted a lot of attention from his fans and critics alike. Some even argue that his personal life eventually outshone his writing. Stevenson had been plagued with health problems his whole life, and often had to live in much warmer climates than the cold, dreary weather of Scotland in order to recover. So he took his family to a south pacific island Samoa, which was a controversial decision at that time However, Stevenson did not regret the decision. The sea air and thrill of adventure complimented the themes of his writing, and for a time restored his health. From there, Stevenson gained a love of travelling, and for nearly three years he wandered the eastern and central Pacific. Much of his works reflected this love of travel and adventure that Stevenson experienced in the Pacific islands. It was as a result of this biographical attention that the feeling grew that interest in Stevenson's life had taken the place of interest in his works. Whether critics focus on his writing subjects, his religious beliefs, or his eccentric lifestyle of travel and adventure, people from

the past and present have different opinions about Stevenson as an author. Today, he remains a controversial yet widely popular figure in Western literature.

Questions 27-31

Choose the correct letter, A, B, C or D. Write the correct letter in boxes 27-31

27. Stevenson's biographers KF and CP
    A. underestimated the role of family played in Stevenson's life.
    B. overestimated the writer's works in the literature history.
    C. exaggerated Stevenson's religious belief in his works.
    D. elevated Stevenson's role as a writer.
28. The main point of the second paragraph is
    A. the public give a more fair criticism to Stevenson's works.
    B. recent criticism has been justified.
    C. the style of Stevenson's works overweigh his faults in his life.
    D. Stevenson's works' drawback is lack of ethical nature.
29. According to the author, adventure stories
    A. do not provide plot twists well.
    B. cannot be used by writers to show moral values.
    C. are more fashionable art form.
    D. tan be found in other's works but not in Stevenson's.
30. What does the author say about Stevenson's works?
    A. They describe the life of people in Scotland.
    B. They are commonly regarded as real literature.
    C. They were popular during Stevenson's life.
    D. They transcend the local culture and stories.
31. The lifestyle of Stevenson
    A. made his family envy him so much
    B. should be responsible for his death
    C. gained more attention from the public than his works
    D. didn't well prepare for his life in samoa

Questions 32-35

Do the following statements agree with the information given in Reading Passage 3? In boxes 32-35 on you answer sheet, write

TRUE	if the statement agrees with the information
FALSE	if the statement contradicts with the information
NOT GIVEN	if there is no information on this

32. Although Oscar Wilde admired Robert Louis Stevenson very much, he believed Stevenson could have written greater works.
33. Robert Louis Stevenson encouraged Oscar Wilde to start writing at first.
34. Galsworthy thought Hardy is greater writer than Stevenson is.
35. Critics only paid attention to Robert Louis Stevenson's writing topics.

Questions 36-40

Complete the notes using the list of words, A-I, below.
Write the correct letter, A-I, in boxes 36-40 on your answer sheet.

Sir Walter Scott and Robert Louis Stevenson

A lot of people believe that Sir Walter Scott and Rohert Louis Stevenson are the most influential writer in the history of Scotland, but Sir Walter Scott is more proficient in 36....., while Stevenson has better 37..... Scott's books illustrate 38..... especially in terms of tragedy, but Stevenson's works bring readers better 39..... What's more, Stevenson's understanding of 40..... made his works have the most unique expression of Scottish people.

A. natural ability
B. romance
C. colorful language
D. critical acclaim
E. humor
F. technical control
G. story telling
H. depth
I. human nature

READING 17 ANSWERS

1. FALSE
2. NOT GIVEN
3. NOT GIVEN
4. FALSE
5. FALSE
6. NOT GIVEN
7. TRUE
8. UNIVERSITY
9. RAT
10. DIET
11. ARCHAEOLOGIST
12. FUNDING
13. DATABASE
14. A
15. D
16. B
17. D
18. C
19. B
20. D
21. A
22. WORKPLACE INJURY
23. 16.6 WEEKS
24. 7%
25. GOLF
26. MASSAGE
27. D
28. D
29. B
30. A
31. C
32. TRUE
33. NOT GIVEN
34. FALSE
35. FALSE
36. F
37. A
38. H
39. G
40. I

READING 18
PASSAGE 1

Interrupted Brome - The "Extinct" Grass in Britain?

A. The British grass interrupted brome was said lo be extinct, just like the Dodo. Called interrupted brome because of its gappy seed-head, this unprepossessing grass was found nowhere else in the world. Gardening experts from the Victorian Era were first to record it hi the early 20th century, it grew far and wide across southern England. But it quickly vanished and by 1972 was nowhere to be found Even the seeds stored at Cambridge University Botanic Garden as an insurance policy were dead, having been mistakenly kept at room temperature. Fans of the grass were devastated.

B. However, reports of its decline were not entirely correct Interrupted brome has enjoyed a revival, one that's not due to science because of the work of one gardening enthusiast, interrupted brome is thriving as a pot plant. The re-launching into the wild of Britain's almost extinct plant has excited conservationists everywhere.

C. Originally, Philip Smith didn't know that he had the very unusual grass at his own home. When he heard about the grass becoming extinct, he wanted to do something surprising. He attended a meeting of die British Botanical Society in Manchester in 1979. and seized his opportunity. He said that it was so disappointing to hear about the demise of the interrupted brome. "What a pity we didn't research it further'" he added. Then, all of a sudden he displayed his pots with so called "extinct grass" for all to see.

D. Smith had kept the seeds from the last stronghold of the grass, Pamisford in 1963. It was then when the grass started to disappear from the wild. Smith cultivated the grass, year after year Ultimately, it was his curiosity in the plant that saved it, not scientific or technological projects that aim to conserve plants.

E. For now, the bromes future is guaranteed. The seeds from Smith's plants have been securely stored in the cutting edge facilities of Millennium Seed Bank at Wakehurst Place in Sussex And living plants thrive at the botanic gardens at Kew, Edinburgh and Cambridge. This year, seeds are also saved at sites all across the country and the grass now flourishes at several public gardens too.

F. The grass will now be reintroduced to the British countryside. As a part of the Species Recovery Project, the organisation English Nature will re-introduce interrupted brome into the agricultural landscape, provided willing farmers are found. Alas, the grass is neither beautiful nor practical, it is undoubtedly a weed, a weed that nobody cares for these da I he brome was probably never widespread enough to annoy farmers and today, no one would appreciate its productivity or nutritious qualities. As a grass, it leaves a lot to be desired by agriculturalists.

G. Smith's research has attempted to answer the question of where the grass came from. His research points to mutations from other weedy grasses as the most likely source. So close is the relationship that interrupted brome was originally deemed to be a mere variety of soft brome by the great Victorian taxonomist Professor Hackel. A botanist from the 19th century, Druce, had taken notes on the grass and convinced his peers that the grass deserved its own status as a species. Despite Druce growing up in poverty and his self-taught profession, he became the leading botanist of his time.

H. Where the grass came from may be clear, but the timing of its birth may be tougher to find out. A clue lies in its penchant for growing as a weed in fields shared with a fodder crop, in particular nitrogen-fixing legumes such as sainfoin, lucerne or clover According to agricultural historian Joan Thirsk. the humble sainfoin and its company were first noticed in Britain in the early 17th century. Seeds brought in from the Continent were sown in pastures to feed horses and other livestock. However, back then, only a few enthusiastic gentlemen were willing to use the new crops for their prized horses.

I. Not before too long though, the need to feed the parliamentary armies in Scotland, England and Ireland was more pressing than ever. Farmers were forced to produce more bread, cheese and beer.

And by 1650 the legumes were increasingly introduced into arable rotations, to serve as green nature to boost grain yields. A bestseller of its day, Nathaniel Fiennes's Sainfoin Improved, published in 1671, helped to spread the word. With the advent of sainfoin, clover and lucerne, Britain's way own rogue grass had suddenly arrived.

J. Although the credit for the discovery of interrupted brome goes to a Miss A. M Barnard, who collected the first specimens at Odsey, Bedfordshire, in 1849, the grass had probably lurked undetected in the English countryside for at least a hundred years. Smith thinks the plant—the world's version of the Dodo—probably evolved in the late 17th or early 18th century, once sainfoin became established. Due mainly to the development of the motor car and subsequent decline of fodder crops for horses, the brome declined rapidly over the 20th century Today, sainfoin has almost disappeared from the countryside, though occasionally its colourful flowers arc spotted in lowland nature reserves. More recently artificial fertilizers have made legume rotations unnecessary.

K. The close relationship with out-of-fashion crops spells trouble for those seeking to re-establish interrupted brome in today's countryside. Much like the once common arable weeds, such as the corncockle, its seeds cannot survive long in the soil. Each spring, the brome relied on farmers to re-sow its seeds; in the days before weed killers and advanced seed sieves in ample supply would have contaminated supplies of crop seed. However fragile seeds are not the brome's only problem: this species is also unwilling to release its seeds as they ripen. According to Smith, the grass will struggle lo survive even in optimal conditions. It would be very difficult to thrive amongst its more resilient competitors found in today's improved agricultural landscape.

L. Nonetheless, interrupted brome's reluctance to thrive independently may have some benefits. Any farmer willing to foster this unique contribution to the world's flora can rest assured that the grass will never become an invasive pest. Restoring interrupted brome to its rightful home could bring other benefits too, particularly if this strange species is granted recognition as a national treasure. Thanks to British farmers, interrupted brome was given the chance to evolve in the first place. Conservationists would like to see the grass grow once again in its natural habitat and perhaps, one day, seeing the become a badge of honour for a new generation of environmentally conscious farmers.

Questions 1-8

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

TRUE if the statement agrees with the information
FALSE if the statement contradicts with the information
NOT GIVEN if there is no information on this

1. The name of interrupted brome came from the unprepossessing grass disappeared from places in the world for a period.
2. Interrupted brome became extinct because they were kept accidentally in room temperature.
3. Philip Smith works at University of Manchester.
4. Kew Botanic Gardens will operate English Nature.
5. Interrupted brome grew poorly at the sides of sainfoin.
6. Legumes were used for feeding livestock and enriching the soil.
7. The spread of seeds of interrupted brome depends on the harvesting of the farmers.
8. Only the weed killers can stop interrupted brome from becoming an invasive pest.

Questions 9-13

Look at the following opinions or deeds (Questions 9-13) and the list of people below. Match each opinion or deed with the correct person, A-F. Write the correct letter, A-F, in boxes 9-13 on your answer sheet

A. A. M. Barnard
B. Philip Smith
C. George Claridge Druce
D. Joan Thirsk
E. Professor Hackel
F. Nathaniel Fiennes

9. identified interrupted brome as another species of brome.
10. convinced others about the status of interrupted brome in the botanic world.
11. found interrupted brome together with sainfoin.
12. helped farmers know that sainfoin is useful for enriching the soil.
13. collected the first sample of interrupted brome.

PASSAGE 2

Keeping the Flood-water away

A. Last winter's floods on the rivers of central Europe were among the worst since the Middle Ages, and as winter storms return, the spectre of floods is returning too. Just weeks ago, the river Rhone in south-east France burst its banks, driving 15,000 people from their homes, and worse could be on the way. Traditionally, river engineers have gone for Plan A: get rid of the water fast, draining it off the land and down to the sea in tall-sided rivers re-engineered as high-performance drains. But however big they dug city drains, however wide and straight they made the livers, and however high they built the banks, the floods kept coming back to taunt them, from the Mississippi to the Danube. And when the floods came, they seemed to be worse than ever. No wonder engineers are turning to Plan B: sap the water's destructive strength by dispersing it into fields, forgotten lakes, flood plains and aquifers.

B. Back in the days when rivers took a more tortuous, path to the sea, flood waters lost impetus and volume while meandering across flood plains and idling through wetlands and inland deltas. But today the water lends to have an unimpeded journey to the sea. And this means that when it rains in the uplands, the water comes down all at once. Worse, whenever we close off more flood plains, the river's flow farther downstream becomes more violent and uncontrollable. Dykes are only as good as their weakest link—and the water will unerringly find it. By trying to turn the complex hydrology of rivers into the simple mechanics of a water pipe, engineers have often created danger where they promised safety, and intensified the floods they meant to end. Take the Rhine, Europe's most engineered river. For two centuries, German engineers have erased its backwaters and cut it off from its flood plain.

C. Today, the river has lost 7 percent of its original length and runs up to a third faster. When it rains hard in the Alps, the peak flows from several tributaries coincide in the main river, where once they arrived separately. And with four-fifths of the lower Rhine's flood plain barricaded off, the waters rise ever higher. The result is more frequent flooding that does ever-greater damage to the homes, offices and roads that sit on the flood plain. Much the same has happened in the US on the mighty Mississippi, which drains the world's second largest river catchment into the Gulf of Mexico.

D. The European Union is trying to improve rain forecasts and more accurately model how intense rains swell rivers. That may help cities prepare, but it won't stop the floods. To do that, say hydrologists, you need a new approach to engineering not just rivers, but the whole landscape. The UK's Environment Agency—which has been granted an extra £150 million a year to spend in the wake of floods in 2000 that cost the country £1 billion—puts it like this: "The focus is now on working with die forces of nature. Towering concrete walls are out, and new wetlands are in." To help keep London's feet dry, the agency is breaking the Thames's banks upstream and reflooding 10 square kilometres of ancient flood plain at Otmoor outside Oxford. Nearer to London it has spent £100 million creating new wetlands and a relief channel across 16 kilometres of flood plain to protect the town of Maidenhead, as well as the ancient playing fields of Eton College. And near the south coast, the agency is digging out channels to reconnect old meanders on the river Cuckmere in East Sussex that were cut off by flood banks 150 years ago.

E. The sane is taking place on a much grander scale in Austria, in one of Europe's largest river restorations to date. Engineers are regenerating flood plains along 60 kilometres of the river Drava as it exits the Alps. They are also widening the river bed and channeling it back into abandoned meanders, oxbow lakes and backwaters overhung with willows. The engineers calculate that the restored flood plain can now store up to 10 million cubic metres of flood waters and slow storm surges coming out of the Alps by more than an hour, protecting towns as far downstream as Slovenia and Croatia.

F. "Rivers have to be allowed to take more space. They have to be turned from flood-chutes into flood-foilers," says Nienhuis. And the Dutch, for whom preventing floods is a matter of survival, have gone furthest. A nation built largely on drained marshes and seabed had the fright of its life in 1993 when the Rhine almost overwhelmed it. The same happened again in 1995, when a quarter of a million people were evacuated from the Netherlands Bui -i new band of soft engineers" wants our cities to become porous, and Berlin is their shining example. Since reunification, the city's massive redevelopment has been governed by tough new rules to prevent its drains becoming overloaded after heavy rams. Harald Kraft, an architect working in the city, says: "We now see rainwater as a resource to be kept rather than got rid of at great cost." A good illustration is the giant Potsdamer Platz, a huge new commercial redevelopment by Daimler Chrysler in the heart of the city.

G. Los Angeles has spent billions of dollars digging huge drains and concreting river beds to carry away the water from occasional intense storms. The latest plan is to spend a cool $280 million raising the concrete walls on the Los Angeles river by another 2 metres. Yet many communities still flood regularly. Meanwhile this desert city is shipping in water from hundreds of kilometres away in northern California and from the Colorado river in Arizona to fill its taps and swimming pools, and irrigate its green spaces. It all sounds like bad planning. "In LA we receive half the water we need in rainfall, and we throw it away. Then we spend hundreds of millions to import water," says Andy Lipkis, an LA environmentalist, along with citizen groups like Friends of the Los Angeles River and Unpaved LA, want to beat the urban flood hazard and fill the taps by holding onto the city's flood water. And it's not just a pipe dream. The authorities this year launched a 5100 million scheme to road-test the porous city in one flood-hit community in Sun Valley. The plan is to catch the rain that falls on thousands of driveways, parking lots and rooftops in the valley. Trees will soak up water from parking lots. Homes and public buildings will capture roof water to irrigate gardens and parks. And road drains will empty into old gravel pits and other leaky places that should recharge

the city's underground water reserves. Result: less flooding and more water for the city. Plan B says every city should be porous, every river should have room to flood naturally and every coastline should be left lo build its own defences. It sounds expensive and Utopian, until you realise how much we spend trying to drain cities and protect our watery margins and how bad we are at it.

Questions 14-19

Reading Passage 2 has seven paragraphs, A-G. Which paragraph contains the following information?

14. a new approach carried out in the U K
15. the reason why twisty path and dykes failed
16. illustration of an alternative plan in LA which seems much unrealistic
17. traditional way of tackling flood
18. efforts made in Netherlands and Germany
19. one project on a river that benefits three nations

Questions 20-23

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

TRUE if the statement agrees with the information
FALSE if the statement contradicts with the information
MOT GIVEN if there is no information on this

20. In the ancient times, the people in Europe made their efforts to improve the river banks, so the flood was becoming less severe than before.
21. Flood makes river shorter than it used to be, which means faster speed and more damage to the constructions on flood plain.
22. The new approach in the UK is better than that in Austria.
23. At least 300,000 people left from Netherlands in 1995.

Questions 24-26

Complete the sentences below. Choose no more THAN TWO WORDS from the passage for each answer. Write your answers in boxes 24-26 on your answer sheet.

24. UK's Environment Agency carried out one innovative approach: a wetland is generated not fax from the city of.....to protect it from flooding.
25. .....suggested that cities should be porous, and Berlin set a good example.
26. Another city devastated by heavy storms casually is....., though government pours billions of dollars each year in order to solve the problem.

PASSAGE 3

How much do babies know

As Daniel Haworth is settled into a high chair and wheeled behind a black screen, a sudden look of worry furrows his 9-month-old brow. His dark blue eyes dart left and right in search of the familiar reassurance of his mother's face. She calls his name and makes soothing noises, but Daniel senses something unusual is happening. He sucks his fingers for comfort, but, finding no solace, his month crumples, his body stiffens, and he lets rip an almighty shriek of distress. This is the usual expression when babies are left alone or abandoned. Mom picks him up, reassures him, and two minutes later, a chortling and alert Daniel returns to the darkened booth behind the screen and submits himself to baby lab, a unit set up in 2005 at the University of Manchester in northwest England to investigate how babies think.

Watching infants piece life together, seeing their senses, emotions and motor skills take shape, is a source of mystery and endless fascination—at least to parents and developmental psychologists. We can decode their signals of distress or read a million messages into their first smile. But how much do we really know about what's going on behind those wide, innocent eyes? How much of their understanding of and response to the world comes preloaded at birth? How much is built from scratch by experience? Such are the questions being explored at baby lab. Though the facility is just 18 months old and has tested only 100 infants, it's already challenging current thinking on what babies know and how they come to know it.

Daniel is now engrossed in watching video clips of a red toy train on a circular track. The train disappears into a tunnel and emerges on the other side. A hidden device above the screen is tracking Daniel's eyes as they follow the train and measuring the diameter of his pupils 50 times a second. As the child gets bored—or "habituated", as psychologists call the process—his attention level steadily drops. But it picks up a little whenever some novelty is introduced. The train might be green, or it might be blue. And sometimes an impossible thing happens—the train goes into the tunnel one color and comes out another.

Variations of experiments like this one, examining infant attention, have been a standard tool of developmental psychology ever since the Swiss pioneer of the field, Jean Piaget, started experimenting on his children in the 1920s. Piaget's work led him to conclude that infants younger than 9 months have no innate knowledge of how the world works or any sense of "object permanence" (that people and things still exist even when they're not seen). Instead, babies must gradually construct this knowledge from experience. Piaget's "constructivist" theories were massively influential on postwar educators and psychologist, but over the past 20 years or so they have been largely set aside by a new generation of "nativist" psychologists and cognitive scientists whose more sophisticated experiments led them to theorise that infants arrive already equipped with some knowledge of the physical world and even rudimentary programming for math and language. Baby lab director Sylvain Sirois has been putting these smart-baby theories through a rigorous set of tests. His conclusions so far tend to be more Piagetian: "Babies" he says, "know nothing".

What Sirois and his postgraduate assistant Lain Jackson are challenging is the interpretation of a variety of classic experiments begun in the mid-1980s in which babies were shown physical events that appeared to violate such basic concepts as gravity, solidity and contiguity. In one such experiment, by

University of Illinois psychologist Renee Baillargeon, a hinged wooden panel appeared to pass right through a box. Baillargeon and M.I.T's Elizabeth Spelke found that babies as young as $3\frac{1}{2}$ months would reliably look longer at the impossible event than at the normal one. Their conclusion: babies have enough built-in knowledge to recognise that something is wrong.

Sirois does not take issue with the way these experiments were conducted "The methods are correct and replicable." he says, "it's the interpretation that's the problem." In a critical review to be published in the forthcoming issue of the European Journal of Developmental Psychology, he and Jackson pour cold water over recent experiments that claim to have observed innate or precocious social cognition skills in infants. His own experiments indicate that a baby's fascination with physically impossible events merely reflects a response to stimuli that are novel. Data from the eye tracker and the measurement of the pupils (which widen in response to arousal or interest) show that impossible events involving familiar objects are no more interesting than possible events involving novel objects. In other words, when Daniel had seen the red train come out of the tunnel green a few times, he gets as bored as when it stays the same color. The mistake of previous research, says Sirois, has been to leap to the conclusion that infants can understand the concept of impossibility from the mere fact that they are able to perceive some novelty in it. "The real explanation is boring," he says.

So how do babies bridge the gap between knowing squat and drawing triangles—a task Daniel's sister Lois, $2\frac{1}{2}$, is happily tackling as she waits for her brother? "Babies have to learn everything, but as Piaget was saying, they start with a few primitive reflexes that get things going," said Sirois. For example, hardwired in the brain is an instinct that draws a baby's eyes to a human face. From brain imaging studies we also know that the brain has some sort of visual buffer that continues to represent objects after they have been removed—a lingering perception rather than conceptual understanding. So when babies encounter novel or unexpected events, Sirois explains, "there's a mismatch between the buffer and the information they're getting at that moment. And what you do when you've got a mismatch is you try to clear the buffer. And that takes attention." So learning, says Sirois. is essentially the laborious business of resolving mismatches. "The thing is, you can do a lot of it with this wet sticky thing called a brain. It's a fantastic, statistical-learning machine". Daniel, exams ended, picks up a plastic tiger and, chewing thoughtfully upon its heat, smiles as if to agree.

Questions 27-32

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

TRUE if the statement agrees with the information
FALSE if the statement contradicts with the information
NOT GIVEN if there is no information on this

27. Baby's behavior after being abandoned is not surprising.
28. Parents are over-estimating what babies know.
29. Only 100 experiments have been done but can prove the theories about what we know.
30. Piaget's theory was rejected by parents in 1920s.
31. Sylvain Sirois's conclusion on infant's cognition is similar to Piagets.
32. Sylvain Sirois found serious flaws in the experimental designs by Baillargeon and Elizabeth Spelke.

Questions 33-37

Complete each sentence with the correct ending, A-E, below. Write the correct letter, A-E, in boxes 33-37 on your answer sheet.

33. Jean Piaget thinks infants younger than 9 months won't know something existing
34. Jean Piaget thinks babies only get the knowledge
35. Some cognitive scientists think babies have the mechanism to learn a language
36. Sylvain Sirois thinks that babies can reflect a response to stimuli that are novel
37. Sylvain Sirois thinks babies' attention level will drop

A before they are born.
B before they learn from experience.
C when they had seen the same thing for a while.
D when facing the possible and impossible events.
E when the previous things appear again in the lives.

Questions 38-40

Choose the correct letter, A, B, C or D. Write the correct letter in boxes 38-40 on your answer sheet,

38. What can we know about Daniel in the third paragraph?

A. Daniel's attention level rose when he saw a blue train.
B. Kid's attention fell when he was accustomed to the changes.
C. Child's brain activity was monitored by a special equipment
D. Size of the train changed when it came out of the runnel.

39. What can we know from the writer in the fourth paragraph?

A. The theories about what baby knows changed over time.
B. Why the experiments that had been done before were rejected.
C. Infants have the innate knowledge to know the external environment
D. Piaget's "constructivist" theories were massively influential on parents.

40. What can we know from the argument of the experiment about the baby in the sixth paragraph?

A. Infants are attracted by various colours of the trains all the time.
B. Sylvain Sirois accuses misleading approaches of current experiments.
C. Sylvain Sirois indicates that only impossible events make children interested.
D. Sylvain Sirois suggests that novel things attract baby's attention.

READING 18 ANSWERS

1. FALSE
2. TRUE
3. NOT GIVEN
4. NOT GIVEN
5. FALSE
6. TRUE
7. FALSE
8. FALSE
9. E
10. C
11. D
12. F
13. A
14. D
15. B
16. G
17. A
18. F
19. E
20. FALSE
21. TRUE
22. NOT GIVEN
23. FALSE
24. LONDON
25. SOFT ENGINEERS
26. LOS ANGELES
27. TRUE
28. NOT GIVEN
29. FALSE
30. NOT GIVEN
31. TRUE
32. FALSE
33. B
34. E
35. A
36. D
37. C
38. B
39. A
40. C

READING 19

PASSAGE 1

Generalizations about the Connection Between Culture and Thought

A The world's population has surpassed 7 billion and continues to grow. Across the globe, humans have many differences. These differences can be influenced by factors such as geography, climate, politics, nationality, and many more. Culture is one such aspect that can change the way people behave.

B Your culture may influence your clothing, your language, and many aspects of your life. But is culture influential enough to change the way an individual thinks? It has long been believed that people from different cultures would think differently. For example, a young boy from a farm would talk about cows while a boy from New York will talk about cars. If two young children from different countries are asked about their thoughts about a painting, they would answer differently because of their cultural backgrounds.

C In recent years, there has been new research that changed this long-held belief; However, this new research is not the first to explore the idea that culture can change the way we think. Earlier research has provided valuable insight to the question. One of the earliest research projects was carried out in the Soviet Union. This project was designed to find out whether culture would affect people's way of thought processing. The researchers focused on how living environment and nationality might influence how people think. The experiment led by Bessett aimed to question such awareness of cognitive psychology. Besset conducted several versions of the experiment to test different cognitive processes.

D One experiment led by Bessett and Masuku showed an animated video picturing a big fish swimming among smaller fish and other sea creatures. Subjects were asked to describe the scene. The Japanese participants tended to focus on the aquatic background, such as the plants and colour of the water, as well as the relationship between the big and small fish. American participants tended to focus on individual fishes, mainly the larger, more unique looking fish. The experiment suggested that members of Eastern cultures focus more on the overall picture, while members of Western culture focus more on the individuals.

E In another experiment performed by Bessett and Choi, the subjects were presented with some very convincing evidence for a position. Both the Korean and the American showed strong support. And after they were given some evidence opposing the position, the Korean started to modify or decrease their support. However, the American began to give more support to the former argument. This project suggested that in Korean culture, support for arguments is based on context ideas and conclusions are changeable and flexible, so an individual may be more willing to change his or her mind. For Americans, they were less willing to change their original conclusion.

F Bessett and Ara devised an experiment to lest the thought processing of both oriental and occidental worlds. Test subject was given an argument "All animals with furs hibernate. Rabbit has fur. Therefore, rabbit hibernate". People from the eastern world questioned the argument as not being logical, because in their knowledge some furry animals just don't hibernate. But the American think the statement is right. They assume the logic deduction is based on a correct argument, thus the conclusion is right since the logic is right

G From these early experiments in the Soviet Union, one might conclude that our original premise—

that culture can impact the way we think—was still correct. However, recent research criticizes this view, as well as Bessett's early experiments. Though these experiments changed the original belief on thought processing, how much does it result from all factors needs further discussion. Fischer thinks Bessett's experiments provide valuable information because his research only provides qualitative descriptions, not results from controlled environment. Chang partly agrees with him, because there are some social factors that might influence the results.

H Another criticism of Bessett's experiments is that culture was studied as a sub-factor of nationality. The experiments assumed that culture would be the same among all members of a nationality. For example, every American that participated in the experiments could be assumed to have the same culture. In reality, culture is much more complicated than nationality. These early experiments did not control for other factors, such as socioeconomic status, education, ethnicity, and regional differences in culture. All of these factors could have a big effect on the individual's response.

I A third criticism of Bessett's experiment is that the content itself should have been more abstract, such as a puzzle or an IQ test. With objective content, such as nature and animals, people from different countries of the world might have different pre-conceived ideas about these animals. Prior knowledge based on geographic location would further complicate the results. A test that is more abstract, or more quantitative, would provide a more controlled study of how cognitive processing works for different groups of people.

J The research on culture's effect on cognitive processing still goes on today, and while some criticisms exist of Bessett's early studies, the projects still provide valuable insight. It is important for future research projects to control carefully for the variables, such as culture. Something like culture is complex and difficult to define. It can also be influenced by many other variables, such as geography or education styles. When studying a variable like culture, it is critical that the researcher create a clear definition for what is—and what is not—considered culture.

K Another important aspect of modern research is the ethical impact of the research. A researcher must consider carefully whether the results of the research will negatively impact any of the groups involved. In an increasingly globalised job economy, generalisations made about nationalities can be harmful to prospective employees. This information could also impact the way tests and university admissions standards are designed, which would potentially favor one group or create a disadvantage for another. When conducting any research about culture and nationality, researchers should consider all possible effects, positive or negative, that their conclusions may have when published for the world to see.

***Questions* 1-5**

Reading Passage 1 has eleven paragraphs, **A-K**. Which paragraph contains the following information?
*Write the correct letter **A-K**, in boxes 1-5 on your answer sheet. **NB** You may use any letter more than once.*

1. All people have the same reaction to a certain point of view.
2. Qualitative descriptions are valuable in exploring thought processing,
3. Different cultures will affect the description of the same scene.
4. We thought of young people as widely different at different geographical locations.
5. Eastern people are less likely to stick to their argument.

Questions 6-9

*Look at the following statements (Questions 6-9) and the list of researchers below. Match each statement with the correct researcher, **A-C**. **NB** You may use any letter more than once.*

List of Researchers
A Bessett & Masuku
B Bessett & Choi
C Bessett & Ara

6 Geographical location affects people's position on certain arguments.
7 Animated images reveal different process strategies.
8 Eastern people challenge a deduction because they knew it is not true.
9 Eastern people find more difficulty when asked to identify the same object.

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. Researchers in the Soviet Union wanted to find out how..... and nationality will control the way people think.
11. Bessett and Ara's experiment shows, for Americans, so long as the logic deduction is based on a correct argument, the ..... should be right.
12. Fischer thinks Bessett's research is quite valuable because it is conducted in a..... way rather than in controlled environment.
13. Future researchers on culture's effect on cognitive processing should start with a ..... of culture as a variable.

PASSAGE 2

Eco-Resort Management Practices

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).

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 attraction, 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 kilometres wide. More than a century ago, there was only one Stradbroke Island, and there were at least four Aboriginal tribes living and hunting on the island. Regrettably, most of the original island dwellers were eventually killed by diseases such as tuberculosis, smallpox and influenza by the end of the 19th century. The second ship wrecked on the island in 1894, and the subsequent destruction of the ship (the Cambus Wallace) because it contained dynamite, caused a large crater in the sandhills on Stradbroke Island. Eventually, the ocean broke through the weakened land form and Stradbroke became two islands, Couran Cove Island Resort is built on one of the world's few naturally-occurring sand lands, which is home to a wide range of plant communities and one of the largest remaining remnants of the rare livistona rainforest left on the Gold Coast. Many mangrove and rainforest areas, and Malaleuca Wetlands on South Stradbroke Island (and in Queensland), have been cleared, drained or filled for residential, industrial, agricultural or urban development in the first half of the 20th century. Farmers and graziers finally abandoned South Stradbroke Island in 1939 because the vegetation and the soil conditions there were not suitable for agricultural activities.

SUSTAINABLE PRACTICES OF COURAN COVE RESORT

Being located on an offshore island, the resort is only accessible by means of water transport. 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 for 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 a television, a 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 mosquitoes, 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

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 islands freshwater supply include pollution, contamination and over-consumption. In order to minimise some of these problems, all laundry activities are carried out on the mainland. The resort considers washing machines as onerous to the island's freshwater supply, and that the detergents contain a high level of phosphates which are a major source of water pollution. The resort uses LPG-power generation rather than a diesel-powered plant for its energy supply, supplemented by wind turbine, which has reduced greenhouse emissions by 70% of diesel-equivalent generation methods. Excess heat recovered from the generator is used to heat the swimming pool. Hot water in the eco-cabins and for some of the resort's vehicles are solar-powered. Water efficient fittings are also installed in showers and toilets. However, not all the appliances used by the resort are energy efficient, such as refrigerators. Visitors who stay at the resort are encouraged to monitor their water and energy usage via the in-house television systems, and are rewarded with prizes (such as a free return trip to the resort) accordingly if their usage level is low.

CONCLUDING REMARKS

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

Questions 19-23

Complete the summary below. Choose ***NO MORE THAN TWO WORDS*** *from the Passage for each answer. Write your answers in boxes 19-23 on your answer sheet.*

Being located away from the mainland, tourists can attain the resort only by 19..... in a regular service. Within the resort, transports include trails for walking or tracks for both 20..... and the beach trains. The on-island equipment is old-fashioned which is barely working such as the 21..... overhead. There is television, radio, an old 22..... and a small fridge. And you can buy the repellant for 23..... if you forget to bring some.

Questions 24-26

Choose ***THREE*** *letters,* ***A-E****. Write the correct letters in boxes 24-26 on your answer sheet* Which **THREE** of the following statements are true as to the contemporary situation of Couran Cove Island Resort in the last paragraph?

A Couran Cove Island Resort goes for more eco-friendly practices.
B The accommodation standard only conforms to the Resort Development Spectrum of Phase 3.
C Couran Cove Island Resort should raise the accommodation standard and build more facilities.
D The principal group visiting the resort is international tourists.
E Its carrying capacity will restrict the future businesses' expansion.

PASSAGE 3

The future of the languages

Of the world's 6,500 living languages, around half are expected to die out by the end of this century, according to UNESCO. Just 11 are spoken by more than half of the earth's population, so it is little wonder that those used by only a few are being left behind as we become a more homogenous, global society. In short, 95 percent of the world's languages are spoken by only five percent of its population—a remarkable level of linguistic diversity stored in tiny pockets of speakers around the world. Mark Turin, a university professor, has launched WOLP (World Oral Language Project) to prevent the language from the brink of extinction.

He is trying to encourage indigenous communities to collaborate with anthropologists around the world to record what he calls "oral literature" through video cameras, voice recorders and other multimedia tools by awarding grants from a £30,000 pot that the project has secured this year. The idea is to collate this literature in a digital archive that can be accessed on demand and will make the nuts and bolts of lost cultures readily available.

For many of these communities, the oral tradition is at the heart of their culture. The stories they tell are creative as well as communicative. Unlike the languages with celebrated written traditions, such as Sanskrit, Hebrew and Ancient Greek, few indigenous communities have recorded their own languages or ever had them recorded until now.

The project suggested itself when Turin was teaching in Nepal. He wanted to study for a PhD in endangered languages and, while discussing it with his professor at Leiden University in the Netherlands, was drawn to a map on his tutor's wall. The map was full of pins of a variety of colours

which represented all the world's languages that were completely undocumented. At random, Turin chose a "pin" to document. It happened to belong to the Thangmi tribe, an indigenous community in the hills east of Kathmandu, the capital of Nepal. "Many of the choices anthropologists and linguists who work on these traditional field-work projects are quite random," he admits.

Continuing his work with the Thangmi community in the 1990s, Turin began to record the language he was hearing, realising that not only was this language and its culture entirely undocumented, it was known to few outside the tiny community. He set about trying to record their language and myth of origins. "I wrote 1,000 pages of grammar in English that nobody could use—but I realised that wasn't enough. It wasn't enough for me, it wasn't enough for them. It simply wasn't going to work as something for the community. So then I produced this trilingual word list in Thangmi, Nepali and English."

In short, it was the first ever publication of that language. That small dictionary is still sold in local schools for a modest 20 rupees, and used as part of a wider cultural regeneration process to educate children about their heritage and language. The task is no small undertaking: Nepal itself is a country of massive ethnic and linguistic diversity, home to 100 languages from four different language families. What's more, even fewer ethnic Thangmi speak the Thangmi language. Many of the community members have taken to speaking Nepali, the national language taught in schools and spread through the media, and community elders are dying without passing on their knowledge.

Despite Turin's enthusiasm for his subject, he is baffled by many linguists' refusal to engage in the issue he is working on. "Of the 6,500 languages spoken on Earth, many do not have written traditions and many of these spoken forms are endangered," he says. "There are more linguists in universities around the world than there are spoken languages—but most of them aren't working on this issue. To me it's amazing that in this day and age, we still have an entirely incomplete image of the world's linguistic diversity People do PhDs on the apostrophe in French, yet we still don't know how many languages are spoken."

"When a language becomes endangered, so too does a cultural world view. We want to engage with indigenous people to document their myths and folklore, which can be harder to find funding for if you are based outside Western universities."

Yet, despite the struggles facing initiatives such as the World Oral Literature Project, there are historical examples that point to the possibility that language restoration is no mere academic pipe dream. The revival of a modern form of Hebrew in the 19th century is often cited as one of the best proofs that languages long dead, belonging to small communities, can be resurrected and embraced by a large number of people. By the 20th century, Hebrew was well on its way to becoming the main language of the Jewish population of both Ottoman and British Palestine. It is now spoken by more than seven million people in Israel.

Yet, despite the difficulties these communities face in saving their languages, Dr Turin believes that the fate of the world's endangered languages is not sealed, and globalisation is not necessarily the nefarious perpetrator of evil it is often presented to be. "I call it the globalisation paradox: on the one hand globalisation and rapid socio-economic change are the things that are eroding and challenging diversity. But on the other, globalisation is providing us with new and very exciting tools and facilities to get to places to document those things that globalisation is eroding. Also, the communities at the coal-face of change are excited by what globalisation has to offer."

In the meantime, the race is on to collect and protect as many of the languages as possible, so that the Rai Shaman in eastern Nepal and those in the generations that follow him can continue their traditions

and have a sense of identity. And it certainly is a race: Turin knows his project's limits and believes it inevitable that a large number of those languages will disappear. "We have to be wholly realistic. A project like ours is in no position, and was not designed, to keep languages alive. The only people who can help languages survive are the people in those communities themselves. They need to be reminded that it's good to speak their own language and I think we can help them do that—becoming modern doesn't mean you have to lose your language."

Questions 27-31

Complete the summary using the list of words, A-J, below. Write the correct letter, A-J, in boxes 27-31 on your answer sheet.

Of the world's 6,500 living languages, about half of them are expected to be extinct. Most of the world's languages are spoken by a 27..... of people. However, Professor Turin set up a project WOLP to prevent 28..... of the languages. The project provides the community with 29..... to enable people to record their endangered languages. The oral tradition has great cultural 30..... An important 31..... between languages spoken by few people and languages with celebrated written documents existed in many communities.

A similarity	**B** significance	**C** funding	**D** minority
E education	**F** difference	**G** globalisation	**H** diversity
I majority	**J** disappearance		

Questions 32-35

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

TRUE if the statement agrees with the information

FALSE if the statement contradicts with the information

NOT GIVEN if there is no information on this

32. Turin argued that anthropologists and linguists usually think carefully before selecting an area to research.
33. Turin concluded that the Thangmi language had few similarities with other languages.
34. Turin has written that 1000-page document was inappropriate for Thangmi community.
35. Some Nepalese schools lack resources to devote to language teaching.

Questions 36-40

Choose the correct letter: A, B, C or D. Write the correct letter in boxes 36-40

36 Why does Turin say people do PhDs on the apostrophe in French?

A. He believes that researchers have limited role in the research of languages.
B. He compares the methods of research into languages.
C. He thinks research should result in a diverse cultural outlook.
D. He holds that research into French should focus on more general aspects.

37 What is discussed in the ninth paragraph?

A. Forces driving people to believe endangered languages can survive.
B. The community where people distrust language revival.
C. The methods of research that have improved language restoration.
D. Initiatives the World Oral Literature Project is bringing to Israel.

38 How is the WOLP's prospect?

A. It would not raise enough funds to achieve its aims.
B. It will help keep languages alive.
C. It will be embraced by a large number of people.
D. It has chance to succeed to protect the engendered languages.

39 What is Turin's main point of globalisation?

A. Globalisation is the main reason for endangered language.
B. Globalisation has both advantages and disadvantages.
C. We should have a more critical view of globalisation.
D. We should foremost protect our identity in face of globalisation.

40 What does Turin suggest that community people should do?

A. Learn other languages.
B. Only have a sense of identity
C. Keep up with the modern society without losing their language.
D. Join the race to protect as many languages as possible but be realistic.

READING 19 ANSWERS

1. E
2. G
3. D
4. B
5. E
6. B
7. A
8. C
9. A
10. LIVING ENVIRONMENT
11. CONCLUSION
12. QUALITATIVE
13. CLEAR DEFINITION
14. B
15. B
16. D
17. D
18. B
19. FERRY
20. BICYCLE
21. CEILING FAN
22. AIR CONDITIONER
23. MOSQUITOES
24. A*
25. C*
26. E*
27. D
28. J
29. C
30. B
31. F
32. FALSE
33. NOT GIVEN
34. TRUE
35. NOT GIVEN
36. A
37. A
38. D
39. B
40. C

Reading 20

PASSAGE 1

A. Americans today choose among more options in more parts of life than has ever been possible before. To an extent, the opportunity to choose enhances our lives. It is only logical to think that if some choices are good, more is better; people who care about having infinite options will benefit from them, and those who do not can always just ignore the 273 versions of cereal they have never tried. Yet recent research strongly suggests that, psychologically, this assumption is wrong, with 5% lower percentage announcing they are happy. Although some choices are undoubtedly better than none, more is not always better than less.

B. Recent research offers insight into why many people end up unhappy rather than pleased when their options expand. We began by making a distinction between "maximisers" (those who always aim to make the best possible choice) and "satisficers" (those who aim for "good enough," whether or not better selections might be out there).

C. In particular, we composed a set of statements—the Maximisation Scale—to diagnose people's propensity to maximise. Then we had several thousand people rate themselves from 1 to 7 (from "completely disagree" to "completely agree") on such statements, as "I never settle for second best." We also evaluated their sense of satisfaction with their decisions. We did not define a sharp cutoff to separate maximisers from satisficers, but in general, we think of individuals whose average scores are higher than 4 (the scale's midpoint) as maximisers and those whose scores are lower than the midpoint as satisficers. People who score highest on the test—the greatest maximisers—engage in more product comparisons than the lowest scorers, both before and after they make purchasing decisions, and they take longer to decide what to buy. When satisficers find an item that meets their standards, they stop looking. But maximisers exert enormous effort reading labels, checking out consumer magazines and trying new products. They also spend more time comparing their purchasing decisions with those of others.

D. We found that the greatest maximisers are the least happy with the fruits of their efforts. When they compare themselves with others, they get little pleasure from finding out that they did better and substantial dissatisfaction from finding out that they did worse. They are more prone to experiencing regret after a purchase, and if their acquisition disappoints them, their sense of well-being takes longer to recover. They also tend to brood or ruminate more than satisficers do.

E. Does it follow that maximisers are less happy in general than satisficers? We tested this by having people fill out a variety of questionnaires known to be reliable indicators of well-being. As might be expected, individuals with high maximisation scores experienced less satisfaction with life and were less happy, less optimistic and more depressed than people with low maximisation scores. Indeed, those with extreme maximisation ratings had depression scores that placed them in the borderline of clinical range.

F. Several factors explain why more choice is not always better than less, especially for maxi-misers. High among these are "opportunity costs." The quality of any given option cannot be assessed in isolation from its alternatives. One of the "costs" of making a selection is losing the opportunities that a different option would have afforded. Thus an opportunity cost of vacationing on the beach in Cape Cod might be missing the fabulous restaurants in the Napa Valley. *Early Decision Making Research* by Daniel Kahneman and Amos Tversky showed that people respond much more strongly to losses than gains. If we assume that opportunity costs reduce the overall desirability of the most preferred choice, then the more alternatives there are, the deeper our sense of loss will be and the less satisfaction we will derive from our ultimate decision.

G. The problem of opportunity costs will be better for a satisficer. The latter's "good enough" philosophy can survive thoughts about opportunity costs. In addition, the "good enough" standard leads to much less searching and inspection of alternatives than the maximiser's "best" standard. With fewer choices under consideration, a person will have fewer opportunity costs to subtract.

H. Just as people feel sorrow about the opportunities they have forgone, they may also suffer regret about the option they settled on. My colleagues and I devised a scale to measure proneness to feeling regret, and we found that people with high sensitivity to regret are less happy, less satisfied with life, less optimistic and more depressed than those with low sensitivity. Not surprisingly, we also found that people with high regret sensitivity tend to be maximisers. Indeed, we think that worry over future regret is a major reason that individuals become maximisers. The only way to be sure you will not regret a decision is by making the best possible one. Unfortunately, the more options you have and the more opportunity costs you incur, the more likely you are to experience regret.

I. In a classic demonstration of the power of sunk costs, people were offered season subscriptions to a local theatre company. Some were offered the tickets at full price and others at a discount. Then the researchers simply kept track of how often the ticket purchasers actually attended the plays over the course of the season. Full-price payers were more likely to show up at performances than discount payers. The reason for this, the investigators argued, was that the full-price payers would experience more regret if they did not use the tickets because not using the more costly tickets would constitute a bigger loss. To increase sense of happiness, we can decide to restrict our options when the decision is not crucial. For example, make a rule to visit no more than two stores when shopping for clothing.

Questions 1-4

Look at the following descriptions or deeds (Questions 1-4) and the list of categories below. Match each description or deed with the correct category, A-D.

A. "maximisers
B. "satisficers"
C. neither "maximisers" nor "satisficers"
D. both "maximisers" and "satisficers"

1. rated to the Maximisation Scale of making choice
2. don't take much time before making a decision
3. are likely to regret about the choice in the future
4. choose the highest price in the range of purchase

Questions 5-8

Do the following statements agree with the information given in Reading Passage 1? In boxes 5-8 on you answer sheet, write

TRUE if the statement agrees with the information
FALSE if the statement contradicts with the information
NOT GIVEN if there is no information on this

5. In today's world, since the society is becoming wealthier, people are happier
6. In society, there are more maximisers than satisficers.
7. People tend to react more to losses than gains.
8. Females and males acted differently in the study of choice making

Questions 9-13

Choose the correct letter. A, B, C or D. Write the correct letter in boxes 9-13 on your answer sheet

9. The Maximisation Scale is aimed to
   A know the happiness when they have more choices.
   B measure how people are likely to feel after making choices.
   C help people make better choices.
   D reduce the time of purchasing,
10. According to the text, what is the result of more choices?
   A People can make choices more easily.
   B Maximisers are happier to make choices.
   C Satisficers are quicker to make wise choices.
   D People have more tendency to experience regret.
11. The example of theatre ticket is to suggest that
   A they prefer to use more money when buying tickets.
   B they don't like to spend more money on theatre.
   C higher-priced things would induce more regret if not used properly.
   D full-price payers are real theatre lovers.
12. How to increase the happiness when making a better choice?
   A use less time
   B make more comparisons
   C buy more expensive products
   D limit the number of choices in certain situations
13 What is the best title for Reading Passage 1?
   A Reasoning of Worse Choice Making
   B Making Choices in Today's World
   C The Influence of More Choices
   D Complexity in Choice Making

PASSAGE 2

Implication of False Belief Experiments

Distinguishing between imagination and Reality

A A considerable amount of research since the mid-1980s has been concerned with what has been termed children's theory of mind. This involves children's ability to understand that people can have different beliefs and representations of the world—a capacity that is shown by four years of age. Furthermore, this ability appears to be absent in children with autism. The ability to work out what another person is thinking is clearly an important aspect of both cognitive and social development. Furthermore, one important explanation for autism is that children suffering from this condition do not have a theory of mind (TOM). Consequently, the development of children's TOM has attracted considerable attention.

B Wimmer and Perner devised a "false belief task" to address this question. They used some toys to act out the following story. Maxi left some chocolate in a blue cupboard before he went out. When he was away his mother moved the chocolate to a green cupboard. Children were asked to predict where Maxi will look for his chocolate when he returns Most children under four years gave the incorrect answer, that Maxi will look in the green cupboard. Those over four years tended to give the correct answer, that Maxi will look in the blue cupboard. The incorrect answers indicated that the younger children did not understand that Maxi's beliefs and representations no longer matched the actual state of the world, and they failed to appreciate that Maxi will act on the basis of his

beliefs rather than the way that the world is actually organised.

C A simpler version of the Maxi task was devised by Baron-Cohen to take account of criticisms that younger children may have been affected by the complexity and too much information of the story in the task described above. For example, the child is shown two dolls, Sally and Anne, who have a basket and box, respectively. Sally also has a marble, which she places in her basket, and then leaves to take a walk. While she is out of room. Anne takes the marble from the basket, eventually putting it in the box. Sally returns, and the child is then asked where Sally will look for the marble. The child passes the task if she answers that Sally will look in the basket, where she put the marble; the child fails the task if she answers that Sally will look in the box, where the child knows the marble is hidden even though Sally cannot know; since she did not see it hidden there. In order to pass the task, the child must be able to understand that another's mental representation of the situation is different from her own, and the child must be able to predict behaviour based on that understanding. The results of research using false-belief tasks have been fairly consistent: most normally-developing children are unable to pass the tasks until around age four.

D Leslie argues that, before 18 months, children treat the world in a literal way and rarely demonstrate pretence. He also argues that it is necessary for the cognitive system to distinguish between what is pretend and what is real. If children were not able to do this, they would not be able to distinguish between imagination and what is real. Leslie suggests that this pretend play becomes possible because of the presence of a de-coupler that copies primary representations to secondary representations. For example, children, when pretending a banana is a telephone, would make a secondary representation of a banana. They would manipulate this representation and they would use their stored knowledge of "telephone" to build on this pretence.

E There is also evidence that social processes play a part in the development of TOM. Meins and her colleagues have found that what they term mind-mindedness in maternal speech to six-month-old infants is related to both security of attachment and to TOM abilities. Mind-mindedness involves speech that discusses infants' feelings and explains their behaviour in terms of mental states (e.g. "you're feeling hungry").

F Lewis investigated older children living in extended families in Crete and Cyprus. They found that children who socially interact with more adults, who have more friends, and who have more older siblings tend to pass TOM tasks at a slightly earlier age than other children. Furthermore, because young children are more likely to talk about their thoughts and feelings with peers than with their mothers, peer interaction may provide a special impetus to the development of a TOM. A similar point has been made by Dunn, who argues that peer interaction is more likely to contain pretend play and that it is likely to be more challenging because other children, unlike adults, do not make large adaptations to the communicative needs of other children.

G In addition, there has been concern that some aspects of the TOM approach underestimate children's understanding of other people. After all, infants will point to objects apparently in an effort to change a person's direction of gaze and interest; they can interact quite effectively with other people; they will express their ideas in opposition to the wishes of others; and they will show empathy for the feelings of others. All these suggest that they have some level of understanding that their own thoughts are different from those in another person's mind. Evidence to support this position comes from a variety of sources. When a card with a different picture on each side is shown to a child and an adult sitting opposite her, the three-year-old understands that she see a different picture to that seen by the adult.

H Schatz studied the spontaneous speech of three-year-olds and found that these children used mental terms, and used them in circumstances where there was a contrast between, for example, not being sure where an object was located and finding it or between pretending and reality. Thus the social abilities of children indicate that they are aware of the difference between mental states and external reality at ages younger than four.

I A different explanation has been put forward by Harris. He proposed that children use "simulation".

This involves putting yourself in the other person's position, and then trying to predict what the other person would do. Thus success on false belief tasks can be explained by children trying to imagine what they would do if they were a character in the stories, rather than children being able to appreciate the beliefs of other people. Such thinking about situations that do not exist involves what is termed counterfactual reasoning.

Questions 14-20

Look at the following statements (Questions 14-20) and the list of researchers below. Match each statement with the correct researcher, A-G. Write the correct letter, A-G, in boxes 14-20

14. gave an alternative explanation that children may not be understanding other's belief
15. found that children under certain age can tell difference between reality and mentality
16. conducted a well-known experiment and drew conclusion that young children were unable to comprehend the real state of the world
17. found that children who get along with adults often comparatively got through the test more easily
18. revised an easier experiment to rule out the possibility that children might be influenced by sophisticated reasoning
19. related social factor such as mother-child communication to capability act in TOM
20. explained children are less likely to tell something interactive to their mother than to their friends

List of Researchers

A Baron-Cohen
B Meins
C Wimmer and Perner
D Lewis
E Dunn
F Schatz
G Harris

Questions 21-26

Complete the summary below. Choose ONE WORD ONLY from the passage for each answer. Write your answers in boxes 21-26 on your answer sheet.

In 1980s, research studies were designed to test the subject called Theory of Mind that if children have the ability to represent the reality. First experiments were carried out on this subject on a boy. And questions had been made on where the boy can find the location of the 21_____. But it was accused that it had excessive 22_____. So second modified experiment was conducted involving two dolls, and most children passed the test at the age of 23 _____. Then Lewis and Dunn researched 24_____ children in a certain place, and found children who have more interaction such as more conversation with 25_____ actually have better performance in the test, and peer interaction is 26_____ because of consisting pretending elements.

READING PASSAGE 3

Semantics

—Why do we respond to words and symbols in the ways we do?

The end product of education, yours and mine and everybody's, is the total pattern of reactions and possible reactions we have inside ourselves. If you did not have within you at this moment the pattern of reactions that we call "the ability to read," you would see here only meaningless black marks on paper. Because of the trained patterns of response, you are (or are not) stirred to patriotism by martial music, your feelings of reverence are aroused by symbols of your religion, you listen more respectfully to the health advice of someone who has "MD" after his name than to that of someone who hasn't. What I call here a "pattern of reactions", then, is the sum total of the ways we act in response to events, to words, and to symbols.

Our reaction patterns or our semantic habits, are the internal and most important residue of whatever years of education or miseducation we may have received from our parents' conduct toward us in childhood as well as their teachings, from the formal education we may have had, from all the lectures we have listened to, from the radio programs and the movies and television shows we have experienced, from all the books and newspapers and comic strips we have read, from the conversations we have had with friends and associates, and from all our experiences. If, as the result of all these influences that make us what we are, our semantic habits are reasonably similar to those of most people around us, we are regarded as "normal." or perhaps "dull". If our semantic habits are noticeably different from those of others, we are regarded as "individualistic" or "original," or, if the differences are disapproved of or viewed with alarm, as "crazy."

Semantics is sometimes defined in dictionaries as "the science of the meaning of words"— which would not be a bad definition if people didn't assume that the search for the meanings of words begins and ends with looking them up in a dictionary. If one stops to think for a moment, it is clear that to define a word, as a dictionary does, is simply to explain the word with more words. To be thorough about defining, we should next have to define the words used in the definition, then define the words used in defining the words used in the definition and so on. Defining words with more words, in short, gets us at once into what mathematicians call an "infinite regress". Alternatively, it can get us into the kind of run-around we sometimes encounter when we look up "impertinence" and find it defined as "impudence" so we look up "impudence" and find it defined as "impertinence." Yet— and here we come to another common reaction pattern—people often act as if words can be explained fully with more words. To a person who asked for a definition of jazz, Louis Armstrong is said to have replied, "Man, when you got to ask what it is, you'll never get to know," proving himself to be an intuitive semanticist as well as a great trumpet player.

Semantics, then, does not deal with the "meaning of words" as that expression is commonly understood. P. W. Bridgman, the Nobel Prize winner and physicist, once wrote, "The true meaning of a term is to be found by observing what a man does with it, not by what he says about it." He made an enormous contribution to science by showing that the meaning of a scientific term lies in the operations, the things done, that establish its validity, rather than in verbal definitions.

Here is a simple, everyday kind of example of "operational" definition. If you say, "This table measures six feet in length," you could prove it by taking a foot rule, performing the operation of laying it end to end while counting, "One...two...three...four...". But if you say—and revolutionists have started uprisings with just this statement "Man is bom free, but everywhere he is in chains!"— what operations could you perform to demonstrate its accuracy or inaccuracy?

But let us carry this suggestion of "operationalism" outside the physical sciences where Bridgman applied it, and observe what "operations" people perform as the result of both the language they use and the language other people use in communicating to them. Here is a personnel manager studying an application blank. He comes to the words "Education: Harvard University" and drops the application blank in the wastebasket (that's the "operation") because, as he would say if you asked him, "I don't like Harvard men." This is an instance of "meaning" at work—but it is not a meaning that can be found in dictionaries.

If I seem to be taking a long time to explain what semantics is about, it is because I am trying, in the course of explanation, to introduce the reader to a certain way of looking at human behavior. I say human responses because, so far as we know, human beings are the only creatures that have, over and above that biological equipment which we have in common with other creatures, the additional capacity for manufacturing symbols and systems of symbols. When we react to a flag, we are not reacting simply to a piece of cloth, but to the meaning with which it has been symbolically endowed. When we react to a word, we are not reacting to a set of sounds, but to the meaning with which that set of sounds has been symbolically endowed.

A basic idea in general semantics, therefore, is that the meaning of words (or other symbols) is not in the words, but in our own semantic reactions. If I were to tell a shockingly obscene story in Arabic or Hindustani or Swahili before an audience that understood only English, no one would blush or be angry; the story would be neither shocking nor obscene-indeed, it would not even be a story. Likewise, the value of a dollar bill is not in the bill, but in our social agreement to accept it as a symbol of value. If that agreement were to break down through the collapse of our government, the dollar bill would become only a scrap of paper. We do not understand a dollar bill by staring at it long and hard. We understand it by observing how people act with respect to it. We understand it by understanding the social mechanisms and the loyalties that keep it meaningful. Semantics is therefore a social study, basic to all other social studies.

Questions 27-31

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

27. What point is made in the first paragraph?
    - A The aim of education is to teach people to read.
    - B Everybody has a different pattern of reactions.
    - C Print only carries meaning to those who have received appropriate ways to respond.
    - D The writers should make sure their works satisfy a variety of readers.

28 According to the second paragraph, people are judged by
    - A the level of education.
    - B the variety of experience.
    - C how conventional their responses are.
    - D complex situations.

29. What point is made in the third paragraph?
    - A Standard ways are incapable of defining words precisely.
    - B A dictionary is most scientific in defining words.
    - C A dictionary should define words in as few words as possible.
    - D Mathematicians could define words accurately.

30. What does the writer suggest by referring to Louis Armstrong?
    - A He is an expert of language.
    - B Music and language are similar.
    - C He provides insights to how words are defined.
    - D Playing trumpet is easier than defining words.

31. What does the writer intend to show about the example of "personnel manager"?
    A Harvard men are not necessarily competitive in the job market.
    B Meaning cannot always be shared by others.
    C The idea of operationalism does not make much sense outside the physical science.
    D Job applicants should take care when filling out application forms.

Questions 32-35

Do the following statements agree with the information given in Reading Passage 3? *Write*
TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts with the information*
NOT GIVEN *if there is no information on this*

32. Some statements are incapable of being proved or disproved.
33. Meaning that is personal to individuals is less worthy to study than shared meanings.
34. Flags and words are eliciting responses of the same reason.
35. A story can be entertaining without being understood.

Questions 36-40

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

36. A comic strip
37. A dictionary
38. Bridgman
39. A story in a language the audience cannot understand
40. A dollar bill

A. is meaningless
B. has lasting effects on human behaviours.
C. is a symbol that has lost its meaning.
D. can be understood only in its social context.
E. can provide inadequate explanation of meaning.
F. reflects the variability of human behaviours.
G. emphasises the importance of analysing how words were used.
H. suggests that certain types of behaviours carry more meanings than others.

READING 20 ANSWERS

1. D
2. B
3. A
4. C
5. FALSE
6. NOT GIVEN
7. TRUE
8. NOT GIVEN
9. B
10. D
11. C
12. D
13. C
14. G
15. F
16. C ?
17. D
18. A
19. B
20. E
21. CHOCOLATE
22. INFORMATION
23. FOUR
24. OLDER
25. ADULTS
26. CHALLENGING
27. C
28. C
29. A
30. C
31. B
32. TRUE
33. NOT GIVEN
34. TRUE
35. FALSE
36. B
37. E
38. G
39. D
40. C